

DIGITAL ASSET INNOVATIONS AND REGULATORY FRAGMENTATION: THE  
SEC VERSUS THE CFTC

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*Abstract*

In 2022, the White House released a regulatory framework calling for a whole-of-government approach to digital asset innovations. Although justified and necessary, this systems-based strategy discounts the reality that U.S. financial regulation is fundamentally fragmented. There are signs of a turf war between the major digital asset regulators (the SEC and the CFTC). Both agencies claim jurisdiction over overlapping classes of digital assets, and several congressional bills recently proposed to radically redistribute this jurisdiction.

Policy reforms under the conditions of regulatory fragmentation need empirical data comparing the effect of actions of the regulators involved. Empirical literature on digital asset innovations, however, has not paid sufficient attention to the impact of the U.S.-specific factors such as regulatory fragmentation. Nor has it explored the importance of U.S.

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regulators to global digital asset markets. We aim to fill this gap, contribute to scholarship on financial innovation, and equip policymakers with necessary empirical data.

Our empirical study compares how the SEC and the CFTC regulate crypto primarily via enforcement and how the global digital asset market reacts to the agencies. The market distinguishes between the Commissions and reacts particularly negatively to SEC enforcement. It is erroneous to assume, however, that this is because crypto markets reject formal law or strong enforcement. Digital asset prices exhibit a more positive reaction to U.S.-led antifraud efforts, indicating that investors understand the value of market integrity. The unfavorable reaction to regulation may be explained by *who* enforces substantive law (the CFTC or the SEC). We provide theoretical explanations and underscore that, while U.S.-led enforcement is generally viewed as costly, some types of regulation may have the potential to improve market quality with positive valuation implications. We hope that our analysis will provide new information to scholars and policymakers in evaluating the merits of financial reforms, addressing the current fragmentation in financial regulation, resolving turf wars, and advancing the efforts to promote a “whole-of-government” approach to digital asset innovation.

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## A. INTRODUCTION

In 2022, the White House and the Financial Stability Oversight Council (an assembly of regulators created to identify vulnerabilities in the U.S. financial system) proposed major initiatives designed to trigger a tectonic shift in our approaches to financial innovations such as digital assets.<sup>1</sup> The proposals uniformly emphasize the need for collaborative and systems-based regulation of these technological innovations.

In theory, given the nature of digital asset technology that can be applied across financial markets and industries, adopting whole-of-government policies appears justified.<sup>2</sup> However, comprehensive initiatives may collide with the primal fragmentation of U.S. financial law.<sup>3</sup> This collision may undermine attempts at designing more holistic reforms, which are achievable in other countries.<sup>4</sup>

The realities of fragmentation are evident in the increasing competition between the major federal regulators claiming jurisdiction over digital asset markets: the Securities and Exchange Commission (“SEC”) and the Commodity Futures Trading Commission (“CFTC”) (also “Commissions”). These are the

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<sup>1</sup> The White House, *Fact Sheet: White House Releases First-Ever Comprehensive Framework for Responsible Development of Digital Assets* (Sept. 16, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/16/fact-sheet-white-house-releases-first-ever-comprehensive-framework-for-responsible-development-of-digital-assets/> [hereinafter White House Framework]; The White House, *Fact Sheet: President Biden to Sign Executive Order on Ensuring Responsible Development of Digital Assets* (Mar. 9, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/03/09/fact-sheet-president-biden-to-sign-executive-order-on-ensuring-responsible-innovation-in-digital-assets/> [hereinafter White House Order]; REPORT ON DIGITAL ASSET FINANCIAL STABILITY RISKS AND REGULATION, FINANCIAL STABILITY OVERSIGHT COUNCIL (2022), <https://home.treasury.gov/system/files/261/FSOC-Digital-Assets-Report-2022.pdf> [hereinafter FSOC 2022].

<sup>2</sup> *Infra* Part B.

<sup>3</sup> *Infra* Section B(2).

<sup>4</sup> See, e.g., *Communication from the Commission to the European Parliament, the Council, and the Committee of the Regions, on a Digital Finance Strategy for the EU*, COM (2020) 591 final (Sept. 24, 2020); *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Shaping Europe’s Digital Future*, COM (2020) 67 final (Feb. 19, 2020); United Kingdom HM Treasury, *Government sets out plan to make UK a global cryptoasset technology hub*, NEWS STORY, Apr. 4, 2022, <https://www.gov.uk/government/news/government-sets-out-plan-to-make-uk-a-global-cryptoasset-technology-hub>; UNITED KINGDOM HT TREASURY, KALIFA FINTECH REVIEW, FINAL REPORT (Feb. 26, 2021), <https://www.gov.uk/government/publications/the-kalifa-review-of-uk-fintech>.

This approach follows the systems theory of law. For an overview and applications of the theory, see Lynn M. LoPucki, *The Systems Approach to Law*, 82 CORNELL L. REV. 479, 481 (1997).

watchdogs of American commodity, derivatives, and securities markets.<sup>5</sup> Both agencies claim jurisdiction over overlapping classes of digital assets, and several congressional bills recently proposed to radically redistribute this jurisdiction.

For example, one day before the release of the White House’s Framework that proposed a “whole-of-government” approach to digital assets, the Chairs of the Commissions testified before the two Senate Committees that oversee these *similar* but *separate* independent agencies. The CFTC Chair stated that “the CFTC’s expertise and experience make it the right regulator for the digital asset commodity market,”<sup>6</sup> while the SEC Chair testified that U.S. securities law is a “gold standard that has made our capital markets the most liquid and innovative in the world” and that digital asset issuers and investors should benefit from this gold standard.<sup>7</sup> The line between digital commodities and digital asset securities, however, is blurred.<sup>8</sup> Not surprisingly, the Chairs diverge on how digital asset markets should be regulated and on recently proposed reforms concerning the Commissions’ respective jurisdictions in this area.<sup>9</sup>

At least two bipartisan bills and one bill from a Republican senator were proposed in the summer and fall of 2022. All three envision a major overhaul of digital asset regulation with the emphasis on securities, derivatives, and commodity markets, and all three seek to assign more responsibility to the CFTC as the main regulator of “digital commodities” or to provide safe harbors from SEC enforcement.<sup>10</sup>

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<sup>5</sup> *Infra* Part C.

<sup>6</sup> Chairman Rostin Behnam, *Testimony Regarding the Legislative Hearing to Review S.4760, the Digital Commodities Consumer Protection Act at the U.S. Senate Committee on Agriculture, Nutrition, and Forestry*, U.S. Comm. Fut. Trading Comm’n (Sept.15, 2022), <https://www.cftc.gov/PressRoom/SpeechesTestimony/opabehtnam26>

<sup>7</sup> Chair Gary Gensler, *Testimony Before the United States Senate Committee on Banking, Housing, and Urban Affairs*, U.S. Sec. & Exch. Comm’n (Sept. 15, 2022), <https://www.sec.gov/news/testimony/gensler-testimony-housing-urban-affairs-091522>

<sup>8</sup> *Infra* Parts C & G(3).

<sup>9</sup> Compare Jesse Hamilton, *CFTC Chief Heaps Praise on Bill That Boosts Agency’s Crypto Reach*, CoinDesk (Jun. 8, 2022), <https://www.coindesk.com/policy/2022/06/08/cftc-chief-heaps-praise-on-bill-that-boosts-agencys-crypto-reach/>; Nikhilesh De & CoinDesk, *The crypto regulation bill could ‘undermine’ market protections, SEC Chief Gary Gensler says*, Fortune (Jun. 14, 2022), <https://fortune.com/2022/06/14/crypto-regulation-bill-gary-gensler-sec-cftc-lummis-gillibrand/>

<sup>10</sup> See, e.g., Elise Hansen, *Senate Bill Would Put Crypto Spot Markets Under CFTC*, LAW360 (Aug. 3, 2022); Joel Seligman, *The Lummis-Gillibrand Responsible Financial Innovation Act*, Columbia Law School Blue Sky Blog, Jun. 27, 2022, <https://clsbluesky.law.columbia.edu/2022/06/27/the-lummis-gillibrand-responsible-financial-innovation-act/>; Arijit Sarkar, *US senator bill seeks to cushion crypto exchanges from SEC enforcement actions*, COINTELEGRAPH (Oct. 1, 2022),

These developments have stirred up policy debates and provoked an uproar from scholars. Some suggest that the CFTC does not have the expertise and resources to oversee digital asset markets,<sup>11</sup> while others challenge the appropriateness of the current strategy of the SEC and ask for more clarity and reform.<sup>12</sup> In short, regulatory fragmentation is on display again.

In this paper, we aim to contribute to the scholarship on financial innovation and assist policymakers operating in a fragmented legal regime. To be successful, policy reforms under the conditions of regulatory fragmentation need empirical data comparing the effect of actions of the regulators involved. We compare how the Commissions regulate digital asset markets and how the markets react to the agencies.

This information should provide important feedback to reformers. For one, the reaction of market participants is a policy signal that fits within the public interest model and the civic republican theory.<sup>13</sup> If a regulatory activity is to be conducted “in the interest of economic productivity,” while using the processes of deliberation “oriented to the public good,”<sup>14</sup> reactions of thousands of market participants become an important variable.

Moreover, empirical analyses provide objective metrics to policymakers and help alleviate the realpolitik of regulatory fragmentation, enabling the Congress and the Administration to gauge the reaction of the regulated not through the eyes of competing agencies or industry lobbyists, but from the perspective of a global market representing thousands of participants. Any policy improvements of resulting reforms would inure to the benefit of not only the U.S. but also

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<https://cointelegraph.com/news/us-senator-bill-seeks-to-cushion-crypto-exchanges-from-sec-enforcement-actions>.

<sup>11</sup> See, e.g., Letter from Hilary J. Allen, Mark Hays & Lee Reiners, to U.S. Senate Committee on Agriculture, Nutrition, and Forestry Re: S. 4760/ H.R. 8730, the Digital Commodities Consumer Protection Act of 2022, (Sept. 12, 2022).

<sup>12</sup> Petition from J.W. Verret, to U.S. Sec. & Exch. Comm’n, Re: Public Request for Rulemaking: Securities Regulation Genesis Block Proposal (Jan. 19, 2022), <https://www.sec.gov/rules/petitions/2022/petn4-782.pdf>; *supra* note 202 and accompanying text.

<sup>13</sup> The public interest model suggests that policymakers should act in the interests of the public. The civic republican theory assumes that regulatory priorities and policies should proceed through “a process of dialogue and deliberation among all interested parties.” Steven P. Croley, *Theories of Regulation, Incorporation the Administrative Process*, 98 COL. L. REV. 1, 77 (1998). See also *id.* at 5 (reviewing theories).

<sup>14</sup> CASS R. SUNSTEIN, *AFTER THE RIGHTS REVOLUTION: RECONCEIVING THE REGULATORY STATE* 12 (1990).

international markets due to the pivotal role played by U.S. regulators in the global world of finance.<sup>15</sup>

We also aim to fill a gap in the literature on digital assets. To date, this scholarship has not paid sufficient attention to the interaction of the U.S.-specific factors such as regulatory fragmentation and the centrality of U.S. regulators in global markets. Previous empirical research on digital assets has not explored these issues, resulting in a deep interstice in our understanding of regulatory approaches.<sup>16</sup>

We zero in on the primary regulatory mode of the Commissions in digital asset markets. Note that from now on we will use the terms “digital assets,” “cryptoassets,” and “crypto.”<sup>17</sup> Although there are distinctions between cryptoassets and digital assets, different agencies seem to use these terms interchangeably.<sup>18</sup> There is also no uniformity in digital asset taxonomy.<sup>19</sup>

Both Commissions approach digital innovations mainly through enforcement of existing securities, commodities, and derivatives laws. To assess this distinct regulatory approach, we hand-collect 116 enforcement events from April 2017 through November 2021 and examine market reaction to enforcement.<sup>20</sup>

Our cross-sectional analyses and event study indicate that the global crypto market (to a surprising degree) is attuned and susceptible to enforcement actions initiated by the Commissions. In addition, market participants react differently to actions brought by the CFTC compared with enforcement initiated by the SEC. Whereas cryptoasset prices exhibit a somewhat negative reaction to enforcement, SEC actions are associated with a strong adverse reaction. Crypto markets detect differences in enforcement paradigms between the agencies within the balkanized network of U.S. financial regulators. SEC regulation is perceived as a particularly negative event, suggesting that CFTC regulation may be more suitable for crypto.

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<sup>15</sup> *Infra* Section B(4).

<sup>16</sup> *Infra* Part D.

<sup>17</sup> “Cryptoassets are cryptographically secured digital representations of value that can be transferred, stored or traded electronically. They use some form of distributed ledger technology such as blockchain.” New Zealand Inland Revenue, *What Cryptoassets Are* (Jul. 2021), <https://www.ird.govt.nz/cryptoassets/what-cryptoassets-are>. By “crypto,” we mean “cryptoassets” and the infrastructure for their issuance, transfer, trading, and redemption. We provide specific classifications and definitions of cryptoassets in *infra* Part E. We refer to the market for cryptoassets, its ecosystem, infrastructure, and its participants as “crypto market” or “cryptoasset market.”

<sup>18</sup> *Cf.* White House Framework, *supra* note 1, with FSOC 2022, *supra* note 1.

<sup>19</sup> *Infra* Part E.

<sup>20</sup> *Infra* Parts E&F.

From the start, we would like to address one crucial counterargument head-on. Some commentators suggest that crypto markets are partially driven by money laundering and crime and that the crypto community considers law contrary to their libertarian ethos.<sup>21</sup> Our results, however, indicate that while markets perceive enforcement as an adverse event, they do not view antifraud actions in a similarly negative light. This indicates that many crypto-market participants understand that fraud undermines market integrity. While crypto investors treat regulation (mainly, enforcement of pre-crypto U.S. securities statutes) as an unfavorable and costly event, these costs of regulation (in some cases) are offset by the benefits of improved market quality and integrity.

The unfavorable reaction to regulation may thus be explained by *who* enforces substantive law (the CFTC or the SEC). We provide possible theoretical explanations to these differences. Ultimately, we hope that this study will not only contribute to the scholarship on innovation but also assist Congress and other policymakers in forming a more comprehensive view on crypto regulation and designing more efficient reforms.

The paper proceeds as follows. Part B discusses financial innovation and regulatory fragmentation. It also explains the importance of the Commissions and their enforcement in the global world of crypto. Part C summarizes the Commissions' jurisdiction and outlines relevant statements and crypto-related actions. Part D discusses our contribution to the financial and economic literature on crypto regulation. Part E provides cryptoasset taxonomies and covers our sample data. Part F presents our empirical results, and Part G provides theoretical interpretations, with an emphasis on substantive law and enforcement methods. Part H returns to the issue of regulatory balkanization and discusses the value of market feedback in regulatory reform. Part I concludes the article.

## B. INNOVATION AND THE INTERNATIONAL ROLE OF THE COMMISSIONS

### 1. The Risks and Benefits of Crypto

In September 2022, the White House released the first-ever Comprehensive Framework for Responsible Development of Digital Assets.<sup>22</sup> In the Framework, the Administration describes the considerable economic potential of digital assets<sup>23</sup>

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<sup>21</sup> For relevant arguments, see Kristin N. Johnson, *Decentralized Finance: Regulating Cryptocurrency Exchanges*, 62 WM. & MARY L. REV. 1911, 1951, 1980 (2021).

<sup>22</sup> White House Framework, *supra* note 1.

<sup>23</sup> “Any asset that is purely digital, or is a digital representation of a physical asset.” Dylan Yaga et al., *Blockchain Technology Overview* 51, NISTIR 8202, National Institute of Standards and Technology (2018), <https://doi.org/10.6028/NIST.IR.8202>.

based on distributed ledger technology<sup>24</sup> and cryptography.<sup>25</sup> At the same time, the Framework also underscores several risks, such as the risk of fraud, volatility, and systemic risk, accompanying these innovations. It is against this risk-reward calculus that the White House urges various U.S. regulators to develop new “whole-of-government”<sup>26</sup> approaches to digital assets, to mitigate their risks, and to reinforce the “global financial leadership and competitiveness” of the United States.<sup>27</sup>

Cryptoassets are crucial innovations that for years piqued the curiosity of tech enthusiasts, investors, consumers,<sup>28</sup> and financial institutions<sup>29</sup> around the world.<sup>30</sup> Data reveal that as many as 16% of adult Americans have purchased cryptoassets.<sup>31</sup> Crypto-firms have become trailblazers in financial markets. Even when conventional financial institutions argue against these “disruptors,” they may follow their lead. For example, the Chicago Mercantile Exchange Group criticized a crypto-exchange for cutting out the middlemen (namely, the gatekeepers such as

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<sup>24</sup> *Id.* (“Blockchains are distributed digital ledgers of cryptographically signed transactions that are grouped into blocks. Each block is cryptographically linked to the previous one (making it tamper evident) after validation and undergoing a consensus decision. As new blocks are added, older blocks become more difficult to modify (creating tamper resistance). New blocks are replicated across copies of the ledger within the network, and any conflicts are resolved automatically using established rules.”).

<sup>25</sup> “Cryptography is the use of coding to secure computer networks, online systems, and digital data. It is a concept whose endgame is to keep vital information that is subject to potential data breaches safe and confidential.” *What is Cryptography*, Tulane University School of Professional Advancement, <https://sopa.tulane.edu/blog/what-is-cryptography>.

<sup>26</sup> The White House, *Fact Sheet: President Biden to Sign Executive Order on Ensuring Responsible Development of Digital Assets* (Mar. 9, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/03/09/fact-sheet-president-biden-to-sign-executive-order-on-ensuring-responsible-innovation-in-digital-assets/>.

<sup>27</sup> White House Framework, *supra* note *supra* note 1.

<sup>28</sup> See, e.g., Andrew Perrin, *16% of Americans Say They Have Ever Invested in, Traded or Used Cryptocurrency*, PEW RSCH. CTR. (Nov. 11, 2021), <https://www.pewresearch.org/fact-tank/2021/11/11/16-of-americans-say-they-have-ever-invested-in-traded-or-used-cryptocurrency/>.

<sup>29</sup> See, e.g., Tracy Wang, *Goldman Sachs Leading Investor Group to Buy Celsius Assets: Sources*, COINDESK (Jun. 24, 2022), <https://www.coindesk.com/business/2022/06/24/goldman-sachs-raising-funds-to-buy-celsius-assets-sources/>; Ian Allison, *JPMorgan on Its Crypto Plans: ‘The Overall Goal Is to Bring These Trillions of Dollars of Assets into DeFi’*, FORTUNE (Jun. 12, 2022), <https://fortune.com/2022/06/12/jpmorgan-on-its-crypto-plans-the-overall-goal-is-to-bring-these-trillions-of-dollars-of-assets-into-defi/>; George Kaloudis, *BlackRock Has Entered the Chat: Why the \$10 Trillion Asset Manager’s Arrival Would be a Big Deal for Crypto*, COINDESK (Feb. 22, 2022), <https://www.coindesk.com/markets/2022/02/20/blackrock-has-entered-the-chat/>.

<sup>30</sup> See COINMARKETCAP, <https://coinmarketcap.com/>; see also Elie I. Bouri, et al., *Co-explosivity in the Cryptocurrency Market*, 29 FIN. RSCH. LETTERS 178, 179 (2019) (discussing cryptoasset prices).

<sup>31</sup> White House Framework, *supra* note *supra* note 1.

brokerages) but took “steps in the same direction” a couple of months later.<sup>32</sup> Self-evidently, cryptoassets are an omnipresent matter on the agenda of regulators, particularly in financial markets.

Such popularity and regulatory attention stem from both risks and potential economic applications of crypto. To name a few benefits, crypto may provide better security than traditionally centralized financial systems, reduce the need to rely and expend resources on intermediaries in payments or capital markets, improve transaction speed, and decrease transaction costs.<sup>33</sup> Crypto also holds promise in the fight for economic justice and equality.

Let us consider a few examples. Imagine that Alice, a minority entrepreneur, has a solid business project. She would like to expand, but bank officers, who, as research shows, continue to exhibit implicit and explicit racial biases,<sup>34</sup> deny her a loan, even though Alice has a great business project. She is a developer of a Decentralized Application (“DApp”) that could revolutionize and improve tracking carbon offset credits on blockchain. The code underlying her project has been reviewed by independent auditors.<sup>35</sup> Yet, for the project to take off, she needs extra funds. What if she could receive a loan through peer-to-peer lending platforms that are enabled by technologies such as blockchain and crypto?<sup>36</sup> What if she could raise capital promptly and efficiently via selling some form of assets representing the right to participate in and govern this project to investors

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<sup>32</sup> Alexander Osipovich, *Futures Giant CME Considers Brokerage, Taking Cue From Crypto Rival FTX*, Wall St. J. (Sept. 30, 2022).

