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It's Time to Strengthen the Regulation of Crypto-Assets

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Contents

Statement of Independence	2
Acknowledgements.....	2
Executive Summary	3
Introduction.....	6
PART I:	10
THE GAP BETWEEN BITCOIN'S PROMISE AND REALITY	10
The Promise of Bitcoin and the Global Financial Crisis	10
The Reality Today	12
Financial Institutions and Financial Intermediation	13
PART II:	15
THE NEW CRYPTO-ASSET FINANCIAL INTERMEDIARIES.....	15
The New Intermediaries Do Not Meet Traditional Standards	15
The Risk of Fraud, Failures and Manipulation	20
Customer Agreements That Limit Responsibility	22
PART III:	23
SYSTEMIC RISKS: CYBER ATTACKS AND ILLICIT PAYMENTS	23
The Risk of Cyber Attacks	24
Use of Crypto-Assets for Illicit Payments and Activities.....	27
PART IV: CLOSING THE GAP: HOW TO IMPROVE REGULATION	29
Why Existing Law is Inadequate	29
The Limits of SEC Jurisdiction	30
The Limits of CFTC Jurisdiction.....	33
The FX Market is Not a Good Model.....	34
Why State Regulation is Not a Substitute	35
Improving the Regulatory Framework.....	38
The Crowdfunding Law: A Model for Congressional Action	41
The Issue of Multiple Roles	42
The Regulatory Sandbox Approach	43
International Standards	47

PART V: REGULATION AND INNOVATION	49
Do We Need to Relax the Rules on ICOs?	49
Will Regulation Favor Centralization?	50
PART VI: THE PATH FORWARD	56
Will We Stumble Along or Take Comprehensive Action?	56
A Good Role for the Financial Stability Oversight Council	56
The Importance of Industry Self-Regulatory Efforts	58
CONCLUSION	58
Appendix	60
Seven Recommendations	60
References	60

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Previously, Mr. Massad served as the Assistant Secretary for Financial Stability of the U.S. Department of the Treasury. In that capacity, he oversaw the Troubled Asset Relief Program (TARP), the principal U.S. governmental response to the 2008 financial crisis. During his tenure, Treasury recovered more on all the crisis investments than was disbursed. Mr. Massad was with the Treasury from 2009 to 2014 and also served as a counselor to the Secretary of the Treasury.

Prior to his government service, Mr. Massad was a partner in the law firm of Cravath, Swaine & Moore, LLP. He worked in New York, London and Hong Kong.

EXECUTIVE SUMMARY

Introduction

There is a gap in the regulation of crypto-assets that Congress needs to fix. The gap is contributing to fraud and weak investor protection in the distribution and trading of crypto-assets. Better regulation will benefit crypto investors, further the development of new technologies, curtail the use of crypto-assets used for illicit payments, and reduce the risk of cyber attacks, which can result in collateral damage elsewhere in our financial system.

Crypto-assets cut across current jurisdictional boundaries and thus fall into gaps between regulatory authorities. While each of the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC) has some authority over crypto-assets, neither has sufficient jurisdiction, nor do they together.

The Gap Between Bitcoin's Promise and Today's Reality

The hype surrounding Bitcoin and other crypto-assets has contributed to regulatory distraction. Bitcoin's creators promised it would solve the "trust problem" and reduce our reliance on centralized financial intermediaries. However, it has not reduced our reliance on financial intermediaries or eroded the power of our largest institutions. Indeed, crypto-assets have created new financial intermediaries that are less accountable than the big banks.

The New Crypto Financial Intermediaries

New crypto exchanges and trading platforms are not subject to the traditional standards required of securities and derivatives market intermediaries. As a result, investor protection is weak and allegations of fraud and conflicts of interest are frequent.

There are no specific rules to ensure protection of customer assets. One supposed virtue of distributed ledger technology (DLT) is to provide an immutable record of ownership. Yet some platforms do not actually record customer interests on the blockchain and may operate without sufficient assets to cover customer claims. It is like fractional reserve banking without the regulatory framework—or insurance—that protects depositors. There are no rules regarding how trades are executed.

Crypto exchanges are not required to have systems to prevent fraud and manipulation, nor are there rules to prevent or minimize conflicts of interest. Crypto exchanges can engage in proprietary trading against their customers, something the New York Stock Exchange cannot do. Regulations to minimize operational risk and ensure system safeguards are needed, just as with securities and derivatives intermediaries.