<sup>33</sup> See generally CAROL GOFORTH & YULIYA GUSEVA, REGULATION OF CRYPTOASSETS 1-5, 11-15 (West Academic 2022); PRIMAVERA DE FILIPPI & AARON WRIGHT, BLOCKCHAIN AND THE LAW: THE RULE OF CODE (Harvard University Press 2018). Crypto is also connected to “fintech,” i.e., “financial technology” that improves efficiencies in finance. See, e.g., William Magnuson, *Financial Regulation in the Bitcoin Era*, 23 STAN. J.L. BUS. & FIN. 159, 176 (2018). <https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/16/fact-sheet-white-house-releases-first-ever-comprehensive-framework-for-responsible-development-of-digital-assets/>

<sup>34</sup> See, e.g., Alexander W. Butler et al., *Racial Disparities in the Auto Loan Market*, THE REV. OF FIN. STUDIES (May 19, 2022), <https://doi.org/10.1093/rfs/hhac029>; Rachel Atkins et al., *Discrimination in Lending? Evidence from the Paycheck Protection Program*, 58 SMALL BUS. ECON. 843 (2022), <https://link.springer.com/article/10.1007/s11187-021-00533-1>.

<sup>35</sup> For a discussion of audits, see, e.g., Yuliya Guseva, *When the Means Undermine the Ends: The Leviathan of Securities Law and Enforcement in Digital-Asset Markets*, 5 THE STANFORD JOURNAL OF BLOCKCHAIN LAW AND POLICY 1 (2022).

<sup>36</sup> Although regulatory challenges remain, technology may improve access to finance. Helen Bollaert et al., *Fintech and Access to Finance*, 68 J. OF CORP. FIN. (2021), <https://doi.org/10.1016/j.jcorpfin.2021.101941>.

and market participants who care about the environment and corporate transparency?<sup>37</sup>

Now imagine that the world of conventional finance has not been kind to Bob. Bob is one of the 31 million Americans who do not have proper access to the traditional banking system.<sup>38</sup> What if he could use an app on his phone to safely receive and transfer cryptoassets, pay his bills, or receive government payments such as COVID relief funds in “stablecoins” (*i.e.*, digital assets that purport to maintain stable value and are often pegged to and/or collateralized by fiat currencies)?

Let us also meet John whose relatives reside in an impoverished country. If they wanted to help their relatives by transferring funds via the conventional bank system, the process would be both expensive and time-consuming.<sup>39</sup> What if they could transfer funds within seconds with almost no transaction fees by using cryptoassets? Imagine these social and economic possibilities! A proper regulatory framework of crypto could unlock these new avenues to improved economic activity and equality.

Crypto and blockchain are also valuable to enforcement agencies. Our Alice, Bob, and John could work as FBI investigators hunting down criminals who transfer funds from one cryptocurrency “wallet”<sup>40</sup> to another across borders. They could trace the criminals’ funds back to an original source because transactions on public blockchains are openly accessible and immutable. The investigators (or any other person for that matter) could use what is called an “explorer” (this is a search engine of sorts)<sup>41</sup> to find information about the “state” (the term “state” is similar to the contents of a ledger at any given time) and trace payments. For instance, “by reviewing the Bitcoin public ledger, law enforcement was able to track multiple

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<sup>37</sup> For an overview of research on these offerings, *see, e.g.*, Moran Ofir & Ido Sadeh, *ICO vs IPO: Empirical Findings, Information Asymmetry and the Appropriate Regulatory Framework*, 53 *VAND. J. TRANSNAT’L L.* 525 (2020).

<sup>38</sup> White House Framework, *supra* note 1.

<sup>39</sup> *See* REGULATION, SUPERVISION AND OVERSIGHT OF “GLOBAL STABLECOIN” ARRANGEMENTS, FINAL REPORT AND HIGH-LEVEL RECOMMENDATIONS, FINANCIAL STABILITY BOARD, at 7 (2020), <https://www.fsb.org/wp-content/uploads/P131020-3.pdf>.

<sup>40</sup> “A crypto wallet is a tool that allows users to interact with blockchain networks. They are necessary when sending and receiving Bitcoin and other digital currencies. Crypto wallets can also be used to generate new blockchain addresses. Unlike the traditional wallets we use in our everyday life, cryptocurrency wallets don’t really store your funds. In fact, your coins (or tokens) are simply part of a blockchain system as pieces of data, and the wallets serve as a means to access them.” Binance Academy, *Glossary*, <https://academy.binance.com/en/glossary/wallet>

<sup>41</sup> *See, e.g.*, <https://www.blockchain.com/explorer>.

transfers of bitcoin” associated with the ransomware attack that targeted Colonial Pipeline in 2021.<sup>42</sup>

Note, however that, while offering considerable benefits, crypto technologies are inherently Schumpeterian and disruptive to existing financial industries and to regulation.<sup>43</sup> They spawn new risk nodes, including irrational behavior, excessive volatility, systemic risk, investor and consumer protection concerns, and fraud.<sup>44</sup> As the technology continues to evolve at lightning speed, it creates new regulatory challenges and more uncertainty. Policymakers must catch up with the industry, while simultaneously promoting socially beneficial innovation, controlling for the risks of crypto, and designing better regulatory approaches to ensure future innovation.<sup>45</sup>

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<sup>42</sup> U.S. Dept. of Justice, Department of Justice Seizes \$2.3 Million in Cryptocurrency Paid to the Ransomware Extortionists Darkside, Press Release (Jun. 7, 2021), <https://www.justice.gov/opa/pr/departments-justice-seizes-23-million-cryptocurrency-paid-ransomware-extortionists-darkside>

<sup>43</sup> Technologies such as blockchain may disrupt national conventional regulatory approaches. Georgios Dimitropoulos, *The Law of Blockchain*, 95 WASH. L. REV. 1117, 1119 (2020) (“Blockchain has one feature that makes it even more distinctive than any other disruptive innovation: it is by nature and design a global, transnational technology. It was developed explicitly to circumvent national borders and established institutions.”). Technology may reduce “many of the inefficiencies present in traditional financial markets. By eliminating costly intermediaries and reducing transaction costs, fintech allows financial participants to engage in a greater variety of transactions with fewer delays.” Magnuson, *supra* note 33, at 176. These innovative products may be at odds with the traditional financial system. *See, e.g.*, Dan Awrey, *Bad Money*, 106 CORNELL L. REV. 1 (2020).

<sup>44</sup> *See* FSOC 2022, *supra* note 1. Investor protection and new opportunities for fraud have been discussed in the literature. *See, e.g.*, Shaanan Cohnen, et al., *Coin-Operated Capitalism*, 119 COL. L. REV. 591 (2019); Dirk A. Zetzsche, et al., *The ICO Gold Rush: It's a Scam, It's a Bubble, It's a Super Challenge for Regulators*, 60 HARV. INT'L L.J. 267 (2019). Moreover, innovations may aggravate systemic risk concerns. Saule T. Omarova, *New Tech v. New Deal: Fintech as a Systemic Phenomenon*, 36 YALE J. ON REG. 735, 749 (2019); Magnuson, *supra* note 33, at 177 (“Automation also may reduce allocative efficiency by increasing herd behavior. This may occur in several different ways, but perhaps the simplest involves computer programs sharing certain programming templates.”).

<sup>45</sup> Many regulators, including Secretary Yellen, have expressed these concerns. *See, e.g.*, Fatima Hussein, *Yellen Calls for Crypto Regulation to Reduce Risks, Fraud*, ABCNEWS, Apr. 7, 2022, <https://abcnews.go.com/Business/wireStory/yellen-calls-crypto-regulation-reduce-risks-fraud-83929112>. Scholarship on the intersection of financial regulation and innovation is voluminous. *See, e.g.*, Chris Brummer & Yesha Yadav, *Fintech and the Innovation Trilemma*, 107 GEO. L. J. 235 (2019); Alan McQuinn, *Supporting Financial Innovation Through Flexible Regulation*, ITIF (Nov. 4, 2019), <https://itif.org/publications/2019/11/04/supporting-financial-innovation-through-flexible-regulation> (suggesting that “[m]any fintech firms caught in regulatory tugs of war are unable to launch in the United States due to the uncertainty over whether their products could draw

## 2. Innovations, Regulatory Fragmentation, and Crypto

Theory tells us that properly designed regulations spur innovation, productivity, and growth.<sup>46</sup> A germane concern is that innovations simultaneously challenge existing regulatory paradigms.<sup>47</sup> As Professor Romano explains, innovation places us “in the realm of... radical uncertainty of not knowing the possible states of the world, let alone being able to assign probabilities to states.”<sup>48</sup> Regulators may be asked to deal with “unknown unknowns.”<sup>49</sup> They also face information asymmetries that unavoidably emerge between public agencies and innovative private markets.<sup>50</sup> It becomes hard for the regulators to catch up with nimble private parties and to properly control for the risks of an innovative practice through effective regulations. Yet, without effective and clear regulatory system, growth, productivity, and innovations suffer.

In the U.S., this cyclical dilemma is superimposed onto a deeply fragmented network of financial regulators. The U.S. approach to financial regulation spans securities, commodity, derivatives, and banking (and money transmitter) laws within the demesne of respective federal and state authorities. In fact, the U.S. has more than a hundred relevant agencies in finance, forcing firms to comply “with a

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enforcement action from risk-adverse regulators”); Carol R. Goforth, *Regulation of Crypto: Who Is the SEC Protecting?*, 58 AM. BUS. L. J. 643 (2021) [hereinafter Goforth, *Who Is the SEC Protecting?*] (emphasizing the importance of the SEC in the global world of crypto).

<sup>46</sup> One relevant hypothesis was developed in the 1990s by Michael Porter, although the evidence on regulation and innovation is mixed. See, e.g., Stefan Ambec, et al., *The Porter Hypothesis at 20: Can Environmental Regulation Enhance Innovation and Competitiveness?*, Scientific Series 2010s-29, CIRANO (2010), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1682001](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1682001). See also *infra* notes 161-62 and accompanying text.

<sup>47</sup> See generally, CRISTIE FORD, *INNOVATION AND THE STATE; FINANCE, REGULATION, AND JUSTICE* 144 (Cambridge Univ. Press 2017) (“A regulatory regime would be incoherent if it did not rest on some set of general theories and assumptions about its context, object, and purpose. But difficulties arise when, thanks to innovation, the assumptions that undergird a regulatory regime no longer hold true.”); Roberta Romano, *Pitfalls of Global Harmonization of Systemic Risk Regulation in a World of Financial Innovation*, YALE L. & ECON. RSCH. PAPER (2019). On the disruptive impact of fintech on regulations, see, e.g., Saule Omarova, *Technology v. Technocracy: Fintech as a Regulatory Challenge*, 6 J. OF FIN. REG. 75, 77 (2020).

<sup>48</sup> Romano, *supra* note 2, at 20.

<sup>49</sup> Cristie Ford, *A Regulatory Roadmap for Financial Innovation*, in THE ROUTLEDGE HANDBOOK OF FINANCIAL TECHNOLOGY AND LAW, 62, 64 (Iris H-Y Chiu & Gudula Deipenbrock, eds., 2021).

<sup>50</sup> On the problem of asymmetrical expertise, see, e.g., Awrey, *supra* note 74; Dan Awrey, *Complexity, Innovation, and the Regulation of Modern Financial Markets*, 2 HARV. BUS. L. REV. 235 (2012).

confluence of several legal regimes.”<sup>51</sup> Its “highly fragmented and arguably Balkanized structure of financial regulation... approaches creating a different regulator for every class of financial institution.”<sup>52</sup>

Fragmentation may create redundancies and turf wars<sup>53</sup> that prevent public agencies from designing more systemic, whole-of-government policies whenever an innovation transcends regulatory boundaries and falls within the overlapping baronies of several legacy regulators.<sup>54</sup> To date, crypto innovations in the U.S. have been regulated through this legal framework.<sup>55</sup> Even when some crypto-firms and fintechs (*i.e.*, financial technology firms) attempt to operate outside regulatory perimeters, they “have not always been able to escape the scrutiny and oversight of financial regulation”<sup>56</sup> at one level or another.<sup>57</sup>

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<sup>51</sup> Yesha Yadav, *Looking for the Silver Lining: Regulatory Reform After the “Credit Crunch,”* 15 STAN. J.L. BUS. & FIN. 314, 323–24 (2010).

<sup>52</sup> John C. Coffee, Jr. & Hillary A. Sale, *Redesigning the SEC: Does the Treasury Have a Better Idea?*, 95 VA. L. REV. 707, 716 (2009).

<sup>53</sup> See, *e.g.*, RONALD FILLER & JERRY W. MARKHAM, REGULATION OF DERIVATIVE FINANCIAL INSTRUMENTS (SWAPS, OPTIONS AND FUTURES) 39 (West Academic 2014); Todd E. Petzel, *Derivatives: Market and Regulatory Dynamics*, 21 J. CORP. L. 95, 98, 100-101 (1995); Laura M. Homer & Robert P. Lord, Jr., *Observations on the SEC-CFTC Accord Legislation*, 30 FED. B. NEWS & J. 335 (1983); Christopher L. Culp, *OTC-Cleared Derivatives*, 2 APPLIED FIN. 1, 5 (2010); Alan McQuinn & Daniel Castro, *A Policymaker’s Guide to Blockchain*, ITIF (Apr. 30, 2019), <https://itif.org/publications/2019/04/30/policymakers-guide-blockchain>.

<sup>54</sup> Cryptoassets, for instance, can be both commodities and securities. See, *e.g.*, Letter from Robert A. Schwartz, Deputy Gen. Couns., U.S. Comm. Fut. Trading Comm’n, to the Hon. P. Kevin Castel (Feb. 18, 2020), <https://www.docdroid.net/okmUUBS/cftc-letter-in-telegram-case.pdf> [hereinafter Letter from Robert A. Schwartz].

<sup>55</sup> In this sense, crypto is not a lawless Wild West, contrary to some public statements. See, *e.g.*, Katanga Johnson, *U.S. SEC Chair Gensler Calls on Congress to Help Rein in Crypto “Wild West,”* REUTERS (Aug. 3, 2021), <https://www.reuters.com/technology/us-sec-chair-gensler-calls-congress-help-rein-crypto-wild-west-2021-08-03/>.

<sup>56</sup> Howell E. Jackson, *The Nature of the Fintech Firm and Its Implications for Financial Regulation*, in FINTECH LAW: THE CASE STUDIES 8, 13 (July 2020).

<sup>57</sup> “[T]he legal system has ways of counteracting innovations that appear egregious.” *Id.* at 14. Overall, the whole financial system is subject to detailed regulation. “[D]ue to the highly regulated nature of the financial sector—especially in the aftermath of the financial crisis—financial services companies have seen their compliance costs steadily rise over the last decade due to enhanced regulatory scrutiny.” McQuinn, *supra* note 45. Feinstein and Werbach observe that “[t]he complex web of legal obligations for securities issuance, broker-dealers, investment companies, exchanges, money transmitters, and other regulated entities must be mapped onto digital assets that operate on fundamentally novel foundations.” Brian D. Feinstein & Kevin Werbach, *The Impact of Cryptocurrency Regulation on Trading Markets*, 7 J. OF FIN. REG. 48, 55 (2021). See also Benjamin Geva, *The e-Banknote as a “Banknote”: A Monetary Law Interpreted*, 41 OXFORD J. LEG. STUDIES 1119 (2021) (discussing application of financial regulation to cryptocurrencies).

Cryptoassets may be considered securities falling within the remit of the SEC; commodities implicating the bailiwick of the CFTC;<sup>58</sup> or funds and value that substitute for currency, enabling payment and lending services and falling under bank and money transmitter regulation.<sup>59</sup> Sometimes, an asset may be both a commodity and a security.<sup>60</sup> To sum up, U.S. crypto regulation covers a substantial part of cryptoasset markets and services<sup>61</sup> and is as balkanized as U.S. financial law.

Note that we take no normative position on whether overlapping and fragmented systems entail wasteful costs for firms<sup>62</sup> or whether they help improve the quality of public oversight.<sup>63</sup> We merely underscore that collaborative regulation and “whole-of-government” approaches are more difficult under these conditions and that turf conflicts are undoubtedly a possibility. It is a fact that, depending on a regulatory bucket into which a crypto-firm’s activity or assets are assigned, the firm may need to comply with the rules of the SEC, the CFTC, and/or

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<sup>58</sup> *Infra* Part C.

<sup>59</sup> If cryptoasset arrangements provide services similar to those offered by banks, state bank regulators, the Federal Reserve, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency are possible regulators. *See, e.g.,* Steven T. Mnuchin & Craig S. Phillips, *A Financial System That Creates Economic Opportunities: Nonbank Financials, Fintech, and Innovation*, U.S. DEP’T TREASURY (July 2018), <https://home.treasury.gov/sites/default/files/2018-08/A-Financial-System-that-Creates-Economic-Opportunities---Nonbank-Financials-Fintech-and-Innovation.pdf>; GOFORTH & GUSEVA, *supra* note 33, at 68-88, 133-64, 167-94, 640-56; OFFICE OF THE COMPTROLLER OF THE CURRENCY, JOINT STATEMENT ON CRYPTOASSET POLICY SPRINT INITIATIVE, Nov. 23, 2021, <https://www OCC.gov/news-issuances/bulletins/2021/bulletin-2021-56.html>. States regulate many crypto businesses as money transmitters and through special purpose charters. *See, e.g., Is Kraken Licensed or Regulated?*, KRAKEN, <https://support.kraken.com/hc/en-us/articles/360031282351-Is-Kraken-licensed-or-regulated>; *Legal*, COINBASE, INC., <https://www.coinbase.com/legal/licenses>. Many crypto firms must comply with FinCEN’s rules under the Bank Secrecy Act (31 U.S.C. §310). *FinCEN’s Mandate from Congress*, FINCEN, <https://www.fincen.gov/resources/fincens-mandate-congress>.

<sup>60</sup> *See, e.g.,* Letter from Robert A. Schwartz, *supra* note 54.

<sup>61</sup> FSOC 2022, *supra* note 1.

<sup>62</sup> *See, e.g.,* Yadav, *supra* note 51, at 325 (“[T]he multiplicity of bodies has fostered inter-agency competition, easily translating to turf conflict, with the potential to undermine appropriate disclosure, information sharing, systemic risk assessments, and the development of a holistic understanding of market mechanisms and products.”).

<sup>63</sup> *See, e.g.,* Zachary Clopton, *Redundant Public-Private Enforcement*, 69 VAND. L. REV. 285, 311 (2016) (“[A]lthough redundancy has direct costs and risks over-enforcement, it also can be effective at fighting under-enforcement resulting from errors, resource constraints, information problems, or agency costs, if agents are sufficiently diverse.”).

various state and federal bank regulators. This is the classic U.S. approach to financial market regulation.<sup>64</sup>

Stablecoins are an illustrative example of the application of this classic approach to digital assets.<sup>65</sup> Stablecoin arrangements (*i.e.*, arrangements for issuing, transferring, and redeeming stablecoins, as well as reserve management)<sup>66</sup> may be regulated within the ambit of banking law.<sup>67</sup> At the same time, as the 2021 Report of the President’s Working Group on Financial Markets observes, the SEC and the CFTC may also have jurisdiction over stablecoins.<sup>68</sup> Similar fragmentation trends are discussed in the 2022 FSOC Report.<sup>69</sup>

These realities suggest that it is essential to add to the scholarship on crypto innovations a comparative perspective through the lens of several regulatory regimes. In this article, we focus on commodity, derivatives, and securities regulation that is the focal point of ongoing legislative efforts. There are two dimensions in our analysis: measuring inter-agency outcomes and assessing U.S.-led enforcement effect cumulatively.

### 3. Inter-Agency Differences

The first dimension of our analysis is to compare and juxtapose the effects of each Commission. Together, the Commissions represent a considerable chunk of the balkanized regulatory regime within the U.S. Despite previous calls for

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<sup>64</sup> The classic “approach to financial regulation is based on the regulation of entities. If a firm engages in some core financial function — like banking, insurance, or the securities business — then the firm itself (often along with all affiliated entities) is subject to strict regulation, such as activities restrictions and capital requirements, as well as supervisory oversights, typically reporting, examination, and an enforcement regime.” Jackson, *supra* note 56, at 11. *See also* Coffee & Sale, *supra* note 52.

<sup>65</sup> On stablecoins, see generally Andreas Kokkinis & Andrea Miglionico, *Open Banking and Libra: A New Frontier of Financial Inclusion for Payment Systems?*, 2020 SING. J. LEGAL STUD. 601 (2020); Craig Calcaterra, et al., *Stable Cryptocurrencies: First Order Principles*, 3 STAN. J. BLOCKCHAIN L. & POL’Y 62 (2020).

<sup>66</sup> A stablecoin arrangement is “[a]n arrangement that combines a range of functions (and the related specific activities) to provide an instrument that purports to be used as a means of payment and/or store of value.” *Regulation, Supervision and Oversight of “Global Stablecoin” Arrangements: Final Report and High-Level Recommendations*, FIN. STABILITY BD. (Oct. 13, 2020), at 5.

<sup>67</sup> PRESIDENT’S WORKING GRP. ON FIN. MKT., REPORT ON STABLECOINS, U.S. DEPT. TREASURY (Nov. 2021), <https://home.treasury.gov/news/press-releases/jy0454>.

<sup>68</sup> *Id.*

<sup>69</sup> FSOC 2022, *supra* note 1.

merging the agencies,<sup>70</sup> they remain separate independent regulators of the U.S. securities and derivatives markets.