Systemic Risks: Cyber Attacks and Illicit Payments

Inadequate regulatory oversight creates broader societal risks with respect to cyber security and illicit payments. Unlike banks and exchanges, crypto intermediaries do not face any specific cyber security requirements, and cyber hacks are common: "Hacking [against crypto institutions] is on the rise because it works."

Crypto institutions are small compared to banking, securities and derivatives markets, but they do not operate in isolation; they have many connections with the broader financial system. A cyber attack on a crypto institution could lead to collateral damage elsewhere.

Crypto-assets are used increasingly to avoid government sponsored sanctions and for illicit payments—including ransomware for cyber attacks and transactions in narcotics, firearms or other dark market goods. The lack of transparency on the part of the crypto intermediaries contributes to this problem.

Closing the Gap: How to Improve Regulation

The SEC has jurisdiction over crypto-assets deemed securities, but many crypto-assets—including the most widely traded ones such as Bitcoin—are not securities.

The CFTC declared Bitcoin and other virtual currencies commodities, but that does not solve the problem. Derivatives based on crypto-assets are subject to CFTC regulation—such as Bitcoin futures and swaps—as are the platforms that trade such derivatives. But the CFTC has only very limited jurisdiction of the underlying cash market for such crypto-assets—for example, the buying and selling of Bitcoin. That is where most of the activity is today.

Congress needs to fix this by creating regulatory oversight of the cash market for crypto-assets, and the trading platforms and other intermediaries that operate in that market. Either the SEC or the CFTC is competent to regulate this area if given the power; it would be inefficient to create a new agency. I recommend making the SEC the lead agency.

We should not defer to state law in regulating crypto-assets. This market strives to be international and is best served by a national regulatory framework. The variation in international regulation of crypto-assets should not cause us to hesitate in moving forward; it creates opportunity for the U.S. to exert global leadership.

The 2012 law regulating crowdfunding is a good model for Congressional action. That law set principles similar to ones we have followed in the securities and derivatives markets, and left it to the SEC to figure out the details and implement regulations. Congress should do the same thing here.

Regulation and Innovation

Innovative technology does not inherently require a loosening of regulation. It is not necessary to relax the rules on initial coin offerings or create “regulatory sandboxes” where regulations are waived. Whether better regulation favors larger institutions and more centralized applications of DLT and thereby undermines the potential that DLT contributes to more decentralized financial processes is an open question that deserves more analysis.

The Path Forward

Seven direct recommendations flow from this paper. A report from the Financial Stability Oversight Council would be the ideal way to move forward. Industry self-regulatory initiatives are also necessary. Here are the recommendations:

1. Congress should pass legislation providing the SEC (or alternatively the CFTC) with the authority to regulate the offering, distribution and trading of crypto-assets, including regulation

of trading platforms, custodians (or wallets), brokers and advisors.

2. Congress should increase the resources of both the SEC and the CFTC to implement new as well as existing authorities pertaining to regulation of crypto-assets.
3. The legislation should set forth core principles, rather than specifics for regulations, as Congress has done for the futures industry and crowdfunding. Core principles should cover, at minimum, the following:
 - a. protection of customer assets
 - b. governance standards (including fitness standards for directors and officers)
 - c. conflicts of interest, including discretion to the lead agency to set regulations prohibiting or restricting the performance of multiple functions by the same entity;
 - d. recordkeeping and periodic reporting
 - e. execution and settlement of transactions in a timely, efficient and transparent manner;
 - f. pre- and post-trade transparency requirements
 - g. prevention of fraud, manipulation and abusive practices
 - h. disclosures to platform users, including regarding fees; order types and policies on execution of transactions; liabilities; and recourse for customers
 - i. risk management
 - j. business continuity, cybersecurity, and disaster recovery procedures and backup facilities;
 - k. financial resources; and
 - l. AML, KYC and similar measures to minimize illicit activity risk and ensure transparency.

Congress should direct the agency to issue regulations to implement the core principles and on such other matters as the agency believes are necessary to promote transparency, integrity, customer protection and financial stability.

4. With respect to offshore platforms that solicit or provide access to U.S. investors, Congress should give the relevant agencies the authority to determine whether such platforms should be required to comply with U.S. standards, or demonstrate compliance with comparable standards, or disclose prominently that they do not meet such standards.
5. Congress should direct the relevant agencies to consider whether there may be different ways of meeting core principles for centralized versus decentralized platforms and systems and, where practicable, have regulations that do not favor one approach over another.