Although being separate regulators, the Commissions pursue similar overarching goals of sound and safe regulation. The SEC's statutory objectives encompass protecting investors; maintaining fair, orderly, and efficient markets; and facilitating capital formation.<sup>71</sup> The CFTC's goals, painted with broad strokes, are "to promote the integrity, resilience, and vibrancy of the U.S. derivatives markets through sound regulation," ultimately serving as a "global standard for sound derivatives regulation."<sup>72</sup> Both agencies assert their jurisdiction over the cryptoasset market, its infrastructure, and its participants and stand ready to further expand their reach, possibly colliding with one another.<sup>73</sup>

Despite the similarities between their foundational objectives, it has been suggested that the CFTC and the SEC are fundamentally different agencies operating under contrasting philosophies, with the CFTC being more principles-based in its regulation<sup>74</sup> and more open to innovative experimentation. This

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<sup>70</sup> See generally Coffee & Sale, *supra* note 52.

<sup>71</sup> *Agency and Mission Information*, U.S. SEC. & EXCH. COMM'N (2014), <https://www.sec.gov/about/reports/sec-fy2014-agency-mission-information.pdf>. For scholarship examining interconnections between the SEC's general and specific objectives, see, e.g., Brummer & Yadav, *supra* note 45, at 264-82; George S. Georgiev, *The Human Capital Management Movement in U.S. Corporate Law*, 95 TUL. L. REV. 639 (2021).

<sup>72</sup> *Mission Statement*, U.S. COMMODITY FUT. TRADING COMM'N, <https://www.cftc.gov/About/AboutTheCommission#:~:text=The%20mission%20of%20the%20Commodity,derivatives%20markets%20through%20sound%20regulation.>

<sup>73</sup> Statements by the agencies' respective Chairs support this view. Bob Pisani, *SEC Chairman Gary Gensler Embarks on Ambitious Regulatory Agenda. What It Means for Investors*, CNBC (Feb. 4, 2022), <https://www.cnbc.com/2022/02/04/sec-chair-gary-gensler-embarks-on-ambitious-regulatory-agenda-what-it-means-for-investors.html>; Chairman Rostin Behnam, *Examining Digital Assets: Risks, Regulation, and Innovation*, Testimony Before the U.S. Senate Committee on Agriculture, Nutrition, and Forestry, U.S. Comm. Fut. Trading Comm'n (Feb. 9, 2022), <https://www.cftc.gov/PressRoom/SpeechesTestimony/opabehnam20>; Nikhilesh De, *CFTC Should Oversee Crypto Spot Markets, Chief Reiterates Before Congress*, COINDESK (Feb. 10, 2022), <https://www.coindesk.com/policy/2022/02/09/cftc-should-oversee-crypto-spot-markets-chief-reiterates-before-congress/>; Gary Gensler, *Remarks Before the Aspen Security Forum*, U.S. SEC. & EXCH. COMM'N (Aug. 3, 2021), <https://www.sec.gov/news/public-statement/gensler-aspen-security-forum-2021-08-03> [hereinafter Gensler, *Aspen*]. An SEC rule proposal released in January 2022 supports this trend and aims to extend SEC jurisdiction over digital trading platforms. U.S. SEC. & EXCH. COMM'N, REL. No. 34-94062 (Jan. 26, 2022), <https://www.sec.gov/rules/proposed/2022/34-94062.pdf>.

<sup>74</sup> See, e.g., Jerry W. Markham, *Merging the SEC and CFTC—A Clash of Cultures*, 78 U. CIN. L. REV. 537, 552–53 (2009) (comparing the agencies and the proposed regulatory reform (the Treasury Department's Blueprint), which "recognize[d] that such a merger will be effective only if the new

evidently includes crypto products.<sup>75</sup> The statutes that the Commissions enforce are also essentially distinct.<sup>76</sup> As discussed further in this paper, the global crypto market distinguishes between the Commissions: the reaction is more negative in respect to enforcement of federal securities law by the SEC compared with enforcement of commodity and derivatives law by the CFTC.

Note that, hypothetically, the Commissions could preemptively demarcate their respective jurisdictions over cryptoasset markets and/or promulgate a rule jointly. While this outcome would not be unprecedented,<sup>77</sup> it also would not be without its flaws. A relevant example is the Shad-Johnson Accord that not only (allegedly) arbitrarily fragmented the regulatory field in derivatives but also did not stamp out litigation and turf wars.<sup>78</sup> It is also unclear if the Commissions are inclined to strike a meaningful accord on digital asset markets.<sup>79</sup> These factors may prevent the Commissions from objectively and jointly assessing their positions on digital assets. Regulatory fragmentation, thus, calls for external and objective

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regulator can operate under a principles-based regulatory system. Such a system is employed by the CFTC and is better than the rules-based system of the SEC, which has proved to be a costly failure.”); Dan Awrey, *Regulating Financial Innovation: A More Principles-Based Proposal?*, 5 BROOK. J. CORP., FIN. & COM. L. 273, 311 (2011) (observing that the CFTC’s approach to market exchange and clearinghouse regulation is based on broad principles, while the SEC follows a more rules-based approach).

<sup>75</sup> For example, Bitcoin futures were self-certified for trading as early as 2017. U.S. Comm. Fut. Trading Comm’n., *CFTC Statement on Self-Certification of Bitcoin Products by CME, CFE and Cantor Exchange*, Release Number 7654-17 (Dec. 1, 2017), <https://www.cftc.gov/PressRoom/PressReleases/7654-17>. By contrast, the SEC has been consistently rejecting applications to register Bitcoin exchange-traded funds. See GOFORTH & GUSEVA, *supra* note 33, at 580-87. As of this writing, the most recent rejection occurred in June 2022. See, e.g., Michael Belusci, *SEC Rejects Grayscale’s Spot Bitcoin ETF Application*, COINDESK, Jun. 29, 2022, <https://www.coindesk.com/policy/2022/06/30/sec-rejects-grayscales-spot-bitcoin-etf-application/>.

<sup>76</sup> *Infra* Part C.

<sup>77</sup> A pertinent historical example is the Shad-Johnson Jurisdictional Accord. Shad-Johnson split the jurisdiction of the Commissions over novel derivatives markets. See, e.g., Petzel, *supra* note 53; U.S. GEN. ACCT OFFICE, CFTC & SEC: ISSUES RELATED TO SHAD-JOHNSON JURISDICTIONAL ACCORD (Apr. 2000), <https://www.gao.gov/assets/ggd-00-89.pdf>.

<sup>78</sup> See, e.g., U.S. GEN. ACCT OFFICE, *supra* note 192; Mark Frederick Hoffman, *Decreasing the Costs of Jurisdictional Gridlock: Merger of the Securities and Exchange Commission and the Commodity Futures Trading Commission*, 28 U. MICH. J. L. REF. 681 (1995).

<sup>79</sup> The leadership of the SEC seems to believe that the current legal framework already works well in crypto. See, e.g., Chair Gary Gensler, *Prepared Remarks of Gary Gensler on Crypto Markets, Penn Law Capital Markets Association Conference*, U.S. SEC. & EXCH. COMM’N (Apr. 4, 2022), <https://www.sec.gov/news/speech/gensler-remarks-crypto-markets-040422>; Gensler, *Aspen*, *supra* note 73.

solutions if a more holistic, whole-of-government reform on digital asset markets is needed.

#### 4. Why Is U.S.-Led Enforcement Impactful?

The second dimension of this paper involves measuring investors' reaction to U.S.-led enforcement cumulatively. This line of inquiry is particularly important because U.S. regulators occupy a special place in global financial markets. U.S. markets has long served as sizeable financial "chokepoints."<sup>80</sup> Today, about a half of the largest technology companies are domiciled here.<sup>81</sup>

As Professor Verdier suggests, political economy triggers an interplay among national regulators, the financial industry, and great national powers, which ultimately shapes regulatory systems.<sup>82</sup> Viewed in this light, the U.S. CFTC and SEC are among the main agents of a great financial power (the United States) with its developed financial markets.<sup>83</sup> Following the acknowledgement by the White House that "U.S. agencies will... continue and expand their leadership roles on digital assets work at international organizations and standard-setting bodies,"<sup>84</sup> the markets may expect that U.S. regulators will play a crucial, if not pivotal, role.

The Commissions are active participants in the International Organization of Securities Commissions and its Fintech Task Force<sup>85</sup> and engage in cross-border enforcement.<sup>86</sup> Their enforcement divisions, as well as the Department of Justice with which the Commissions collaborate, have evolved into major international players.<sup>87</sup> Enforcement naturally bolsters the central role of U.S. regulators in global financial markets. It has even become their distinctive trademark. Many scholars<sup>88</sup> underscore that U.S. regulatory agencies (particularly the SEC, which is

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<sup>80</sup> See generally Henry Farrell & Abraham L. Newman, *Choke Points*, HARV. BUS. REV. (2020), <https://hbr.org/2020/01/choke-points>.

<sup>81</sup> White House Framework, *supra* note *supra* note 1.

<sup>82</sup> See, e.g., Pierre-Hugues Verdier, *The Political Economy of International Financial Regulation*, 88 IND. L. J. 1405 (2013).

<sup>83</sup> PIERRE-HUGUES VERDIER, *GLOBAL BANKS ON TRIAL: U.S. PROSECUTIONS AND THE REMAKING OF INTERNATIONAL FINANCE 3* (Oxford University Press 2020).

<sup>84</sup> *Id.*

<sup>85</sup> IOSCO *Crypto-Asset Roadmap for 2022-2023*, OISCU-IOSCO, Jul. 7, 2022, <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD705.pdf>.

<sup>86</sup> Verdier, *supra* note 82, at 1419-20.

<sup>87</sup> See generally Verdier, *supra* note 83.

<sup>88</sup> Rafael La Porta, et al., *What Works in Securities Laws?*, 61 J. FIN. 1, 11-13 (2006); Verdier, *supra* note 83; Howell E. Jackson & Mark J. Roe, *Public and Private Enforcement of Securities Laws: Resource-Based Evidence*, 93 J. FIN. ECON. 207 (2009); Howell E. Jackson, *Variation in the*

larger than the CFTC) invest considerable resources in enforcement. The consequences of U.S.-based enforcement are not contained within the national boundaries of the U.S.

In keeping with this philosophy, the Commissions have exhibited the same fervor by engaging in intensive and often extraterritorial enforcement in crypto markets.<sup>89</sup> Actions against major foreign crypto-exchanges, a global stablecoin, and developers illustrate this point.<sup>90</sup> As powerful extraterritorial agencies, the Commissions have yet to lose a case against a crypto-firm, whether domestic or foreign.<sup>91</sup> These international effects of U.S. regulators further emphasize the need for successful and effective reform.

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*Intensity of Financial Regulation: Preliminary Evidence and Potential Implications*, 24 YALE J. ON REG. 253 (2007); John C. Coffee, Jr., *Law and the Market: The Impact of Enforcement*, 156 U. PA. L. REV. 229, 242 (2007).

<sup>89</sup> See, e.g., James J. Park & Howard H. Park, *The Rise of Fintech: Regulation by Selective Enforcement: The SEC and Initial Coin Offerings*, 61 WASH. U. J.L. & POL'Y 99 (2020); Douglas Eakeley & Yuliya Guseva, with Leo Choi & Katarina Gonzalez, *Crypto-Enforcement Around the World*, 94 SOUTH. CAL. L. REV. POSTSCRIPT 99 (2021); Yuliya Guseva, *The SEC, Digital Assets, and Game Theory*, 46 J. CORP. L. 629 (2021) [hereinafter Guseva, *Game Theory*]; Simona Mola, *SEC Cryptocurrency Enforcement*, CORNERSTONE (2021), <https://www.cornerstone.com/wp-content/uploads/2022/01/SEC-Cryptocurrency-Enforcement-2021-Update.pdf>.

<sup>90</sup> See *S.E.C. v. Telegram Grp. Inc.*, 448 F.Supp.3d 352 (SDNY Mar. 24, 2020); Consent Order for Permanent Injunction, Civil Monetary Penalty, and Other Equitable Relief Against Defendants HDR GLbal Trading Limited, 100x Holdings Limited, Shine Effort Inc Limited, and HDR Global Services (Bermuda Limited), *CFTC v. HDR Global Trading Limited*, No. 1:20-cv-08132 (SDNY Aug. 10, 2021); In the Matter of: Tether Holdings Limited, Tether Operations Limited, Tether Limited, and Tether International Limited, *CFTC Docket No. 22-04* (Oct. 15, 2021); In the Matter of: iFinex Inc., BFXNA Inc., and BFXWW Inc., *CFTC Docket No. 22-05* (Oct. 15, 2021).

<sup>91</sup> By contrast, many other jurisdictions issue light-touch warnings and blacklists in crypto and engage in (at least ostensibly) cooperative regulatory programs. As early as 2014, for instance, the U.K. Financial Conduct Authority issued a call for comments from innovators and launched a hub for regulatory cooperation. *Project Innovate: Call for Input*, FIN. CONDUCT AUTH. (July 11, 2014), <https://www.fca.org.uk/publication/call-for-input/project-innovate-call-for-input.pdf>; *Early Lessons on Regulatory Innovations to Enable Inclusive FinTech: Innovation Offices, Regulatory Sandboxes, and RegTech*, UNSGSA (2019), [https://www.jbs.cam.ac.uk/fileadmin/user\\_upload/research/centres/alternative-finance/downloads/2019-early-lessons-regulatory-innovations-enable-inclusive-fintech.pdf](https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2019-early-lessons-regulatory-innovations-enable-inclusive-fintech.pdf). The CFTC and the SEC have also opened cooperative innovation hubs. U.S. Comm. Fut. Trading Comm'n, *LabCFTC Overview*, <https://www.cftc.gov/LabCFTC/Overview/index.htm>; U.S. Sec. & Exch. Comm'n, *Strategic Hub for Innovation and Financial Technology (FinHub)*, <https://www.sec.gov/finhub>. Yet, they simultaneously engage in extensive enforcement.

### C. THE TWO COMMISSIONS IN CRYPTO

This Part explains the jurisdiction and actions of the Commissions in crypto and sets the scene for our empirical analysis. This is not a casebook disquisition on the Commissions' general jurisdiction. Readers familiar with the authority of the Commissions and their crypto-related actions may wish to proceed to Part D.

#### 1. The CFTC

The CFTC was first to assert its jurisdiction over cryptoassets and market participants engaged in cryptoasset trading.<sup>92</sup> As early as March 2014, the agency announced that it was considering regulating Bitcoin, and in 2015, in a first ever enforcement action against a crypto trading platform operating unregistered facilities for trading and processing bitcoin option, futures contracts, and swaps, the CFTC stated that virtual currencies were commodities.<sup>93</sup> The term “commodity” covers agricultural products,<sup>94</sup> “and all services, rights, and interests (except motion picture box office receipts . . . ) in which contracts for future delivery are presently or in the future dealt in.”<sup>95</sup>

In 2016, the CFTC followed up with a major settlement with Bitfinex, a key foreign “player” in crypto. Bitfinex operated an online platform for exchanging and trading cryptocurrencies and failed to register as a futures commission merchant and a designated contract market.<sup>96</sup> Once again, the CFTC repeated that “virtual currencies are encompassed in the definition and properly defined as commodities, and are therefore subject as a commodity to applicable provisions” of the Commodity Exchange Act (“CEA”) and relevant regulations.<sup>97</sup>

In addition to these early enforcement actions, the CFTC also released the Primers on Virtual Currencies (in 2017)<sup>98</sup> and on Digital Assets (in 2020),<sup>99</sup> as well

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<sup>92</sup> See, e.g., James Michael Blakemore, *New Things Under the Sun: How the CFTC Is Using Virtual Currencies to Expand Its Jurisdiction*, 73 ARK. L. REV. 205 (2020).

<sup>93</sup> In the Matter of: Coinflip, Inc., d/b/a Derivabit, and Francisco Riordan, C.F.T.C. No. 15-29 (Sept. 17, 2015).

<sup>94</sup> 7 U.S.C. § 1a(9).

<sup>95</sup> *Id.* See also 7 U.S.C. § 1a(19)(i); *Bd. Of Trade of City of Chicago v. S.E.C.*, 677 F. 2d 1137, 1142 (7<sup>th</sup> Cir. 1982), *vacated on other grounds*, 459 U.S. 1026 (1982) (“This language was also meant to encompass futures markets that were expected to be expanded to cover non-traditional goods and services . . .”).

<sup>96</sup> *In re BFXNA Inc. d/b/a Bitfinex*, C.F.T.C. Docket No. 16–19 (Jun. 2, 2016).

<sup>97</sup> *Id.* at 5-6.

<sup>98</sup> U.S. COMM. FUT. TRADING COMM’N, PRIMER ON VIRTUAL CURRENCIES (2017), [https://www.cftc.gov/sites/default/files/idc/groups/public/documents/file/labcfrc\\_primercurrencies100417.pdf](https://www.cftc.gov/sites/default/files/idc/groups/public/documents/file/labcfrc_primercurrencies100417.pdf).

<sup>99</sup> U.S. COMM. FUT. TRADING COMM’N, DIGITAL ASSETS PRIMER (2020), <https://www.cftc.gov/PressRoom/PressReleases/8336-20>.

as virtual asset guidance in 2020.<sup>100</sup> These statements declare that virtual currencies are commodities, a position that appears well-accepted (although not unquestionable)<sup>101</sup> in part because several federal courts have supported the CFTC’s view on virtual currencies and jurisdiction over crypto markets.<sup>102</sup>

Many CFTC cases in our database fall into two categories: (1) impermissible derivatives transactions and violations of registration provisions applicable to derivatives market participants; and (2) market manipulation and fraud. This dichotomy is explained by the specifics of the jurisdiction of the CFTC in spot markets for commodities and derivatives markets.

Namely, spot markets are not subject to CFTC jurisdiction except instances of fraud or market manipulation.<sup>103</sup> By contrast, regulatory jurisdiction of the CFTC does extend over transactions involving futures, options, and swaps. It is implicated with respect to derivatives contracts in virtual currencies, “or if there is fraud or manipulation involving a virtual currency traded in interstate commerce. Beyond instances of fraud or manipulation, the CFTC generally does not oversee ‘spot’ or cash market exchanges and transactions involving virtual currencies that do not utilize margin, leverage, or financing.”<sup>104</sup>

The 2021 settlements with BitMEX and Bitfinex, large foreign trading platforms, illustrate these points. A derivatives exchange must register with the CFTC, and those two exchanges were not designated or registered by the CFTC as contract markets.<sup>105</sup> The CEA provides, in relevant parts, that it is unlawful for any person not designated or registered by the CFTC as a designated contract market

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<sup>100</sup> U.S. Comm. Fut. Trading Comm’n, Retail Commodity Transactions Involving Certain Digital Assets, 85 Fed. Reg. 37734 (Jun. 24, 2020).

<sup>101</sup> For relevant arguments, see, e.g., GARY E. KALBAUGH, DERIVATIVES LAW AND REGULATION (3rd ed. 2021).

<sup>102</sup> C.F.T.C. v. McDonnell, 287 F. Supp. 3d 213, 228 (E.D.N.Y. 2018) (“Virtual currencies are ‘goods’ exchanged in a market for a uniform quality and value. They fall well-within the common definition of ‘commodity’ as well as the [Commodity Exchange Act]’s definition of ‘commodities’ as ‘all other goods and articles ... in which contracts for future delivery are presently or in the future dealt in.’ ”); C.F.T.C. v. My Big Coin Pay, Inc., et al., 334 F. Supp. 3d 492, 494 (D. Mass. 2018); Dekrypt Capital, LLC v. Uphold Ltd., 2022 WL 97233, at \*3 (Wash.App. Div. 1, 2022); Ox Labs, Inc. v. Bitpay, Inc., 2020 WL 1039012, at \*6 (C.D. Cal., 2020) (observing in dicta that “Bitcoin is not merely an ‘idea’ that is entirely divorced from any physical form. Rather, it is dependent on blockchain, a public ledger which records all the transactions. While not directly on point, the Court also finds support from *Commodity Futures Trading Comm’n v. McDonnell*....”).

<sup>103</sup> There is a debate on the extent and scope of this jurisdiction. See, e.g., KALBAUGH, *supra* note 101, at 99. Specifics of the debate are outside the scope of this article.

<sup>104</sup> PRIMER ON VIRTUAL CURRENCIES, *supra* note 98, at 11.

<sup>105</sup> In the Matter of: iFinex Inc., BFXNA Inc., and BFXWW Inc., C.F.T.C. Docket No.22-05 (Oct. 15, 2021); CFTC v. HDR Global Trading Limited, No. 1:20-cv-08132 (SDNY Aug. 10, 2021).

(“DCM”) to execute or offer to enter into business for the purpose of soliciting or accepting orders in connection with commodity futures.<sup>106</sup>

In cases where a crypto-exchange does not provide facilities for futures and other derivatives trading and instead facilitates spot market transactions, the CFTC jurisdiction is more limited. In such markets, additional protections are provided to retail customers, who are not eligible contract participants and commercial entities (which are typically smaller institutions and individuals)<sup>107</sup> and participate in transactions on a leveraged basis, on margin, or financed by the offeror.<sup>108</sup> These transactions with smaller retail traders (“retail commodity transactions”) are treated as futures except cases where “actual delivery” takes place within a limited number of days.<sup>109</sup> These retail commodity transactions should be conducted or subject to the rules of a board of trade.

U.S. residents were trading on Bitfinex, which did not sufficiently safeguard U.S. residents (and incidentally violated the 2016 Commission order). As a result, in 2021 the CFTC imposed a fine and requested that the respondents implement procedures protecting U.S. persons and closing all margined or leveraged positions held by U.S. non-eligible contract participants.<sup>110</sup>

The next market institution within the ambit of the CFTC is futures commission merchants<sup>111</sup> (“FCM”), *i.e.*, firms and individuals that engage in soliciting or accepting orders or acting as counterparty in derivatives transactions, including futures and options. FCMs also must register with the CFTC,<sup>112</sup> which Bitfinex did not do while continuing to execute orders to buy and sell cryptoassets and margining transactions.

Recall also that the CFTC has broad antifraud and antimanipulation jurisdiction.<sup>113</sup> The order released concurrently with the order against Bitfinex is a case in point. It involved a group of companies affiliated with Bitfinex and operating USDT (also called “Tether”), the largest global stablecoin arrangement.<sup>114</sup> Stablecoins underlying an arrangement (*i.e.*, issuance, redemption,

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<sup>106</sup> 7 U.S.C. § 6(a).

<sup>107</sup> Eligible contract participants and eligible commercial entities are defined in Sections 1a(18) and 1a(17) of the CEA. 7 U.S.C. §§ 1a(17), (18).

<sup>108</sup> 7 U.S.C. § 2(c)(2)(D).

<sup>109</sup> 85 Fed. Reg. 37734 (2020).

<sup>110</sup> In the Matter of: iFinex Inc., BFXNA Inc., and BFXWW Inc., C.F.T.C. Docket No.22-05 (Oct. 15, 2021).

<sup>111</sup> 7 U.S.C. § 1a(28).

<sup>112</sup> 7 U.S.C. § 6d(a)(1).

<sup>113</sup> 7 U.S.C. § 9(1); 17 C.F.R. § 180.1(a)(2).

<sup>114</sup> In the Matter of: Tether Holdings Limited, C.F.T.C. Docket No. 22-04 (Oct. 15, 2021).

transfer, and payment mechanisms) often serve as a medium of exchange, may be used as collateral for loans and for other purposes, and are traded on various crypto-exchanges. The CFTC considers stablecoins commodities, and Tether's misrepresentations of material facts and omissions brought it within the antifraud and antimanipulation authority of the CFTC.

Tether issued its stablecoin, claiming to have maintained a 100% reserve pegged to the U.S. dollar and representing that the stablecoin was regularly audited and could always be redeemed. These false and misleading representations led to an enforcement action even though no affiliated entities within the Tether group were registered with the CFTC in any capacity. Our database includes these types of market manipulation and fraud cases together with the aforementioned failures to register. Since broad extraterritorial jurisdiction of the CFTC allows it to proceed against many foreign parties, cases within our database involve many international and foreign entities in addition to domestic firms.

Note, however, that some derivatives on cryptoassets are within the ambit of securities law and jurisdiction of the SEC, and some assets *simultaneously* represent commodities and securities.<sup>115</sup> As the next section explains, the SEC's jurisdiction over securities and securities derivatives is broader than the authority of the CFTC in derivatives markets and encompasses both regulatory authority and enforcement authority, including complicated approval processes for securities offerings.

## 2. The SEC

The SEC joined the crypto-related enforcement fracas only in mid-2017, with a release of the Report of Investigation concerning The DAO, a crypto-based decentralized autonomous organization whose purpose was to seek capital contributions for further investment in revenue-generating projects. The DAO project originated in Germany. The Report described the application of securities law to "virtual organizations or capital raising entities that use distributed ledger or blockchain technology to facilitate capital raising and/or investment and the related offer and sale of securities."<sup>116</sup> Using smart contracts (*i.e.*, computerized protocols to execute transactions) and reliance on code, as a threshold matter, do not shield transactions and conduct from the application of federal securities law and SEC jurisdiction.<sup>117</sup>

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<sup>115</sup> See, e.g., Letter from Robert A. Schwartz, *supra* note 54.

<sup>116</sup> U.S. SEC. & EXCH. COMM'N, *Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO*, at 2 (July 25, 2017), <https://www.sec.gov/litigation/investreport/34-81207.pdf> [hereinafter "The DAO Report"].

<sup>117</sup> *Id.* at 2.

The jurisdiction of the SEC extends only over securities, securities markets, and their participants. Consequently, it was important to bring cryptoassets within the scope of the definition of securities. The DAO Report achieved this result by applying the decades-old *Howey* investment contract test<sup>118</sup> to the digital assets at issue and concluding that The DAO offered and sold investment contracts. The four-prong *Howey* test<sup>119</sup> has been consistently applied by the SEC to cryptoassets ever since. To clarify the application of the *Howey* test to crypto, the SEC staff also issued the 2019 Framework for “Investment Contract” Analysis of Digital Assets.<sup>120</sup> At least two crypto-related court decisions against foreign firms supported this position of the regulator.

In the first decision, *SEC v. Telegram Group*, viewing the transactions “in their totality for the purpose of the *Howey* analysis,”<sup>121</sup> the court concluded that the series of transactions and undertakings of the issuer satisfied the *Howey* test and were investment contracts.<sup>122</sup> Consequently, the court granted the SEC’s motion for a preliminary injunction, and Telegram, a foreign company facing this international injunction, had to return investor contributions to both domestic and foreign parties.

In the second decision, *SEC v. Kik Interactive*, the federal court for the Southern District of New York also conducted its analysis under the *Howey* test and granted the SEC’s motion for summary judgment against Kik, a Canadian company. This case concerned an issuance of utility tokens almost simultaneously with a sale of investment agreements. Under those circumstances, according to the court, “*Howey* provide[d] a clearly expressed test for determining what constitutes an investment contract” and “an objective test that provides the flexibility necessary for the assessment of a wide range of investment vehicles.”<sup>123</sup>

*Howey*, however, is not the only test that the SEC may apply to cryptoassets even though it has been used successfully, serving as a reliable functional framework in the Commission’s crypto-related enforcement.<sup>124</sup> In February 2022,

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<sup>118</sup> S.E.C. v. W. J. Howey Co., 328 U.S. 293, 298 (1946).

<sup>119</sup> *Id.* (defining an “investment contract” as “a contract, transaction, or scheme whereby a person invests his money in a common enterprise and is led to expect profits solely from the efforts of the promoter or a third party”).

<sup>120</sup> Strategic Hub for Innovation & Fin. Tech., *Framework for “Investment Contract” Analysis of Digital Assets*, SEC. & EXCH. COMM’N 12 n.2 (Apr. 3, 2019), <https://www.sec.gov/files/dlt-framework.pdf> [hereinafter *The Framework*].

<sup>121</sup> *Telegram Grp.*, 448 F.Supp.3d at 367.

<sup>122</sup> *Id.* at 368.

<sup>123</sup> S.E.C. v. Kik Interactive, 492 F.Supp.3d 169, 183 (SDNY Sept. 30, 2020).

<sup>124</sup> For a discussion of *Howey*’s broad and functional approach, see generally Howell E. Jackson, *Regulation in a Multisector Financial Services Industry: An Exploratory Essay*, 77 WASH. U. L. REV. 319 (1999).

in an enforcement action against BlockFi, a company offering crypto-based lending products,<sup>125</sup> the SEC examined the cryptoassets at issue under the *Reves* test.<sup>126</sup> Under *Reves*, debt instruments, namely, notes, are presumed to be securities unless they fall under a list of financial instruments that are not securities or bear a “family resemblance” to those excluded categories.<sup>127</sup> In that cease-and-desist order issued as a result of a settlement agreement, the SEC simultaneously conducted its analysis under both *Reves* and *Howey* and concluded that the crypto program of the respondent was an unregistered security under either test.

After it has been determined that an issuer is offering and selling securities, the issuer is subject to a variety of registration and reporting obligations under securities law.<sup>128</sup> In addition to these primary markets for securities, SEC jurisdiction also covers secondary market trading and exchanges,<sup>129</sup> as well as various market participants, including investment companies.<sup>130</sup> Several enforcement actions in our database implicate the Securities Exchange Act,<sup>131</sup> the Investment Company Act,<sup>132</sup> and the Investment Advisers Act<sup>133</sup> and involve unregistered crypto-exchanges, broker-dealers, and investment companies.

By way of example, the BlockFi settlement discussed above underscores that in addition to selling unregistered securities (a threshold matter determined by applying the *Howey* and *Reves* tests), the respondent violated the Investment

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<sup>125</sup> In the Matter of: BlockFi Lending, LLC, Securities Act Rel. No. 11029 (Feb. 14, 2022), <https://www.sec.gov/litigation/admin/2022/33-11029.pdf>.

<sup>126</sup> *Reves v. Ernst & Young*, 494 U.S. 56, 64–66 (1990).

<sup>127</sup> The “family resemblance” is determined through a four-pronged approach, including motivations of reasonable sellers and buyers, the plan of distribution of the instrument leading to common trading for speculation or investment, reasonable expectations of investors, and the presence of alternative regulatory regimes. *Reves*, 494 U.S. at 66-67.

<sup>128</sup> For a discussion of the current registration requirements and exemptions, see generally Guseva, *When the Means Undermine the Ends*, *supra* note 35.

<sup>129</sup> The term “exchange” means “any organization, association, or group of persons, whether incorporated or unincorporated, which constitutes, maintains, or provides a market place or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange as that term is generally understood, and includes the market place and the market facilities maintained by such exchange.” 15 U.S.C. § 78c.

<sup>130</sup> An investment company is any issuer that “is engaged or proposes to engage in the business of investing, reinvesting, owning, holding, or trading in securities, and owns or proposes to acquire investment securities having a value exceeding 40 per centum of the value of such issuer’s total assets (exclusive of Government securities and cash items) on an unconsolidated basis.” 15 U.S.C. § 80a–3(a)(1)(C).

<sup>131</sup> 15 U.S.C. § 78a et seq.

<sup>132</sup> 15 U.S.C. § 80a–1 et seq.

<sup>133</sup> 15 U.S.C. § 80b–1 et seq.

Company Act that makes it unlawful for an investment company to “[o]ffer for sale, sell, or deliver after sale... any security or any interest in a security” or “engage in any business in interstate commerce”<sup>134</sup> unless the company is registered as an investment company or, among other things, excluded from the definition of an investment company.<sup>135</sup>

By the same token, SEC enforcement actions have made it clear that crypto-exchanges are required to register with the SEC or seek exemption from registration, including being qualified and registered as an alternative trading system (“ATS”), pursuant to the Securities Exchange Act.<sup>136</sup> One of the first pronouncements to this effect was made in the DAO Report, which reiterated that rules “provide[...] a functional test to assess whether a trading system meets the definition of exchange....”<sup>137</sup> Our database includes several events involving exchanges, and in most cases, respondents were charged with a failure to register, with no allegations of fraud. By way of example, in the most recent order, an unregistered crypto-exchange displayed an order book and provided facilities for order execution on its website, through the order book, and via encoded trading protocols.<sup>138</sup>

To conclude, first, the SEC has shaped its views on whether cryptoassets are securities by interpreting decades-old case law through enforcement actions and staff statements. In doing so, it has informed cryptoasset issuers around the globe that they must comply with the registration and reporting requirements of securities law. Second, using enforcement and statements, it has signaled that crypto market participants, such as exchanges and investment companies, must register with the SEC.

#### D. EMPIRICAL RESEARCH ON CRYPTOASSET REGULATION

In our study of how crypto markets react to commodity, derivatives, and securities law enforcement, we contribute to economic and financial literature on crypto in the following way. We have identified several studies examining how cryptoasset markets react to the news of regulation or anticipated regulation. All of them compared news and regulations in several jurisdictions. None of the studies focused on enforcement within a single major jurisdiction, *i.e.*, the U.S., and its

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<sup>134</sup> 15 U.S.C. § 80a–7.

<sup>135</sup> In the Matter of BlockFi Lending, LLC, Securities Act Rel. No. 11029 (Feb. 14, 2022), <https://www.sec.gov/litigation/admin/2022/33-11029.pdf>.

<sup>136</sup> 15 U.S.C. § 78e; 15 U.S.C. § 78c(a)(1); 17 C.F.R. § 240.3b-16 (a); 17 C.F.R. § 240.3a1-1 (a)(2).

<sup>137</sup> The DAO Report, *supra* note 116, at 16.

<sup>138</sup> In the Matter of Poloniex, LLC, Exchange Act Rel. No. 92607, at 7 (Aug. 9, 2021), <https://www.sec.gov/litigation/admin/2021/34-92607.pdf>.

central financial regulators. Since there are no new U.S. regulations (instead, the Commissions heavily rely on enforcement), and because of the international importance of the Commissions' impact, we examine the effect of U.S.-led enforcement.

In addition, this article focuses on cryptoassets that fall within the jurisdiction of the Commissions as securities, commodities (and derivatives), or both.<sup>139</sup> These regulatory classifications encircle various types of tokens and coins<sup>140</sup> and help us examine the effect of U.S.-specific regulatory fragmentation in finance.

In our analysis, we focus on global market prices. Relatedly, Feinstein and Werbach have conducted a study of cross-border trading volumes following regulatory events, including, among others, securities law announcements, anti-money-laundering ("AML") regulation, "bespoke licensing" for crypto activities and firms, and antifraud enforcement.<sup>141</sup>

In contrast to Feinstein and Werbach, we do not examine volume-related information. Instead, we examine price reaction and focus on the role of enforcement by major U.S. regulators (the SEC and the CFTC). Nor do we cover AML and "bespoke licensing." For one, there is no "bespoke licensing" by the Commissions. Moreover, AML regulation is undergoing international harmonization due to the prominence of standard-setters such as the Financial Action Task Force<sup>142</sup> providing guidelines on crypto.<sup>143</sup> Consequently, it is important to zero in on commodity law and securities law, given that the merits and

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<sup>139</sup> In this sense, our analysis differs from the literature that examines cryptoassets with characteristics of different financial assets like shares of stock, currencies, etc. See, e.g., Elise Alfieri, et al., *On the Nature and Financial Performance of Bitcoin*, 20 J. RISK FIN. 114 (2019) (showing that Bitcoin may be examined like stock); Dirk G. Baur, et al., *Virtual Currencies: Media of Exchange or Speculative Asset?*, Swift Inst. Working Paper, Paper No. 2014-007 (2016); Saifedean Ammous, *Can Cryptocurrencies Fulfil the Functions of Money?*, 70 Q. REV. ECON. & FIN. 38 (2018); David Yermack, *Is Bitcoin a Real Currency? An Economic Appraisal*, in HANDBOOK OF DIGITAL CURRENCY: BITCOIN, INNOVATION, FINANCIAL INSTRUMENTS, AND BIG DATA 31 (Acad. Press, 2015) (questioning if Bitcoin may function as a currency).

<sup>140</sup> See *infra* Part E.

<sup>141</sup> Feinstein & Werbach, *supra* note 57. Feinstein and Werbach observe that regulatory events do not impact trading volume in several major jurisdictions and globally but may "at least hint at the possibility that regulations negatively affect global cryptocurrency prices." *Id.* at 85.

<sup>142</sup> See, e.g., Chris Brummer, *How International Financial Law Works (and How it Doesn't)*, 99 GEO. L. J. 257 (2010).

<sup>143</sup> FATF, *Guidance for a Risk-Based Approach—Virtual Currencies* (2015); FATF, *Second 12-Month Review Virtual Assets and Virtual Asset Service Providers* (Jul. 2021); FATF, *Updated Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers* (Oct. 28, 2021).

specifics of applying these regimes to crypto are still debated in the literature and in Congress.

Some of our findings support prior research demonstrating a negative market price reaction to the news of regulation, particularly securities law, in various jurisdictions.<sup>144</sup> Chokor and Alfieri, for example, examine cryptoassets using the methodology applicable to stock markets and measure cryptoasset market's reaction to news of regulation in various countries.<sup>145</sup> Using event studies, they estimate abnormal returns of thirty top cryptocurrencies between 2015 and 2019 in relation to 63 regulatory news events from jurisdictions including the E.U., the U.S., and others. The authors find that the market reaction to regulatory news is negative and statistically significant, with a stronger negative reaction associated with securities law announcements.

Koenraadt and Leung also determine that the overall market reaction to regulatory news events is negative, particularly if the announcements are related to securities regulation and exchange trading. These findings comport with a study by Shanaev and coauthors who find that regulation of exchanges and issuances impacts cryptoasset prices.<sup>146</sup> Similarly, Auer and Claessens, using an event study approach and focusing on major cryptocurrencies such as Bitcoin, XRP, Ether, and others, find that regulatory news regarding a possibility of applying securities law to cryptoasset markets is associated with a strong adverse market impact.<sup>147</sup>

The results of our study contribute to this prior work by showing a negative market reaction to enforcement actions as a distinct and prevalent regulatory method of the Commissions. Global crypto markets appear to distinguish between the Commissions, with the reaction to SEC enforcement being more negative. These results also provide support for the scholarship arguing that the CFTC and the SEC are fundamentally different entities and have distinct regulatory

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<sup>144</sup> See Raphael Auer & Stijn Claessens, *Regulating Cryptocurrencies: Assessing Market Reactions*, 2018 BIS Q. REV. 51; Jeroen Koenraadt & Edith Leung, *Investor Reactions to Crypto Token Regulation*, FIN. ACCT. J. (Feb. 22, 2019), <https://ssrn.com/abstract=3339197>; Ahmad Chokor & Elise Alfieri, *Long and Short-term Impacts of Regulation in the Cryptocurrency Market*, 81 Q. REV. ECON. & FIN. 157 (2020).

<sup>145</sup> Chokor & Alfieri, *supra* note 144.

<sup>146</sup> Savva Shanaev, et al., *Taming the Blockchain Beast?, Regulatory Implications for the Cryptocurrency Market*, 51 RES. IN INT'L BUS. & FIN. 1, 2 (2020).

<sup>147</sup> See, e.g., Auer & Claessens, *supra* note 144; Raphael Auer & Stijn Claessens, *Cryptocurrency Market Reactions to Regulatory News* (Globalization Inst., Working Paper No. 381, 2020), <http://dx.doi.org/10.24149/gwp381> [hereinafter Auer & Claessens, *Regulatory News*].

philosophies.<sup>148</sup> The distinction in price reaction also highlights the sensitivity of global crypto markets to the U.S. enforcement landscape and calls for more research on the respective approaches of the SEC and the CFTC.

We also contribute to the literature on the quality and liquidity of cryptoassets. For instance, Chokor and Alfieri’s cross-sectional analysis demonstrates that cumulative market-adjusted returns are less negative for less liquid cryptocurrencies, cryptoassets with more information asymmetry, as well as smaller cryptoassets, suggesting that markets view possible regulation of those cryptoassets more favorably. Our results contribute to Chokor and Alfieri’s conclusions. We find that more liquid assets tend to have a more negative reaction to the announcement of enforcement events. We also indicate, however, that risky and volatile assets are more negatively affected by the announcements.

Interestingly, Koenraadt and Leung’s cross-sectional analysis indicates that utility tokens (*i.e.*, a separate asset class distinct from what is commonly referred to as “cryptocurrencies”)<sup>149</sup> of better quality and with more transparent projects accompanied by voluntary disclosure experience a less negative reaction to regulatory news.<sup>150</sup> As opposed to Koenraadt and Leung, we do not distinguish between cryptoassets such as tokens and coins and consider all assets targeted by the Commissions in enforcement.

Our results, however, are broadly consistent with Chokor and Alfieri’s and Koenraadt and Leung’s conclusions that events signaling increased regulation (in our case, enforcement actions, which are often a one-way street portending an increase in regulation) have a negative effect on cryptoasset valuations. We further confirm these conclusions by examining the price reaction of Bitcoin and Ethereum, *i.e.*, the two assets that are decentralized commodities according to the

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<sup>148</sup> On the differences in the philosophies of the Commissions, *see, e.g.*, Markham, *supra* note 74, at 552–94; JERRY W. MARKHAM, *THE HISTORY OF COMMODITY FUTURES TRADING AND ITS REGULATION* 99–100 (1986); Heath P. Tarbert, *Rules for Principles and Principles for Rules: Tools for Crafting Sound Financial Regulation*, 10 HARV. BUS. L. REV. ONLINE 1 (2019-2020).

<sup>149</sup> For classifications and definitions, *see infra* Part E.

<sup>150</sup> Koenraadt and Leung examine market reaction to 174 news events in countries with significant token activity in terms of market capitalization. Koenraadt & Leung, *supra* note 144. Their findings may indicate that investors in utility tokens expect that good-quality and transparent token issuers are better prepared to handle upcoming regulatory challenges. Other research also suggests that crypto projects with better (mostly voluntary) disclosures, corporate governance mechanisms, and crypto-expert vetting have been more successful at raising capital. *See, e.g.*, Thomas Bourveau, et al., *The Role of Disclosure and Information Intermediaries in an Unregulated Capital Market: Evidence from Initial Coin Offerings*, 60 J. ACCT. RSCH. 129 (2021). In addition, projects that have better founders, transparency, and liquidity, among other factors, are associated with operational success in addition to a higher ability to raise capital. Sabrina T. Howell, et al., *Initial Coin Offerings: Financing Growth with Cryptocurrency Token Sales*, 33 REV. FIN. STUD. 3925 (2021).

CFTC. Importantly, we show that, even though crypto-investors perceive regulation via enforcement as a costly activity, this negative effect is offset by a more positive reaction to enforcement actions against fraudulent parties, *i.e.*, actions that contribute to better market quality and integrity. The following Parts discuss our analysis in detail.

## E. SAMPLE DATA

### 1. Cryptoasset Classifications

The word “cryptoasset” may refer to cryptocurrencies, virtual currencies, coins, tokens, stablecoins, and non-fungible tokens, among others. From a technological standpoint, coins may be called “native tokens,” which indicates that they are intrinsic to their underlying blockchain, while other tokens are built on existing blockchains and in this sense are non-native.<sup>151</sup> The White House’s Framework and the SEC cumulatively refer to these assets as “digital assets,” “issued and transferred using distributed ledger or blockchain technology, including, but not limited to, so-called ‘virtual currencies,’ ‘coins,’ and ‘tokens.’”<sup>152</sup>

Let us look at the specific terminology that may apply to different classes of cryptoassets. The first term is “cryptocurrency.” The CFTC defines “cryptocurrency” (also “digital currency” or “virtual currency”) “as a digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value, but does not have legal tender status in any jurisdiction.”<sup>153</sup> Put another way, a cryptocurrency performs all or some of the three functions of *money* without being associated with a particular state.<sup>154</sup> It is these virtual currencies that are often called coins or native tokens. Bitcoin is a good example of these cryptocurrencies.

Digital tokens are a broader category. The U.K. Financial Conduct Authority, for instance, sets forth the following classifications: e-money tokens,

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<sup>151</sup> U.S. Comm. Fut. Trading Comm’n, *LabCFTC Releases Digital Assets Primer*, Rel. No. 8336-20 (Dec. 17, 2020), <https://www.cftc.gov/PressRoom/PressReleases/8336-20> (“Digital token refers to a digital asset that requires another blockchain network to operate and may serve a variety of functions beyond virtual currency, e.g., utility tokens”)

<sup>152</sup> The Framework, *supra* note 120, at 12 n.2.

<sup>153</sup> In the Matter of: Coinflip, Inc., d/b/a Derivabit, and Francisco Riordan, C.F.T.C. Docket No. 15-29, at 2, n.2 (Sept. 17, 2015).

<sup>154</sup> Economists have questioned these functions of crypto. *See, e.g.*, Yermack, *supra* note 139.

security or investment tokens, and utility tokens.<sup>155</sup> The E.U. has proposed a similar taxonomy and added to these three categories “asset-referenced” tokens.<sup>156</sup> E-money and asset-referenced tokens are essentially stablecoins whose value is tied to commodities and/or currencies which can be either digital or non-digital assets.<sup>157</sup> Finally, utility tokens are, generally, “a type of crypto-asset which is intended to provide digital access to a good or service, available on DLT [, *i.e.*, distributed ledger technology], and is only accepted by the issuer of that token.”<sup>158</sup>

Our database covers enforcement actions instigated by the CFTC and the SEC against a variety of parties engaged in issuing, offering, rating, redeeming, and trading most of these diverse classes of assets. Following previous research that suggests that investor reactions to regulatory news do not differentiate between tokens and coins,<sup>159</sup> we include all types of cryptoassets in our enforcement database.<sup>160</sup> Moreover, the CFTC and the SEC do not distinguish between these subclasses of cryptoassets and consider tokens and coins commodities and/or securities.

The crypto currency price data are extracted from CoinGecko ([www.coingecko.com](http://www.coingecko.com)), which is one of the largest crypto price data aggregators. We extract daily prices, volume, and market capitalization of 2,397 liquid cryptoassets with a minimum market capitalization of \$1 million at the end of the period (-45,-5) preceding the announcement of enforcement actions. We use these data to compute abnormal returns around the announcement dates of the enforcement actions, “normal” returns or pre-announcement returns unaffected by

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<sup>155</sup> Policy Statement, *Guidance on Cryptoassets: Feedback and Final Guidance to CP 19/3*, FIN. CONDUCT AUTH. PS 19/22 (2019), <https://www.fca.org.uk/publication/policy/ps19-22.pdf>.

<sup>156</sup> *Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-assets, and amending Directive (EU) 2019/1937*, COM (2020) 593 final (Sept. 24, 2020) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020PC0593>.

<sup>157</sup> *Id.* Tit. I, Art. 3, at 34 (defining asset-referenced tokens as “a type of crypto-asset that purports to maintain a stable value by referring to the value of several fiat currencies that are legal tender, one or several commodities or one or several crypto-assets, or a combination of such assets”; defining e-money tokens as “a type of crypto-asset the main purpose of which is to be used as a means of exchange and that purports to maintain a stable value by referring to the value of a fiat currency that is legal tender.”).

<sup>158</sup> *Id.*

<sup>159</sup> Chokor & Alfieri, *supra* note 144, at 172.

<sup>160</sup> We exclude major stablecoins from our cryptoasset data but not from the enforcement database. The main stablecoins, such as USDC and Tether, have generally maintained their pegs over the years and may be less sensitive to enforcement shocks. At the same time, enforcement actions against stablecoins, particularly antifraud actions, may have broader implications for the crypto market.

the enforcement action, and volatility of pre-announcement returns as a measure of risk.

## 2. Enforcement data

Our sample of enforcement data consists of all actions initiated by the SEC and the CFTC between April 1, 2017, and November 1, 2021.<sup>161</sup> Although the DAO Report issued by the SEC<sup>162</sup> is widely regarded in the literature as the first clear policy statement on digital-asset securities, there were one crypto-related securities fraud case and one crypto-related trading suspension predating the Report.

We identify relevant cases by reviewing the Cyber Enforcement Actions database on the SEC's website,<sup>163</sup> and the CFTC cases reported on its website.<sup>164</sup> We also manually search for cases on Bloomberg Law, Westlaw, and LexisNexis.<sup>165</sup> Additionally, we examine Commissions' enforcement releases and annual reports. Each case is manually traced to dockets on Bloomberg Law, Westlaw, and LexisNexis.

Further, we review all complaints, orders, litigation and settlement releases, and final decisions and collect information on the key enforcement action characteristics. Specifically, we collect information about the statutory provisions involved, settlements, penalties, and disgorgement. Further, we identify the defendant and respondent type by assigning them into the following categories:

- "Issuer," which, for simplicity, we refer to as "ICO issuer" although it also includes security token offerings and other types of cryptoasset offerings.
- "Exchange." Crypto-exchanges are online trading platforms listing tokens and coins for trading. Crypto-exchanges may also provide placement and vetting services, similar to those of investment banks, for projects seeking listing. Consequently, they may serve as gatekeepers enabling not only

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<sup>161</sup> The sample does not include the 2016 action brought by the CFTC against Bitfinex. Only the 2021 order against Bitfinex is included. Starting our analysis in 2017 enables us to compare the two Commissions side by side. Before 2017, it was unclear whether the SEC would consider cryptoassets securities.

<sup>162</sup> The DAO Report, *supra* note 116, at 143.

<sup>163</sup> *Cyber Enforcement Actions*, U.S. SEC. & EXCH. COMM'N (2021), <https://www.sec.gov/spotlight/cyber.security-enforcement-actions>.

<sup>164</sup> CFTC, *Enforcement Actions*, <https://www.cftc.gov/LawRegulation/EnforcementActions/index.htm>.

<sup>165</sup> The comprehensive list of keywords for the search includes ICO, Initial Coin Offering, Blockchain, Bitcoin, Crypto, Cryptocurrency, SAFT, Agreement for Future Tokens, Smart Contract, STO, Security Token, Token, Digital Asset, Exchange Offering, Coin, Token Offering, and Virtual Currency.

listing and trading but also offerings. Crypto-exchanges may be centralized or decentralized.<sup>166</sup> In the United States, many crypto-exchanges are registered as money transmitters with the states, and several are ATS registered with the SEC.<sup>167</sup>

- “Rating agency.” Rating agencies in crypto are mainly unregistered platforms and firms providing opinions on the quality and ratings of cryptoassets and/or exchanges.
- “Broker-dealer.” The term as used in this article includes not only security broker-dealers but also FCMs in commodity and derivatives markets.
- “Investment fund.” The term covers investment companies and other funds in the crypto space.
- “Other” (*e.g.*, attorneys and promoters, including famous actors).

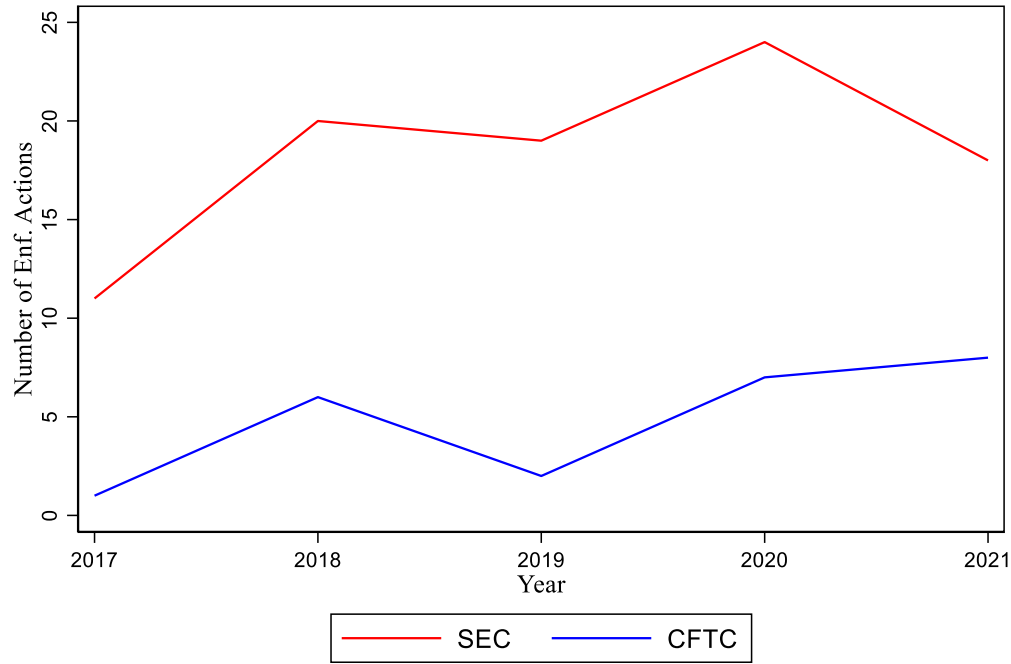
The final sample contains 116 enforcement actions, which include 27 CFTC actions and 89 SEC actions. Figure 1 demonstrates the temporal distribution of enforcement actions and shows a marked increase in enforcement activity by both agencies. The SEC actions increased from 5 in 2017 to 24 in 2020 and slightly declined after that. The CFTC actions increased from 1 in 2017 to 8 in 2021.

**Figure 1. Enforcement Actions by Year**

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<sup>166</sup> See generally Johnson, *supra* note 21.

<sup>167</sup> See, *e.g.*, Guseva, *supra* note 128.



### 3. Summary Statistics

In Table 1 we provide summary statistics for the variables used in our analyses. In Panel A we report abnormal returns around the announcement dates of enforcement actions (*i.e.*, event dates). We employ a standard event study methodology to construct abnormal returns on date  $t=0$  (event date) and cumulative abnormal returns over event windows  $(-1,0)$ ,  $(0,1)$ ,  $(-1,1)$  and  $(-3,3)$ . This approach is similar to that used by Joos and Leung,<sup>168</sup> Chokor and Alfieri,<sup>169</sup> and Koenraadt and Leung.<sup>170</sup> Incorporating additional pre- and post- event days into event windows allows us to account for early information leakage, slow incorporation of information into asset prices, and also correct for potential small errors in identification of the announcement date. Moreover, a wider event window  $(-3,3)$  allows us to determine the speed of information incorporation into returns.

<sup>168</sup> Philip P. M. Joos & Edith Leung, *Investor Perceptions of Potential IFRS Adoption in the United States*, 88 THE ACCOUNTING REV. 577 (2013).

<sup>169</sup> Chokor & Alfieri, *supra* note 144.

<sup>170</sup> Koenraadt & Leung, *supra* note 144.

We define enforcement action announcement by the date of the following actions taken by the SEC or the CFTC: 1) filing a complaint in a federal district court, 2) announcing an administrative enforcement action (*i.e.*, issuing an order instituting SEC cease-and-desist proceedings or instituting proceedings pursuant to the Commodity Exchange Act, often accompanied by a settlement), or 3) publication of a trading suspension. In three cases involving exchanges (Coinbase, Uniswap, and Terraform Labs), we use information about pending investigations and potential enforcement actions that was either leaked by the target (namely, Coinbase in a post)<sup>171</sup> or revealed in media sources.

We compute abnormal returns by subtracting the expected (*i.e.*, normal) return from the event day raw return. Further, we calculate cumulative abnormal returns (“CARs”) by adding up abnormal returns over the event window. The equation below illustrates the CAR methodology:

$$CAR = \sum_{t \in \tau} (R_t - \bar{R}_T) = \sum_{t \in \tau} \left( R_t - \frac{1}{\#(T)} \sum_{t' \in T} R_{t'} \right)$$

where  $\tau$  denotes the number of days in the event window affected by the enforcement action, uppercase T contains the days in the pre-event window,  $R_t$  is the return at  $t$ ,  $\bar{R}_T$  is the sample mean of pre-event to approximate the expected return. We define expected return by the average daily return during the pre-event window (-45,-5). The length of the window is short enough to minimize overlap with other enforcement actions. The event window ends 5 days before the event to ensure that pre-event information leakage does not affect the expected return.

The summary statistics for the pre-event and event cumulative abnormal returns are provided in Panel A of Table 1. We report returns over  $t=0$  and periods over days (-1,0), (0,1), (-1,1), and (-3,3) event windows and average daily return during the pre-event period (-45,-5). The sample of announcement date abnormal returns contains 82,444 observations. Since the observations in our sample are not independent and the returns are correlated in the cross-section at the asset and event time level, we cluster standard errors on those two dimensions. This reduces the degrees of freedom to the size of the smallest cluster (number of enforcement actions) and generates conservative t-statistics.

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<sup>171</sup> Paul Grewal, *The SEC has told us it wants to sue us over Lend. We don't know why*, THE COINBASE BLOG (Sept 7, 2021), <https://blog.coinbase.com/the-sec-has-told-us-it-wants-to-sue-us-over-lend-we-have-no-idea-why-a3a1b6507009>.

The global crypto market reaction to the announcement of enforcement actions by the U.S. regulators is negative regardless of the event window over which returns are measured. This result is consistent with other related studies' finding that crypto regulation is being generally perceived as a negative event by the market. However, it is interesting that *enforcement* actions of regulators in one market can so significantly move global cryptoasset values. This observation supports the theoretical arguments on the important international role of the U.S. SEC and the CFTC, which we examine in Part B of this article.

At the announcement date  $t=0$ , the one-day abnormal return ( $AR(0)$ ) is economically small (-0.004) and statistically insignificant ( $t$ -statistic=-0.880). However, for the two-day window that includes day  $t=-1$ , we observe some information leakage.  $CAR(-1,0)$  is -0.016 and significant at 5 percent level with a  $t$ -statistic of -2.260. The three day  $CAR(-1,1)$  is marginally smaller at (-0.015) with a  $t$ -statistic of -1.870 suggesting that the effect of the enforcement action attenuates shortly after the announcement. The extended seven-day  $CAR(-3,3)$  of -0.014 and statistically insignificant also demonstrates that the effect is concentrated on days (-1,0), has limited pre-event leakage, and is not long-lived.

In Panel B, we provide summary statistics of cryptoasset characteristics. We use median daily market capitalization of each individual cryptoasset during the pre-announcement period (-45,-5) as a measure of size. We use medians rather than means because means are sensitive to high volatility of cryptoasset values. The average value is \$812.185 million, and the median is significantly smaller, at \$10.912 million. This is indicative of considerable size variation in the cryptoasset space where well-established large assets like Bitcoin or Ethereum coexist with thousands of small assets.

Similar to market capitalization, our measure of volume is the median daily value of the pre-event volume. The average of these median values is \$85.985 million shares a day, while the median is only 0.447. This spread in the distribution of size and volume persists despite the exclusion of assets with less than \$1 million in market capitalization at the end of the pre-event period (day=-5). Finally, the average total buy-and-hold return during the pre-event period is large and positive at 0.195. This value is affected by some well-performing assets and the median asset earns a small negative return of -0.011. The average and median volatility of pre-event daily returns is 0.097 and 0.082, respectively.

In Panel C we report several characteristics of enforcement actions, which are likely to affect the market reaction to their announcements. As already described in Figure 1, the majority of enforcement actions are initiated by the SEC (76.8 percent) with the rest coming from the CFTC. Roughly half of the enforcement actions (55.4 percent) involve some form of fraud. We define fraud actions as those

dealing with fraudulent and manipulative behavior, including violations of Section 10 of the Securities Exchange Act and Rule 10b-5; Section 17 of the Securities Act; as well as Sections 6c, 6b, 4b, and 9 of the Commodity Exchange Act and Rule 180.1. Further, 63.5 percent of actions are registration violations, which mainly implicate Section 5 of the Securities Act; Sections 5 and 15 of the Securities Exchange Act; Section 7 of the Investment Company Act; and Sections 4(a), 4c, 4d, and 5h of the Commodity Exchange Act. Some actions involve both fraud and registration violations.

Most enforcement actions are focused on four large homogeneous groups of responders or defendants: ICO issuers (which include issuers not only in traditional ICOs but also in other types of cryptoasset offerings), brokers (including securities broker-dealers and futures commission merchants), exchanges, and funds, which account for nearly 86 percent of the sample. The remainder is spread across attorneys, promoters, rating agencies, and crypto-related firms (defined as firms whose business models include blockchain-related products and/or cryptoassets). The actions against ICO issuers dominate the sample at 43.4 percent, followed by brokers at 18.3 percent, exchanges at 13.8 percent, and funds at 10.2 percent. The average action has 2.884 respondents in administrative actions (or defendants in district court cases). The median is 2.000. The financial penalties consisting of fines, settlements, disgorgement awards, and pre-judgement interest average 41.88 million with a median of 0.543. A small percent of actions (3.4 percent) result in trading suspensions of securities of crypto-related firms and one ICO issuer.

In some of our robustness analyses we evaluate the effect of action visibility on the magnitude of the market reaction. We search for respondents' and defendants' names on Twitter over days (-1,1) relative to the action announcement and find that 74.3 percent of all actions have some form of coverage. Finally, in some cases, an agency may initiate separate actions against several respondents. This heightened regulatory activity is likely to attract more attention to the action. In 13.1 percent of enforcement actions there are other simultaneously initiated actions.

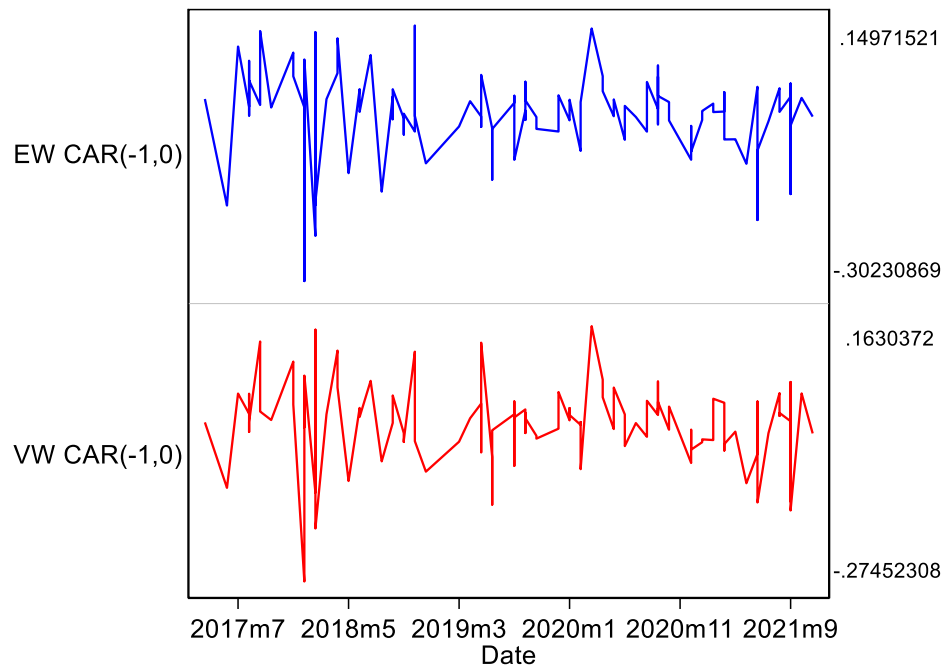
**Table 1. Summary Statistics**

This table reports summary statistics for variables used in the regression analyses. Panel A reports abnormal returns around enforcement action announcement dates. Panel B and Panel C report characteristics of cryptoassets and enforcement actions, respectively. In Panel A (unreported) standard errors in means tests are based on standard errors clustered at cryptoasset and event level.

| <b>Panel A. Filing and Decision Date Cumulative Abnormal Returns</b> |       |          |           |        |        |        |        |               |       |
|----------------------------------------------------------------------|-------|----------|-----------|--------|--------|--------|--------|---------------|-------|
|                                                                      | Obs.  | Mean     | t-stat.   | St.Dev | P25    | P50    | P75    | Min.          | Max.  |
| AR(0)                                                                | 82340 | -0.004   | -0.880    | 0.100  | -0.049 | -0.005 | 0.034  | -0.561        | 0.908 |
| CAR(-1,0)                                                            | 82340 | -0.016** | -2.260    | 0.132  | -0.082 | -0.014 | 0.042  | -0.934        | 1.000 |
| CAR(0,1)                                                             | 82340 | -0.003   | -0.430    | 0.126  | -0.066 | -0.006 | 0.052  | -1.123        | 1.065 |
| CAR(-1,1)                                                            | 82340 | -0.015*  | -1.870    | 0.147  | -0.097 | -0.015 | 0.057  | -0.460        | 0.609 |
| CAR(-3,3)                                                            | 82168 | -0.014   | -1.310    | 0.255  | -0.143 | -0.010 | 0.108  | -1.744        | 2.344 |
| Ave. Daily Ret.(-45,-5)                                              | 82340 | 0.006*** | 5.770     | 0.017  | -0.005 | 0.003  | 0.013  | -0.183        | 0.149 |
| <b>Panel B. Pre-Filing Cryptoasset Characteristics</b>               |       |          |           |        |        |        |        |               |       |
|                                                                      | Obs.  | Mean     | St.Dev    | P25    | P50    | P75    | Min.   | Max.          |       |
| Market.Cap.(Mil)                                                     | 82340 | 812.185  | 16589.230 | 3.456  | 10.912 | 48.231 | 1.000  | 1,145,912.000 |       |
| Volume (Mil)                                                         | 82340 | 85.985   | 1257.159  | 0.066  | 0.447  | 2.996  | 0.000  | 67,726.711    |       |
| Total Ret.(-45,-5)                                                   | 82340 | 0.195    | 0.839     | -0.291 | -0.011 | 0.388  | -0.997 | 6.383         |       |
| Volatility                                                           | 82340 | 0.097    | 0.059     | 0.057  | 0.082  | 0.120  | 0.001  | 0.574         |       |
| <b>Panel C. Enforcement Action Characteristics</b>                   |       |          |           |        |        |        |        |               |       |
|                                                                      | Obs.  | Mean     | St.Dev    | P25    | P50    | P75    | Min.   | Max.          |       |
| SEC                                                                  | 82340 | 0.768    | 0.422     | 1.000  | 1.000  | 1.000  | 0.000  | 1.000         |       |
| CFTC                                                                 | 82340 | 0.232    | 0.422     | 0.000  | 0.000  | 0.000  | 0.000  | 1.000         |       |
| Fraud                                                                | 82340 | 0.554    | 0.497     | 0.000  | 1.000  | 1.000  | 0.000  | 1.000         |       |
| Registration                                                         | 82340 | 0.635    | 0.481     | 0.000  | 1.000  | 1.000  | 0.000  | 1.000         |       |
| Broker                                                               | 82340 | 0.183    | 0.386     | 0.000  | 0.000  | 0.000  | 0.000  | 1.000         |       |
| ICO Issuer                                                           | 82340 | 0.434    | 0.496     | 0.000  | 0.000  | 1.000  | 0.000  | 1.000         |       |
| Exchange                                                             | 82340 | 0.138    | 0.345     | 0.000  | 0.000  | 0.000  | 0.000  | 1.000         |       |
| Fund                                                                 | 82340 | 0.102    | 0.302     | 0.000  | 0.000  | 0.000  | 0.000  | 1.000         |       |
| Other                                                                | 82340 | 0.143    | 0.350     | 0.000  | 0.000  | 0.000  | 0.000  | 1.000         |       |
| Number of Defendants                                                 | 78888 | 2.884    | 2.341     | 1.000  | 2.000  | 3.000  | 1.000  | 12.000        |       |
| Trading Suspension                                                   | 78402 | 0.034    | 0.180     | 0.000  | 0.000  | 0.000  | 0.000  | 1.000         |       |
| Total Penalties                                                      | 57364 | 41.880   | 165.715   | 0.000  | 0.543  | 7.000  | 0.000  | 1242.500      |       |
| Twitter                                                              | 82340 | 0.743    | 0.437     | 0.000  | 1.000  | 1.000  | 0.000  | 1.000         |       |
| Multiple Actions                                                     | 82340 | 0.131    | 0.337     | 0.000  | 0.000  | 0.000  | 0.000  | 1.000         |       |

The main focus of our empirical analyses is to examine the global crypto market reaction to the announcement of enforcement actions by the U.S. regulators. In Figure 2 we visually examine the average equal-weighted and value-weighted  $CAR(0,-1)$  for all 116 actions aggregated to monthly level. Value-weighted returns are weighted by the market value of cryptoassets at  $t=-5$  relative to the announcement date, which marks the end of the pre-event window. Rapid growth in the cryptoasset markets combined with the SEC's shift toward registration violations could have changed the direction and magnitude of market reaction to the enforcement actions during the sample period. However, we observe no directional change in either equal- or value-weighted returns. There is also no discernable size effect and value-weighted returns which are dominated by the returns of the two largest cryptoassets – Bitcoin and Ethereum – which behave in a way similar to equal-weighted returns. The only trend over our sample period is the attenuation of volatility in announcement returns. This suggests that the nature and the outcomes of enforcement actions may have become either more predictable or less impactful.

**Figure 2. Announcement Returns by Year**



## F. EMPIRICAL RESULTS

### 1. Enforcement Action Characteristics and Market Reaction

The summary statistics demonstrate that the SEC and CFTC enforcement actions have a negative valuation effect for both the median and mean cryptoassets. In this section we explore the cross-sectional determinants of the reaction to the enforcement actions by focusing on the characteristics of both the enforcement actions and cryptoassets themselves. We begin by looking at the average market reaction for different types of enforcement actions. Specifically, we focus on the agency initiating the action and whether the violation constitutes fraud.<sup>172</sup> These results are reported in Table 2.

**Table 2. Market Reaction to Enforcement Action by Action Type.**

This table presents average abnormal returns by enforcement type. Abnormal returns are returns adjusted by average daily return over days (-45, -5) relative to the filing date. First two columns report actions initiated by the SEC and CFTC. The third and fourth columns report actions involving fraud and non-fraud. The *t*-statistics are computed using standard errors corrected for clustering of observations by cryptoasset and event and are reported in parentheses below the estimates. \*\*\*, \*\*, \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.

|           | SEC      | t-stat | CFTC   | t-stat | Fraud  | t-stat | Non-fraud | t-stat |
|-----------|----------|--------|--------|--------|--------|--------|-----------|--------|
| AR(0)     | -0.008   | -1.310 | 0.007  | 1.050  | 0.005  | 1.080  | -0.015*   | 1.670  |
| CAR(-1,0) | -0.018** | -2.060 | -0.010 | -0.960 | -0.006 | -0.610 | -0.029*** | -2.870 |
| CAR(0,1)  | -0.008   | 1.000  | 0.012  | 0.900  | 0.007  | 0.930  | -0.014    | -1.420 |
| CAR(-1,1) | -0.018*  | -1.970 | -0.005 | -0.310 | -0.003 | -0.320 | -0.029**  | -2.570 |
| CAR(-3,3) | -0.015   | -1.10  | -0.010 | -0.036 | -0.005 | -0.320 | -0.025    | -1.310 |

These comparisons show that the actions initiated by the SEC are met with a negative reaction regardless of the event window. Event windows (-1,0) and (-1,1) have the largest and statistically significant returns measuring -0.018 in both cases with respective *t*-statistics of -2.060 and -1.970. In contrast, market reaction to the actions initiated by the CFTC is small and either positive or negative; none of the returns is statistically different from 0. Further, in all cases, the SEC actions have more negative returns than the CFTC actions, which is consistent with the investors' negative view of application of securities law to crypto.

Finally, we examine fraud actions versus those involving other violations. While regulation is generally viewed as a costly event and generates a negative

<sup>172</sup> Examining fraud as a separate category is important in light of several studies that suggest that cryptoasset offerings (particularly early ICOs) were riddled with misrepresentations and fraud. See generally Dirk A. Zetsche, et al., *supra* note 44, at 278-79, 287-89; Cohn et al., *supra* note 44.

market reaction, some types of regulation may have the potential to improve market quality with positive valuation implications.<sup>173</sup> We find that abnormal returns associated with fraud cases are positive for AR(0) and CAR(0,1) and are negative for the other three event windows. None of the fraud returns are statistically significant and distinguishable from zero. The non-fraud cases are markedly different with large negative returns, which are statistically significant for AR(0), CAR(-1,0) and CAR(-1,1). CAR(-1,0) and CAR(-1,1) are also economically large at -0.029. This suggests that while investors treat regulation (namely, enforcement of pre-crypto statutes) as an unfavorable and costly event for the crypto market, the cost of regulation in some cases is offset by the benefits of improved market quality and integrity.

To assess how cryptoasset and enforcement action characteristics affect the market reaction to enforcement actions, we estimate an OLS model on a dataset consisting of filing returns for 82,444 cryptoasset-enforcement action pairs. In the interest of brevity, we focus on AR(0), CAR(-1,0), and CAR(0,1). We control for the type of action and crypto characteristics that have been shown to explain cross-section of returns. Our cryptoasset controls include pre-event market capitalization, volume, buy-and-hold return, and volatility. In this dataset, the observations are correlated by the cryptoasset and event levels. This cross-sectional correlation violates the independence assumption of the test statistics and may overestimate the significance of market reaction in our analyses at the cryptoasset level.<sup>174</sup> Therefore, we cluster the standard errors at the event- and cryptoasset-level by implementing the estimator of Correia.<sup>175</sup>

## 2. Multivariate Analyses of Market Reaction

In Table 3 we show the effect of the enforcement action type on returns over days AR(0), CAR(-1,0), and CAR(0,1). For each return, we estimate three models which control for cryptoasset characteristics and enforcement action characteristics. We focus on the following enforcement action characteristics: SEC actions (*i.e.*, not CFTC actions) and fraud or registration violation. We estimate the effect of one action characteristic at a time to determine its independent effect. In two out of three models, SEC actions have a more negative statistically significant effect than CFTC actions. The SEC action return is -0.017 percent more negative than the return associated with CFTC actions (t-statistic is 1.9) in the AR(0) model.

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<sup>173</sup> For a theoretical discussion, see *infra* Section G(1).

<sup>174</sup> Stephen J. Brown & Jerold B. Warner, *Measuring Security Price Performance*, 8 J. OF FIN. ECONOMICS 205 (1980).

<sup>175</sup> Sergio Correia, *A Feasible Estimator for Linear Models with Multi-way Fixed Effects* (2016), <http://scorreia.com/research/hdfe.pdf>.

In the CAR(0,1) model, this effect is more economically meaningful at -0.024 with a t-statistic of 1.67.

Enforcement actions focused on fraud mitigate the negative reaction to enforcement actions, which is consistent with the view of regulation as improving disclosure and market quality. The strongest difference in returns between fraud and non-fraud cases is observed for AR(0) with the coefficient estimate of 0.018 with the t-statistic of 1.93. The coefficient estimates of fraud in the other two regressions are also positive and economically large (0.022 and 0.020, respectively) but the t-statistics of 1.63 and 1.55 fall slightly short of meeting traditional levels of statistical significance.

Further, registration violations do not have a strong market reaction. We include in the category *Registration* failures 1) to register securities under Securities Act Section 5 (in actions usually initiated against issuers of cryptoassets); 2) to register with the CFTC as a DCM, swap execution facility, or FCM under the Commodity Exchange Act; and 3) to register as a securities exchange or securities broker-dealer under the Securities Exchange Act.<sup>176</sup> The objective of this category is to distinguish these violations from antifraud cases. We further separate out these markets participants and measure the reaction to actions against each of these categories in a separate model.<sup>177</sup>

For combined registration violations, the coefficients are negative in AR(0) and CAR(-1,0) regressions and small and positive in CAR(0,1) regression. None of the coefficients are statistically significant. These results also highlight the stronger differential effect of enforcement characteristics observed on day  $t=0$  in AR(0); this effect is then diluted by the information coming out on days  $t=-1$  and  $t=1$ . It is reasonable that  $t=-1$  information is incomplete or inaccurate and day  $t=1$  return is affected by the new information unrelated to the enforcement action.

Lastly, cryptoasset characteristics have an effect in the individual cryptoasset's response to the enforcement action's announcement. We include a measure of pre-announcement market capitalization, daily trading volume, buy-and-hold return over pre-event window, and standard deviation of daily returns. Surprisingly, asset size has little effect on the market reaction to enforcements. Log(Market Capitalization) coefficients remain small and positive in eight out of nine regression and none of the coefficients are statistically significant or approach conventional levels of statistical significance. The coefficients in log transformed

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<sup>176</sup> For the respective statutory frameworks, see *supra* Part C.

<sup>177</sup> *Infra* Section F(4).

models of coefficients may be interpreted as a 1% change in market capitalization associated with a coefficient \*1% change in announcement reaction.

We also find that more liquid assets tend to have a more negative reaction to the announcement as in all nine regressions the coefficients are negative, ranging from -0.001 to -0.002 and significant at least at 5 percent level or better. Similarly, assets with the largest pre-filing returns lose more value around the announcement. In AR(0) regressions, the coefficient is around -0.011 to -0.013, and in two-day regressions, they are approximately double those values (*i.e.*, absolute values). In eight out nine regressions, the coefficients are statistically significant. Finally, risky and volatile assets are more negatively affected by the announcements. Similar to returns, the magnitude of volatility coefficients in AR(0) regressions is approximately -0.111 to -0.117. This effect roughly doubles in two-day return regressions. In all cases, the effect is significant at a one-percent level. To summarize, investors view more liquid, better performing, and riskier cryptoassets as more vulnerable to the regulation (through enforcement actions) after controlling for the agency initiating the action or type of enforcement.

**Table 3. The Effect of Crypto and Enforcement Action Characteristics on Market Reaction.**

This table presents OLS regression estimates of the relation between abnormal filing returns around the enforcement action filing date and enforcement action and cryptoasset characteristics. Abnormal returns are returns adjusted by average daily return over days (-45, -5) relative to the filing date. SEC is a binary variable equal 1 if the action is initiated by the SEC and 0 if the action is initiated by the CFTC. Fraud is a binary variable equal to 1 if the violation constitutes fraud and 0 otherwise. Registration is a binary variable equal to 1 if the action is targeting a registration violation and 0 otherwise. Twitter is a binary variable equal to 1 if the action is covered on Twitter and 0 otherwise. Multiple Actions is a binary variable equal to 1 if other crypto actions were files the same day and 0 otherwise. Log Market Capitalization (Volume) is a natural log of median daily cryptoasset's market capitalization (trading volume) during pre-filing period (-45,-5) during pre-filing period (-45,-5). Pre-filing return is cryptoasset return over pre-filing period (-45,-5). Volatility is standard deviation of daily cryptoasset returns over pre-filing period (-45,-5). The *t*-statistics are computed using standard errors corrected for clustering of observations by cryptoasset and event and are reported in parentheses below the estimates. \*\*\*, \*\*, \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.

|                 | AR(0)     |           |           | CAR(-1,0) |           |           | CAR(0,1)  |           |           |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                 | (1)       | (2)       | (3)       | (4)       | (5)       | (6)       | (7)       | (8)       | (9)       |
| SEC             | -0.017*   |           |           | -0.014    |           |           | -0.024*   |           |           |
|                 | (-1.90)   |           |           | (-1.13)   |           |           | (-1.67)   |           |           |
| Fraud           |           | 0.018*    |           |           | 0.022     |           |           | 0.020     |           |
|                 |           | (1.93)    |           |           | (1.63)    |           |           | (1.55)    |           |
| Registration    |           |           | -0.006    |           |           | -0.019    |           |           | 0.001     |
|                 |           |           | (-0.60)   |           |           | (-1.46)   |           |           | (0.10)    |
| Log Mkt.Cap     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | -0.000    | 0.000     | 0.001     | 0.000     |
|                 | (0.09)    | (0.38)    | (0.09)    | (0.00)    | (0.22)    | (-0.08)   | (0.13)    | (0.36)    | (0.19)    |
| Log Volume      | -0.001**  | -0.001**  | -0.001**  | -0.002**  | -0.002*** | -0.002**  | -0.001**  | -0.002**  | -0.001**  |
|                 | (-2.10)   | (-2.30)   | (-2.01)   | (-2.42)   | (-2.74)   | (-2.36)   | (-2.02)   | (-2.12)   | (-1.98)   |
| Pre-filing Ret. | -0.013*   | -0.011    | -0.013*   | -0.031**  | -0.029**  | -0.032**  | -0.028*** | -0.026*** | -0.027*** |
|                 | (-1.74)   | (-1.51)   | (-1.75)   | (-2.35)   | (-2.21)   | (-2.46)   | (-2.95)   | (-2.72)   | (-2.82)   |
| Volatility      | -0.117*** | -0.117*** | -0.111*** | -0.260*** | -0.262*** | -0.254*** | -0.219*** | -0.217*** | -0.211*** |
|                 | (-2.80)   | (-2.76)   | (-2.64)   | (-3.33)   | (-3.39)   | (-3.35)   | (-3.82)   | (-3.73)   | (-3.59)   |
| Obs.            | 82340     | 82340     | 82340     | 82340     | 82340     | 82340     | 82340     | 82340     | 82340     |
| R2              | 0.016     | 0.019     | 0.011     | 0.037     | 0.041     | 0.039     | 0.034     | 0.034     | 0.028     |

### 3. Enforcement Publicity Measures

So far, our analyses indicate that the current state of U.S. cryptoasset regulation through enforcement is viewed by the global markets as an unfavorable, albeit short-lived, event with the most negative reactions concentrated in the SEC actions and actions that have no substantive effect on market quality (*i.e.*, non-fraud actions). In the next table, we examine the effect of action visibility on the reaction to enforcement announcements. The strength and speed with which value-relevant content of a regulatory action is incorporated into asset values depends on the information being available to investors. Since the crypto-investor base is not only global but also heavily retail, it is unclear how any lack of media coverage may affect returns.

We conduct time-constrained searches of Twitter, a social media platform which retail investors use for financial information sharing, over days (-1,1) relative to the enforcement announcements using the names of respondents/defendants. This information is used to construct a binary variable for Twitter coverage. Additionally, in some cases multiple enforcement actions (which may be launched by the same agency against several entities) are initiated simultaneously. These actions may be more noticeable and perceived as a stronger signal of an agency's enforcement intent.

In Table 4 we estimate six models – two for each of the three return types – using a specification similar to that in Table 3. For each return, we estimate one model that combines *SEC* and *Fraud* variables. The second model adds publicity variables *Twitter* and *Multiple Actions*. Finally, all models have cryptoasset level controls for pre-event size, volume, return, and volatility. Similar to previous results, AR(0) models show the strongest difference in returns between SEC and CFTC cases and fraud and non-fraud actions. Both binary variables have statistically significant coefficients. In model 2, day  $t=0$  abnormal return is -0.015 more negative for the SEC actions ( $t\text{-stat.}=1.96$ ) and 0.016 less negative for actions disciplining fraud ( $t\text{-stat.}=1.75$ ). These coefficients maintain their signs in all other models and are either statistically significant or close to significance.

Interestingly, neither measure of publicity is either strongly or convincingly related to announcement returns. For example, *Twitter* is positive in two out of three regressions and is not significant in any of them. *Multiple Actions* is negative in two models and has a negative coefficient of -0.024 with a  $t$ -statistic of 1.82, suggesting that the news of more rigorous enforcement negatively affects crypto prices over event days (0,1). Overall, our baseline results are not sensitive to proxies of publicity and our initial result of the negative SEC effect. Similarly, the non-fraud actions' effect continues to hold.

**Table 4. The Effect of Enforcement Action Visibility on Market Reaction.**

This table presents OLS regression estimates of the relation between abnormal filing returns around the enforcement action filing date and enforcement action and cryptoasset characteristics. Abnormal returns are returns adjusted by average daily return over days (-45, -5) relative to the filing date. SEC is a binary variable equal 1 if the action is initiated by the SEC and 0 if the action is initiated by the CFTC. Fraud is a binary variable equal to 1 if the violation constitutes fraud and 0 otherwise. Twitter is a binary variable equal to 1 if the action is covered on Twitter and 0 otherwise. Multiple Actions is a binary variable equal to 1 if other crypto actions were files the same day and 0 otherwise. Log Market Capitalization (Volume) is a natural log of median daily cryptoasset's market capitalization (trading volume) during pre-filing period (-45,-5) during pre-filing period (-45,-5). Pre-filing return is cryptoasset return over pre-filing period (-45,-5). Volatility is standard deviation of daily cryptoasset returns over pre-filing period (-45,-5). The *t*-statistics are computed using standard errors corrected for clustering of observations by cryptoasset and event and are reported in parentheses below the estimates. \*\*\*, \*\*, \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.

|                  | AR(0)   |         | CAR(-1,0) |         | CAR(0,1) |         |
|------------------|---------|---------|-----------|---------|----------|---------|
|                  | (1)     | (2)     | (3)       | (4)     | (5)      | (6)     |
| SEC              | -0.014* | -0.015* | -0.010    | -0.005  | -0.020   | -0.028* |
|                  | (-1.69) | (-1.96) | (-0.85)   | (-0.45) | (-1.46)  | (-1.83) |
| Fraud            | 0.016*  | 0.016*  | 0.020     | 0.021   | 0.016    | 0.017   |
|                  | (1.75)  | (1.75)  | (1.48)    | (1.45)  | (1.34)   | (1.54)  |
| Twitter          |         | -0.003  |           | 0.004   |          | 0.016   |
|                  |         | (-0.38) |           | (0.28)  |          | (1.34)  |
| Multiple Actions |         | -0.006  |           | 0.015   |          | -0.024* |
|                  |         | (-0.66) |           | (1.02)  |          | (-1.82) |
| Controls         | Yes     | Yes     | Yes       | Yes     | Yes      | Yes     |
| Observations     | 82340   | 82340   | 82340     | 82340   | 82340    | 82340   |
| R2               | 0.022   | 0.022   | 0.042     | 0.044   | 0.038    | 0.041   |

#### 4. Types of Defendants and Respondents and Market Reaction

We have observed a significant amount of variation in the types of respondents/defendants targeted by enforcement actions. The focus on a certain type of respondents or defendants may have implications for further regulatory

activity. In Table 5, we study the effect of the respondent/defendant type on the announcement reaction. Similar to previous regressions, we use a specification with enforcement action characteristics (the respondent/defendant type) and cryptoasset controls. In all models, the errors are clustered at cryptoasset and date levels. We estimate these models for the entire sample (Models 1-3) and a subsample of SEC actions (Models 4-6).

Our key independent variables are dummy variables that capture the respondent/defendant type: *Broker*, *ICO Issuer*, *Exchange*, and *Fund*. Their coefficients will be estimated relative to the remaining category *Other* that consists of other multiple poorly represented parties. In many cases, these parties (promoters, attorneys, rating agencies, and crypto-related firms) are unlikely to have significant value implications for the cryptoasset market. Of these four categories, funds have the least negative reaction relative to the *Other* category and relative to exchanges, brokers, and ICO issuers. The coefficients alternate between positive and negative and are never statistically significant.

The most significant effect is observed for exchanges, which have a broad and critical impact on the trading of cryptoassets. The coefficients are significant in AR(0) and CAR(-1,0) models in the overall sample and in the SEC subsample, at a 5 percent level in both cases. The magnitude of the coefficients ranges from -0.044 to -0.060, and they are larger in the SEC regressions. Brokers and ICO issuers fall in the middle of the range with some statistically significant coefficients and some that are very close to statistical significance. Similar to the other models, these coefficients are more negative in the SEC action subsample. In summary, we find that the enforcement actions that have the potential for the most profound and costly effect on the largest number of crypto market participants are met with the most negative market reaction.

**Table 5. The Effect of Respondent/Defendant Type on Market Reaction to Enforcement Actions.**

This table presents OLS regression estimates of the relation between abnormal filing returns around the enforcement action filing date and the types of respondents/defendants targeted by the enforcement action. The first three models are estimated using the full sample; the last three columns are estimated using only SEC actions. Abnormal returns are returns adjusted by average daily return over days (-45, -5) relative to the filing date. Broker (ICO Issuer/Exchange/Fund) is a binary variable equal to 1 if the respondent or defendant is a broker (ICO issuer/exchange/fund) and 0 otherwise. Controls include Log Market Capitalization, Volume, Pre-filing Return and Volatility. Log Market Capitalization (Volume) is a natural log of median daily cryptoasset's market capitalization (trading volume) during pre-filing period (-45,-5) during pre-filing period (-45,-5). Pre-filing Return is cryptoasset return over pre-filing period (-45,-5). Volatility is standard deviation of daily cryptoasset returns over pre-filing period (-45,-5). The *t*-statistics are computed using standard errors corrected for clustering of observations by cryptoasset and event and are reported in parentheses below the estimates. \*\*\*, \*\*, \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.

|              | All Actions |           |          | SEC Actions |           |          |
|--------------|-------------|-----------|----------|-------------|-----------|----------|
|              | AR(0)       | CAR(-1.0) | CAR(0.1) | AR(0)       | CAR(-1.0) | CAR(0.1) |
|              | (1)         | (2)       | (3)      | (4)         | (5)       | (6)      |
| Broker       | -0.019      | -0.028*   | -0.009   | -0.044**    | -0.046*   | -0.040   |
|              | (-1.50)     | (-1.73)   | (-0.48)  | (-2.18)     | (-1.83)   | (-1.25)  |
| ICO Issuer   | -0.019**    | -0.029    | -0.007   | -0.023***   | -0.033    | -0.007   |
|              | (-2.45)     | (-1.63)   | (-0.63)  | (-2.74)     | (-1.61)   | (-0.54)  |
| Exchange     | -0.044**    | -0.050**  | -0.033   | -0.055**    | -0.060**  | -0.042   |
|              | (-2.09)     | (-2.22)   | (-1.45)  | (-2.05)     | (-2.09)   | (-1.45)  |
| Fund         | 0.001       | -0.009    | 0.018    | -0.015      | -0.022    | 0.012    |
|              | (0.10)      | (-0.46)   | (0.69)   | (-1.50)     | (-0.91)   | (0.46)   |
| Controls     | Yes         | Yes       | Yes      | Yes         | Yes       | Yes      |
| Observations | 82340       | 82340     | 82340    | 63201       | 63201     | 63201    |
| R2           | 0.027       | 0.047     | 0.038    | 0.038       | 0.043     | 0.045    |

## 5. Are Bitcoin and Ethereum Special?

The cryptoasset market is dominated by the two largest assets – Bitcoin and

Ethereum. For better perspective, the distribution of the entire cryptoasset market capitalization is highly skewed. For example, at the end of our sample period, the top two coins (Bitcoin and Ethereum) account for 57.68% of the entire market share, top 50 coins account for 90.10%, and top 130 coins account for 95.08%. Ethereum and Bitcoin also differ from the rest of the cryptoasset market in terms of their classification as commodities and not securities. As discussed in Part C, several district courts, as well as the CFTC itself, have held that Bitcoin is a commodity. While we are not aware of case law related to Ethereum, the CFTC has long stated that it is a commodity. CFTC Chair Behnam repeated this position in an interview with CNBC as recently as May 2022.<sup>178</sup>

In Table 6, we examine how these two largest cryptoassets respond to enforcement news. We repeat several of our prior analyses using the market reactions of these two cryptoassets to a sample of 116 enforcement actions. Overall, the statistical significance is much weaker, but the economic significance is similar to our prior results.

In Panel A, we replicate Table 2 for the sample of Bitcoin and Ethereum. Regardless of the type of enforcement, the abnormal returns are not consistently negative and never statistically significant. In Panel B, we replicate Table 3 and find evidence of statistically significant and negative SEC effect in AR(0) regression. The coefficient of SEC is negative in two other regressions. The coefficient estimate on fraud is positive but not significant, and the registration coefficient has a mix of positive and negative coefficients.

This weak effect is not surprising. As these two cryptocurrencies are well-established, decentralized, and global, investors may be viewing U.S. enforcement risk to Bitcoin and Ethereum as low. Finally, in Panel C, we replicate Table 5. Interestingly, Bitcoin and Ethereum also react negatively to enforcement actions targeting exchanges and, to a lesser extent, brokers. The coefficient estimate on *Exchange* dummy is significant in all regressions and ranges from -0.047 to as large as -0.070. All coefficients of *Brokers* dummy are significant in two out of six regressions.

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<sup>178</sup> *Bitcoin, ethereum are commodities, says CFTC Chair Rostin Behnam*, CNBC, SQUAWK BOX, May 16, 2022, <https://www.cnbc.com/video/2022/05/16/bitcoin-ethereum-are-commodities-says-cftc-chair-rostin-behnam.html?&qsearchterm=cryptocurrency>.

**Table 6. Bitcoin and Ethereum Market Reaction to Enforcement Actions.**

This table presents summary statistics and OLS regressions of the abnormal filing returns for Bitcoin and Ethereum. In Panel A we provide summary statistics for abnormal returns grouped by types of enforcement action. In Panels B and C we report OLS regressions of enforcement action announcement returns. Abnormal returns are returns adjusted by average daily return over days (-45, -5). SEC is a binary variable equal 1 if the action is initiated by the SEC and 0 if the action is initiated by the CFTC. Fraud is a binary variable equal to 1 if the violation constitutes fraud and 0 otherwise. Registration is a binary variable equal to 1 if the action is targeting a registration violation and 0 otherwise. Broker (ICO Issuer/Exchange/Fund) is a binary variable equal to 1 if the respondent or defendant is a broker (ICO issuer/exchange/fund) and 0 otherwise. Log Market Capitalization (Volume) is a natural log of median daily cryptoasset's market capitalization (trading volume) during pre-filing period (-45,-5) during pre-filing period (-45,-5). Pre-filing return is cryptoasset return over pre-filing period (-45,-5). Volatility is standard deviation of daily cryptoasset returns over pre-filing period (-45,-5). The *t*-statistics are computed using standard errors corrected for clustering of observations by event date and are reported in parentheses below the estimates. \*\*\*, \*\*, \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.

| Panel A. Filing Date Cumulative Abnormal Returns by Action Type for Bitcoin and Ethereum |        |        |        |        |        |        |           |        |
|------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|-----------|--------|
|                                                                                          | SEC    | t-stat | CFTC   | t-stat | Fraud  | t-stat | Non-fraud | t-stat |
| AR(0)                                                                                    | 0.001  | 0.310  | 0.004  | 0.800  | 0.004  | 0.890  | 0.001     | 0.160  |
| CAR(-1,0)                                                                                | -0.000 | -0.060 | -0.004 | -0.520 | -0.001 | -0.140 | -0.003    | -0.390 |
| CAR(0,1)                                                                                 | 0.004  | 0.620  | 0.008  | 1.100  | 0.006  | 1.020  | 0.004     | 0.610  |
| CAR(-1,1)                                                                                | 0.002  | 0.250  | -0.000 | -0.050 | 0.002  | 0.180  | 0.000     | 0.040  |
| CAR(-3,3)                                                                                | -0.001 | -0.050 | -0.004 | -0.300 | -0.002 | -0.140 | -0.002    | -0.180 |

| Panel B. Determinants of Filing Returns for Bitcoin and Ethereum |         |        |         |           |        |         |          |        |
|------------------------------------------------------------------|---------|--------|---------|-----------|--------|---------|----------|--------|
|                                                                  | AR(0)   |        |         | CAR(-1,0) |        |         | CAR(0,1) |        |
|                                                                  | (1)     | (2)    | (3)     | (4)       | (5)    | (6)     | (7)      | (8)    |
| SEC                                                              | -0.017* |        |         | -0.002    |        |         | -0.019   |        |
|                                                                  | (-1.72) |        |         | (-0.16)   |        |         | (-1.37)  |        |
| Fraud                                                            |         | 0.006  |         |           | 0.004  |         |          | 0.008  |
|                                                                  |         | (0.73) |         |           | (0.28) |         |          | (0.65) |
| Registration                                                     |         |        | -0.008  |           |        | -0.013  |          | 0.002  |
|                                                                  |         |        | (-0.91) |           |        | (-1.02) |          | (0.14) |
| Controls                                                         | Yes     | Yes    | Yes     | Yes       | Yes    | Yes     | Yes      | Yes    |
| Obs.                                                             | 232     | 232    | 232     | 232       | 232    | 232     | 232      | 232    |
| R2                                                               | 0.014   | -0.003 | -0.001  | 0.038     | 0.038  | 0.045   | 0.017    | 0.008  |

| Panel C. The Effect of Respondent/Defendant Type on Market Reaction to the Filing. |                     |                      |                     |                     |                      |                     |
|------------------------------------------------------------------------------------|---------------------|----------------------|---------------------|---------------------|----------------------|---------------------|
|                                                                                    | All Actions         |                      |                     | SEC Actions         |                      |                     |
|                                                                                    | AR(0)               | CAR(-1,0)            | CAR(0,1)            | AR(0)               | CAR(-1,0)            | CAR(0,1)            |
|                                                                                    | (1)                 | (2)                  | (3)                 | (4)                 | (5)                  | (6)                 |
| Broker                                                                             | -0.012<br>(-0.98)   | -0.036*<br>(-1.89)   | -0.013<br>(-0.76)   | -0.016<br>(-1.26)   | -0.040**<br>(-2.20)  | -0.020<br>(-0.99)   |
| ICO Issuer                                                                         | -0.016<br>(-1.62)   | -0.026<br>(-1.32)    | -0.015<br>(-1.01)   | -0.016<br>(-1.52)   | -0.026<br>(-1.28)    | -0.015<br>(-0.93)   |
| Exchange                                                                           | -0.047**<br>(-2.38) | -0.069***<br>(-3.07) | -0.049**<br>(-2.32) | -0.047**<br>(-2.23) | -0.070***<br>(-2.90) | -0.050**<br>(-2.24) |
| Fund                                                                               | 0.004<br>(0.35)     | -0.010<br>(-0.40)    | 0.012<br>(0.42)     | 0.005<br>(0.40)     | -0.010<br>(-0.37)    | 0.017<br>(0.60)     |
| Controls                                                                           | Yes                 | Yes                  | Yes                 | Yes                 | Yes                  | Yes                 |
| Observations                                                                       | 232                 | 232                  | 232                 | 208                 | 208                  | 208                 |
| R2                                                                                 | 0.043               | 0.081                | 0.032               | 0.044               | 0.078                | 0.039               |

## 6. Penalties and Other Measures

Our last analysis zeroes in on the effect of disclosed or anticipated penalties on market reaction to enforcement actions. If the penalties are viewed as a potential regulatory cost that can affect other crypto market participants, it is interesting to examine which components of penalties are affecting valuation of the crypto market.

In Table 7, we model the announcement reaction as a function of multiple penalties and cryptoasset characteristics as control variables. Our dependent variable continues to be the three types of announcement returns because in most actions announcement and completion dates coincide.<sup>179</sup> In untabulated analyses,

<sup>179</sup> This typically happens when the SEC or the CFTC release an order instituting proceedings, making findings, imposing sanctions, and often simultaneously settling the matter.

we have used completion date returns, which produced qualitatively similar results. The penalties consist of both financial and nonfinancial penalties, and this part of our analysis includes the number of respondents/defendants, the binary indicators for officers charged, cease-and-desist order or injunctions, and court cases or administrative actions. We also include natural logs for financial penalties measuring fines and settlements and a binary variable for the disgorgement of funds. We use a binary variable for disgorgement because it usually signals an end of a project and a continuous variable is effectively a measure of project size, which is already captured by market capitalization.

The effects of penalties are noisy across different return models, but, in general, cease-and-desist orders or injunctions and settlements are associated with a more negative reaction. In CAR(0,1) model, we also observe a significant positive coefficient on the number of respondents/defendants charged in one or several related actions. However, taken together, these findings do not paint a coherent picture of the penalties capitalized into the values of cryptoassets.

It is possible that the market reacts to an initial news of an enforcement action, which in itself is a clear signal of a more expansive regulatory approach. The SEC and the CFTC have an unbroken (so far) track record of success in crypto-related enforcement, which strongly suggests, *inter alia*, that once a case is initiated, some penalties are forthcoming. By contrast, specifics of ultimate penalties differ depending on cooperation of individual defendants and respondents, the facts of a case, and other factors, which make penalties less certain and quantifiable at the time of case filing.

### Table 7. Market Reaction to Penalties

This table presents OLS regression estimates of the relation between abnormal filing returns around the enforcement action completion date and imposed penalties. Abnormal returns are returns adjusted by average daily return over days (-45, -5) relative to the decision date. Number of Resp./Def. is the number of defendants or respondents listed in the filing. Officers Charged is a binary variable equal to 1 if the officers/directors are charged and 0 otherwise. Court is a binary variable equal to 1 if the action is litigated and 0 if is administrative. Cease and Desist/Injunction is a binary variable equal to 1 if there is a cease and desists or injunction order and 0 otherwise. Disgorgement is a binary variable equal to 1 if disgorgement of funds is ordered and 0 otherwise. Log (Fine, Settlement) is the natural log of Fine or Settlement. Controls include Log Market Capitalization, Volume, Pre-filing Return and Volatility. Log Market Capitalization (Volume) is a natural log of median daily cryptoasset's market capitalization (trading volume) during pre-filing period (-45,-5) during pre-filing period (-45,-5). Pre-filing Return is cryptoasset return over pre-filing period (-45,-5). Volatility is standard deviation of daily cryptoasset returns over pre-decision period (-45,-5). The *t*-statistics are computed using standard errors corrected for clustering of observations by cryptoasset and event and are reported in parentheses below the estimates. \*\*\*, \*\*, \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.

|                              | AR(0)    | CAR(-1,0) | CAR(0,1) |
|------------------------------|----------|-----------|----------|
|                              | (1)      | (2)       | (3)      |
| Num.Resp./Def.               | -0.000   | 0.000     | 0.004*   |
|                              | (-0.02)  | (0.13)    | (1.81)   |
| Officers Charged             | -0.000   | 0.004     | 0.001    |
|                              | (-0.04)  | (0.26)    | (0.05)   |
| Court                        | -0.001   | -0.024    | -0.001   |
|                              | (-0.15)  | (-1.47)   | (-0.07)  |
| Cease and Desist/ Injunction | -0.019** | -0.026*   | -0.016   |
|                              | (-2.25)  | (-1.96)   | (-1.39)  |
| Disgorgement                 | -0.004   | -0.003    | -0.006   |
|                              | (-0.37)  | (-0.18)   | (-0.38)  |
| Log Fine                     | -0.000   | -0.000    | -0.001   |
|                              | (-0.13)  | (-0.36)   | (-0.45)  |
| Log Settlement               | -0.001*  | 0.000     | -0.001   |
|                              | (-1.83)  | (0.30)    | (-1.49)  |
| Controls                     | Yes      | Yes       | Yes      |
| Observations                 | 56,939   | 56,939    | 56,939   |
| R2                           | 0.029    | 0.051     | 0.060    |

## G. THEORETICAL INTERPRETATIONS

### 1. A Summary of the Results

To summarize our results, global crypto markets are sensitive to U.S.-led enforcement efforts and regulatory fragmentation between U.S. agencies. The price reaction is particularly negative with respect to several categories of actors, such as issuers and developers of cryptoassets, brokers, and (especially) crypto-exchanges. The markets react differently to *who* enforces U.S. law: the SEC (in securities law enforcement actions) or the CFTC (in commodity and derivatives law enforcement). The SEC actions are met with a more negative market reaction. These effects, however, are somewhat weaker for Bitcoin and Ether, which have traditionally been viewed as well-established, decentralized, and global

cryptocurrencies. Both are typically classified as commodities and may be less sensitive to U.S.-based enforcement risks.

In addition, while crypto-investors view regulation through enforcement as a costly activity for the markets, this negative effect is offset by a more positive reaction to antifraud actions which improve market integrity. The results also depend on the quality characteristics of the assets. Both of these observations suggest that proper regulatory approaches may improve market quality. In this Part, we consider several possible explanations.

## 2. Flawed Regulation or Imperfect Enforcement?

Our results lend support to the theories about the crucial role U.S. regulators play in global financial markets.<sup>180</sup> U.S. commodity and securities regulators are on the crypto markets' radar. But why is that overall reaction negative?

One germane line of scholarship to consider warns that regulation may stifle economic growth and innovation.<sup>181</sup> Not all regulation, however, is counterproductive. Properly designed rules may improve market integrity, correct market failure,<sup>182</sup> foster future innovation,<sup>183</sup> protect consumers and investors, and reduce transaction costs, information asymmetry, and agency costs.<sup>184</sup> Instead of a rejection of regulation and enforcement, our results should be interpreted as a signal from crypto markets that some regulatory efforts exhibit, metaphorically speaking, a low "goodness of fit."<sup>185</sup> An explicit need for updated *substantive* law and regulation may explain our results and a negative reaction to enforcement efforts based on pre-crypto statutory frameworks, which would support calls for reform.

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<sup>180</sup> *Supra* Part B.

<sup>181</sup> See, e.g., Cary Coglianesi & Christopher Carrigan, *The Jobs and Regulation Debate* in DOES REGULATION KILL JOBS? (Cary Coglianesi, Adam M. Finkel and Christopher Carrigan eds., 2013); Michael Sherlock, *BitCoin: The Case Against Strict Regulation*, 36 REV. OF BANKING & FIN L. 975 (2016-17).

<sup>182</sup> Market failure "is a situation in which a market left on its own fails to allocate resources efficiently." N. GREGORY MANKIW, PRINCIPLES OF MICROECONOMICS 12 (2015).

<sup>183</sup> *Supra* note 46 and accompanying text.

<sup>184</sup> See, e.g., Bruce G. Carruthers & Naomi R. Lamoreaux, *Regulatory Races: The Effects of Jurisdictional Competition on Regulation*, 54 J. OF ECON. LIT. 52 (2016); Mike Orcutt, *New Money-Laundering Rules Change Everything for Cryptocurrency Exchanges*, MIT TECHNOLOGY REVIEW (Aug. 15, 2019), <https://www.technologyreview.com/2019/08/15/102778/new-money-laundering-rules-change-everything-for-cryptocurrency-exchanges/>; Feinstein & Werbach, *supra* note 141, at 61-62.

<sup>185</sup> In the same vein, prior research demonstrates that regulatory proposals tailored specifically to crypto are associated with positive returns. Auer & Claessens, *Regulatory News*, *supra* note 147.

The next argument is that *enforcement* qua regulation is at its core imperfect. Admittedly, enforcement is an important tool maintaining the efficiency and integrity of commodities, derivatives, and securities markets. It may be described as an expedient device targeting fast-paced market developments (and market failure) that allows regulatory agencies to provide continuous oversight.<sup>186</sup> The uncertainty and regulatory complexity of financial innovations also suggest that policymakers may sometimes prefer to rely on enforcement instead of *ex ante* rulemaking.<sup>187</sup> Enforcement-based interpretations of existing rules may serve as a convenient means of redefining the applicability of the rules and making decisions while a new regulation is still in the works.<sup>188</sup>

This use factor, however, does not explain and is irrelevant to the negative reaction of cryptoasset prices to enforcement, particularly SEC enforcement. One explanation is that since enforcement actions are not subject to the procedural safeguards of the Administrative Procedure Act, including public notice and comment process or cost-benefit analysis,<sup>189</sup> it is possible that the original drafters and public commentators did not contemplate that a pre-innovation rule would apply to a specific novel practice. This invokes the risk that the enforced rule could be unsuitable for the innovation.<sup>190</sup> In this sense, regulators could be extrapolating

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<sup>186</sup> On regulation via enforcement, see generally Harvey Pitt & Karen L. Shapiro, *Securities Regulation by Enforcement: A Look Ahead at the Next Decade*, 7 YALE J. ON REGUL. 149, 161-68 (1990) (acknowledging the downsides of enforcement without formal rulemaking, but generally viewing the SEC enforcement program with approval); Donald C. Langevoort, *The SEC as a Bureaucracy: Public Choice, Institutional Rhetoric, and the Process of Policy Formulation*, 47 WASH. & LEE L. REV. 527 (1990) [hereinafter Langevoort, *Bureaucracy*]; Ilya Beylin, *Designing Regulation for Mobile Financial Markets*, 10 U.C. IRVINE L. REV. 497, 501-05, 536 (2020); Donna M. Nagy, *The Costs of Mandatory Cost-Benefit Analysis in SEC Rulemaking*, 57 ARIZ. L. REV. 129, 154 (2015).

<sup>187</sup> See, e.g., Frank Partnoy, *The Right Way to Regulate from Behind*, 18 N.C. BANKING INST. 113, 118 (2013). When confronted with complex and novel issues, an agency's staff may find it naturally easier to rely on enforcement rather than to design a new regulation. Pitt & Shapiro, *supra* note 186.

<sup>188</sup> Donna M. Nagy, *Judicial Reliance on Regulatory Interpretations in SEC No-Action Letters: Current Problems and a Proposed Framework*, 83 CORNELL L. REV. 921, 952-53 (1998); Nagy, *supra* note 188.

<sup>189</sup> 5 U.S.C. § 551 et seq. For a comprehensive review of scholarship on cost-benefit analysis, see Richard L. Revesz, *Cost-Benefit Analysis and the Structure of the Administrative State: The Case of Financial Services Regulation*, 34 YALE J. ON REG. 545, 546-54, 547 nn.1-4, 552 n. 36, 595-97 (2017).

<sup>190</sup> See, e.g., ROBERTA S. KARMEL, REGULATION BY PROSECUTION: THE SECURITIES AND EXCHANGE COMMISSION VS CORPORATE AMERICA 95-96, 317-22, 336 (1982) (observing that “[o]ther regulated persons who will become subject to that regulatory policy do not have the opportunity to object or to comment upon the new interpretation or rule, as they would have in a rulemaking proceeding,” *id.* at 96); Nagy, *supra* note 188, at 921, 988-89 (observing that “[a]lthough the SEC staff may in

assumptions “from the past rather than [providing] thoughtful deliberation in a contemporary setting.”<sup>191</sup>

A related risk of enforcement actions is that regulatory staff are human beings with their cognitive and behavioral biases.<sup>192</sup> Their desire to protect market integrity and investors (which is the overarching mission of the Commissions)<sup>193</sup> from the risks associated with a financial innovation may eclipse their willingness to assess the innovation from a broader perspective, particularly in an international market that is outside their regulatory barony. A regulator, for instance, may find it hard to estimate the magnitude and frequency of violations within a large universe of transactions and may instead focus on “visible” benefits.<sup>194</sup> For instance, scholarly accounts of fraud in the early international cryptoasset offerings ranged anywhere between 10% and 80%,<sup>195</sup> a discrepancy which must have been extremely confusing to regulators.

Overall, new technologies introduce uncertainty in regulatory decision-making. Attempting to protect investors and acting under uncertainty, enforcement staff may be putting “too much weight on what is immediately available and salient... compared to what is less available....”<sup>196</sup> When market participants understand these dynamics, this understanding should lower the perceived value

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fact engage in policymaking through announcing regulatory interpretations in no-action letters, these policy choices lack the political legitimacy of those that the full Commission makes when acting under its congressionally delegated authority”). See generally Roberta S. Karmel, *Government Lawyering, Creating Law at the Securities and Exchange Commission: The Lawyer as Prosecutor*, 61 L. & COMTEMP. PROBS. 33 (1998); Pitt & Shapiro, *supra* note 186.

<sup>191</sup> Langevoort, *Bureaucracy*, *supra* note 186, at 539.

<sup>192</sup> See, e.g., Stephen J. Choi & A.C. Pritchard, *Behavioral Economics and the SEC*, 56 STAN. L. REV. 1 (2003); Stephen J. Choi, *Behavioral Economics and the Regulation of Public Offerings*, 10 LEWIS & CLARK L. REV. 85 (2006).

<sup>193</sup> See, e.g., Donald C. Langevoort, *The SEC as a Lawmaker: Choices About Investor Protection in the Face of Uncertainty*, 84 WASH. U. L. REV. 1591, 1595, 1625 (2006) [hereinafter Langevoort, *The SEC as a Lawmaker*].

<sup>194</sup> Choi & Pritchard, *supra* note 53, at 25-26 (“A related dynamic is the tendency to give greater weight to clearly visible benefits or costs (i.e., those “on-screen”) versus those that are less apparent (i.e., “off-screen”).”). Robert B. Ahdieh, *Reanalyzing Cost-Benefit Analysis: Toward a Framework of Function(s) and Form(s)*, 88 N.Y.U. L. REV. 1983, 2013-14 (2013).

<sup>195</sup> Milind Tiwari, et al., *The Future of Raising Finance - A New Opportunity to Commit Fraud: A Review of Initial Coin Offering (ICOs) Scams*, 73 CRIME, L. & SOC. CHANGE 417, 417-441 (2020); Daniel Liebau & Patrick Schueffel, *Crypto-Currencies and ICOs: Are They Scams? An Empirical Study* (Jan. 2019), <https://dx.doi.org/10.2139/ssrn.3320884>; Zetzsche, et al., *supra* note 44.

<sup>196</sup> Langevoort, *The SEC As a Lawmaker*, *supra* note 193, at 1609.

(and effectiveness) of regulatory efforts based on pre-innovation laws and would be reflected in price reactions to enforcement.<sup>197</sup>

The next argument is that enforcement is a one-way street because an increase in enforcement portends a general increase in regulation. The scope of this expansion, however, is unclear *ex ante* since cases and enforcement actions are based on facts and circumstances. Parties not directly affected by an action may only speculate<sup>198</sup> how to extrapolate facts from previous cases and quantify relevant risks. Recall also that the extraterritorial reach of the Commissions is broad, which suggests that foreign parties may not fully appreciate the breadth of the agencies' jurisdiction beforehand and may fall squarely within the Commissions' ambit after the fact, and much to the chagrin of foreign market participants.<sup>199</sup>

In a relevant seminal study, Brummer and Yadav propose a regulatory trilemma of concurrently protecting investors and consumers, supporting healthy innovation, and providing clear policy guidelines.<sup>200</sup> Our analysis of enforcement falls squarely within this trilemma: while enforcement actions purport to protect investors and market integrity, they address complex innovations *ex post facto* and serve merely as possible tentative guidance to future innovators in the U.S. and abroad. This *post hoc*, fact-intensive approach does not comport with the objective of prospective regulatory clarity, which is a valuable economic resource.<sup>201</sup>

Recall also that market prices do not exhibit a similarly negative reaction to antifraud enforcement efforts, suggesting that policing global crypto by U.S. regulators is not uniformly unwelcome. This distinction is not surprising when we consider the problem of uncertainty. Fraud is bad, and there is less ambiguity when one defrauds the market and is prosecuted as a bad apple by a strong regulator. It is the other substantive rules and their enforcement where uncertainty may lie.

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<sup>197</sup> Other research bolsters these propositions by showing that regulatory announcements regarding new rules for crypto are associated with positive returns. Auer & Claessens, *supra* note 114.

<sup>198</sup> See, e.g., James J. Park, *Karmel's Dissent: The SEC's Use and Occasional Misuse of Section 21(A) Reports of Investigation*, 16 BROOK. J. CORP., FIN. & COM. L. 9, 28-29 (2022).

<sup>199</sup> See, e.g., Yuliya Guseva, *The SEC and Foreign Private Issuers: A Path to Optimal Public Enforcement*, 59 B.C. LAW REV. 2055 (2018).

<sup>200</sup> Brummer & Yadav, *supra* note 45.

<sup>201</sup> Research suggests that uncertainty is associated with greater volatility and lower investment. See, e.g., Scott Baker, et al., *Measuring Economic Policy Uncertainty*, 131 Q. J. OF ECON. 1593 (2016). Clarity and certainty, by contrast, are one of the objectives of better regulations. See, e.g., Brummer & Yadav, *supra* note 45.

### 3. Explaining the CFTC-SEC Differences

#### 3.1. Substantive Law

Is it possible that the SEC may be more susceptible to these problems with either substantive law or enforcement than the CFTC? Let us start with substantive law. Many commentators underscore that the current pre-crypto statutes are not an ideal framework for crypto innovations, and many articles focus on securities law. These critiques span the whole cryptoasset ecosystem: from the need to better define cryptoassets as securities to the outdated rules on primary markets (*i.e.*, distribution of tokens and coins by issuers to investors and consumers) and the need for better secondary market and infrastructure regulation (including regulation of crypto-exchanges).<sup>202</sup> Self-evidently, if substantive securities laws were more outdated and unsuitable than commodity and derivatives regulation, securities regulation would be associated with inefficiencies and a more negative market reaction. In that case, our results may be interpreted to suggest that a reform of securities law or a redistribution of oversight between the SEC and the CFTC is needed.

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<sup>202</sup> The literature on these subjects is considerable. See, *e.g.*, Goforth, *Who Is the SEC Protecting?*, *supra* note 45 (examining the regulatory framework, suggesting that the SEC applies its regulatory authority too broadly, and emphasizing the costs of this approach); Carol R. Goforth, *Cinderella's Slipper: A Better Approach to Regulating Cryptoassets as Securities*, 17 HASTINGS BUS. L.J. 271 (2021) (proposing a reform of securities law to and creating a separate category of cryptoassets and also discussing commodity regulation); Carol R. Goforth, *Using Cybersecurity Failures to Critique the SEC's Approach to Crypto Regulation*, 65 S. D. L. REV. 433 (2020); Guseva, *Game Theory*, *supra* note 89; Eric C. Chaffee, *Securities Regulation in Virtual Space*, 74 WASH. & LEE L. REV. 1387 (2017) (examining statutory language and suggesting that context may require different interpretations and approaches in crypto); Lewis Rinaudo Cohen, *Ain't Misbehavin': An Examination of Broadway Tickets and Blockchain Tokens*, 65 WAYNE L. REV. 81 (2019) (pointing out that an investment scheme that may be a security is not the same as its object that is not a security); Shlomit Azgad-Tromer, *Crypto Securities: On the Risks of Investments in Blockchain-Based Assets and the Dilemmas of Securities Regulation*, 68 AM. U. L. REV. 69 (2018) (calling for balancing of costs of securities law and structural assessments of cryptoassets); Kevin Werbach, *Trust, but Verify: Why the Blockchain Needs the Law*, 33 BERKELEY TECH. L.J. 487, 519 (2018) (agreeing with the need for regulation but suggesting that not all token offerings are securities); Jonathan Rohr & Aaron Wright, *Blockchain-Based Token Sales, Initial Coin Offerings, and the Democratization of Public Capital Markets*, 70 HASTINGS L.J. 463 (2019) (calling for regulatory certainty and proposing reforms and safe harbors); Carol R. Goforth, *Securities Treatment of Tokenized Offerings Under U.S. Law*, 46 PEPP. L. REV. 405 (2019) (calling for reforming the current approach to crypto and the application of the investment contract test); Johnson, *supra* note 21 (examining crypto-exchanges). But see Usha R. Rodrigues, *Embrace the SEC*, 61 WASH. U. J.L. & POL'Y 133 (2020); Marco Dell'Erba, *From Inactivity to Full Enforcement: The Implementation of the "Do No Harm" Approach in Initial Coin Offerings*, 26 MICH. TECH. L. REV. 175 (2020).

Another reason why the SEC and the CFTC are perceived differently may be more foundational and lie in the comparative rigidity of securities law. Namely, innovators may prefer *principles-based* policies pursued by the CFTC to rules-based securities regulation.<sup>203</sup> Principles-based approaches are naturally more flexible than rules, which may suit well the innovators in fast-paced technology settings. Moreover, implementation of principles calls for a dialogue that may help open productive lines of communication between the regulator and the regulated.

### 3.2. *The Statutory Mandates and Jurisdiction of the Commissions*

Another explanation of the price differences concerns jurisdiction and the problem of uncertainty. As discussed elsewhere in this article,<sup>204</sup> the CFTC targets fraud and manipulation in spot and derivatives markets. Both fraud and manipulation are well-understood violations of market discipline, which implies that CFTC actions generate less uncertainty. In addition, since the CFTC's authority in spot markets is limited, market participants have more room to experiment with new assets without a state actor calling the shots and deciding whether to allow a commodity to exist. The main carveouts are when fraud occurs and when retail investors are involved in margined or leveraged transactions or derivatives are traded on a platform.

The CFTC also regulates intermediaries such as FCMs and exchanges, requiring that they register and abide by a number of principles.<sup>205</sup> When these intermediaries do register, they may commence trading in derivatives on cryptoassets through a process called “self-certification,” which is more lenient compared with the SEC's approval processes and general approach to trading.<sup>206</sup>

In contrast to the CFTC, the SEC has a comparatively broader jurisdiction over securities markets (and derivatives on securities). Not only does it bring antifraud actions, but it also regulates primary markets for securities and *de facto* defines digital assets as securities through enforcement and statements.<sup>207</sup> This approach offers broad, uncertain guidelines to future innovators weighing whether a security is involved in their projects. Uncertainty may explain our results and a negative price reaction following SEC enforcement.

Furthermore, the SEC may effectively shut down projects in early stages, limiting room for innovation, experimentation, and trading in cryptoassets that it may (possibly) consider securities. A germane example of an abandoned project is

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<sup>203</sup> See *supra* Part B.

<sup>204</sup> See *supra* Part C.

<sup>205</sup> See, e.g., 77 Fed. Reg. 36612-726 (Jun. 19, 2012).

<sup>206</sup> Letter from Hilary J. Allen, Mark Hays & Lee Reiners, *supra* note 11.

<sup>207</sup> *Supra* Part C.

the *Telegram* case.<sup>208</sup> Issuers of cryptoassets, as well as investors, understand these heavy risks of SEC enforcement.

### 3.3. Enforcement Strategies

In addition to these factors, there may be differences in enforcement strategies of the Commissions. For one thing, SEC enforcement is comparatively more aggressive (as measured against CFTC enforcement and enforcement by foreign counterparts): the SEC launches more enforcement actions and imposes higher penalties.<sup>209</sup> These broader efforts transmit a commensurably wider signal not only to the targets of enforcement but also to third-party developers, investors, and intermediaries.

Mathematically, however, while pursuing more actions domestically and internationally, the SEC could have made more mistakes. A larger enforcement program also suggests that the agency would need to take care to follow a purposive approach in its actions because even its substantial regulatory resources are limited, and enforcement must be selective.<sup>210</sup> Yet, it is possible that the SEC has not been consistent and properly strategic in its crypto-related enforcement.<sup>211</sup> (Research on CFTC enforcement has been scarce.)

Generally, in order to convey proper signals to the regulated, an enforcer needs to capture the right types of violations, impose appropriate penalties, and do so an optimal number of times.<sup>212</sup> These factors help to clarify the meaning of legal requirements and to determine the prospective value of enforcement as a policy signal. We believe that further research may be needed to explain which agency did a better job in selecting its targets and choosing optimal enforcement strategies.

### 3.4. Alternative Explanations

As these arguments illustrate enforcement initiated by the SEC, an agency with broad jurisdiction, seems to be associated with higher risks and more uncertainty for crypto market participants. In addition, any inadequacies in substantive law enforced by the Commissions would only compound these

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<sup>208</sup> *Telegram Grp.*, 448 F.Supp.3d 352. For critiques of *Telegram*, see, e.g., SEC Commissioner Hester Peirce, *Not Braking and Breaking* (Jul. 21, 2020), <https://www.sec.gov/news/speech/peirce-not-braking-and-breaking-2020-07-21>. It is possible that the assets at issue might be classified as both commodities and securities. Letter from Robert A. Schwartz, *supra* note 54.

<sup>209</sup> Eakeley & Guseva, *supra* note 89.

<sup>210</sup> Park & Park, *supra* note 89.

<sup>211</sup> See, e.g., Guseva, *Game Theory*, *supra* note 89 (describing the SEC enforcement program and examining its inconsistencies from a game-theoretic perspective); Goforth, *Who Is the SEC Protecting?*, *supra* note 45.

<sup>212</sup> Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169, 172-73 (1968).

dynamics, which would explain the differences in the price reactions to enforcement by the SEC and by the CFTC. Note that we do not claim that SEC enforcement efforts necessarily produce a welfare-reducing outcome. We merely show that actions by the SEC are associated with a more negative price reaction and supply theoretical explanations.

Hypothetically, there are alternative arguments. One is that the SEC, which is larger than the CFTC, is more skillfully addressing information asymmetry and a possible asset bubble in crypto.<sup>213</sup> This indeed could have explained a negative price reaction. However, if that had been the case, the effect of SEC enforcement would have been stronger and more persistent than a few days around the event date. Anecdotally, the 2022 crypto winter did not occur due to a more competent regulatory intervention by the SEC, just like the summer 2022 bear market in conventional stocks did not result from any SEC efforts.

We believe that the theoretical arguments presented here provide cogent explanations of the differences in market feedback. At the same time, we acknowledge that further comparative studies of the CFTC and the SEC may be warranted. Recall that market reaction also depends on the differences among highly heterogeneous cryptoasset classes. For instance, as we demonstrated in previous sections, markets perceive more liquid, better performing, and risky cryptoassets as more vulnerable to U.S. enforcement after controlling for the agency initiating enforcement actions. Cumulatively, however, U.S.-led enforcement is an unfavorable event from the perspective of the global crypto market, and the most negative reactions are associated with SEC actions and actions that have no substantive effect on market integrity (*i.e.*, nonfraudulent cases).

## H. CONCLUSION

We hope that our analysis will contribute to the scholarship on financial regulation and provide new information to the Congress, the Commissions, and other stakeholders in evaluating the merits of financial reforms addressing the fragmentation in U.S. financial regulation, resolving turf wars, and advancing the efficient reforms. Due to the economic potential of technology, regulation of crypto will remain one of the important topics on the agenda of policymakers, the SEC, and the CFTC. Our empirical evidence supports the calls for a comparative reassessment of the currently fragmented regulatory approaches to cryptoassets.

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<sup>213</sup> It has been argued, for instance, that the SEC stemmed the tide of unregulated, unregistered ICOs and possibly pierced the emerging asset bubble. *See, e.g.*, Dell’Erba, *supra* note 202; Daniel Roberts, *SEC Quietly Widens Its Crackdown on Token Sales*, DECRYPT (Oct. 10, 2018), <https://decrypt.co/3622/sec-tightens-the-noose-on-ico-funded-startups>.

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The central role of U.S. regulators in the global world of finance makes this need for reform more pressing. In conclusion, it is important to promote regulations that have the potential to improve market quality and result in positive valuation implications.