6. As a first step toward the development of legislation, the Financial Stability Oversight Council or the Treasury Department should issue a report recommending Congressional action to strengthen and clarify regulation of the sector.
7. The industry should continue to develop its own self-regulatory standards. The legislation should give the lead agency the authority to allocate responsibility for certain enforcement or compliance matters to a self-regulatory entity.

Introduction

As you step off the London tube, the signs remind you to “mind the gap”— the space between the edge of the subway train and the platform. All crypto-asset trading websites should post the same warning, because the gap — in regulation — is wide and dangerous. As a result, fraud is significant, and investor protection is weak.

The gap is a product of our functional — some would say fragmented — regulatory system. While a few agencies have some jurisdiction, no one has sufficient authority, and the gap happens to be where trading activity is greatest. We need to fix this — by changing the law to improve regulation of crypto-asset trading platforms and other intermediaries, and by stepping up enforcement of existing law.

The case for better regulation is not just about the interests of crypto investors. Moreover, some current investors may not want better regulation. After all, it must be acknowledged that while reducing fraud and failures on these platforms should enhance the attractiveness of these markets for many investors, regulation will create costs and diminish the anti-establishment ethos that has attracted others to the sector.

The case for better regulation is also about broader societal interests, however, which is why those who have no interest in trading these assets, including those who believe the sector is a giant bubble, should

care as well. The use of crypto-assets for illicit payments — including particular ransomware for cyberattacks — is one reason we should take action. Cyber security is another: this new sector is vulnerable to cyberattacks, and the complex interconnections among financial markets and financial firms mean that such attacks could cause collateral damage to other financial market infrastructure.

Crypto-assets can provoke intense views, but whether they are the next big thing or modern-day Dutch tulips should not determine whether or how we regulate them. There is nothing so exceptional about crypto-assets that justifies giving them a regulatory pass. Nor should they be taxed or regulated out of existence. A traditional principle of financial market regulation in the United States has been to refrain from normative judgments about investments: require transparency and integrity in markets and let investors make their own decisions. We should follow that principle here.

The fact that the prices of Bitcoin and other crypto-assets have fallen substantially from the highs of late 2017 does not diminish the need to act. Digital tokens will be an important part of our future even if the current leading cryptocurrencies are not. We should create a reasonable regulatory framework now.

Ideally, the Trump administration should use the Financial Stability Oversight Council to advance an agenda for improved regulation. Almost all of the agencies that are members of FSOC have interests at stake because crypto-assets cut across regulatory jurisdictions. But this administration has shown little interest in FSOC, perhaps because of opposition to its original mandate to designate systemically important institutions, or the fact that it can take a lot of effort to build consensus among so many principals. Instead, the Treasury Department has issued reports to advance legislative agendas for financial market regulation. In lieu of an FSOC report, a Treasury Department report would at least move the issue forward. If instead we stumble along until a cyber-attack or fraud forces action, the legislative response is likely to be less thoughtful.

Meanwhile, industry participants should tone down their rhetoric about the utopian future that crypto-assets might bring and focus on the development of self-regulatory standards. Those standards can help shape sensible regulation and will be an important complement to government oversight.

As chairman of the Commodity Futures Trading Commission (CFTC), I first testified about Bitcoin in 2014. Under my leadership the CFTC declared Bitcoin a commodity in 2015, well before the dramatic increase in price and trading that occurred in late 2017. The agency brought enforcement actions against unlicensed firms dealing in Bitcoin derivatives but also approved a Bitcoin swap.¹

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¹ Timothy Massad, “Testimony of CFTC Chairman Timothy Massad before the U.S. Senate Committee on Agriculture, Nutrition and Forestry.” (speech, Washington, DC, December 10, 2014), <http://www.cftc.gov/Press-Room/SpeechesTestimony/opamassad-6>;

My views are also shaped by spending five years at the Treasury Department fighting the financial crisis, and 25 years before that as a lawyer working in financial markets around the world, including on other innovations such as swaps.

This paper is for those interested in what our policy on crypto-assets should be. Because I believe that discussion needs to involve not only those well versed in the subject, the paper does not assume any background in the law or practice beyond what one might glean from reading the newspapers. My goal is to provide a comprehensive but non-technical explanation of the inadequacies of existing regulation and a practical solution. I have included some basic information about crypto-asset trading so that the non-expert reader can easily understand the problems.

The paper is organized as follows: In part 1, I discuss the gap between the promise and reality of Bitcoin. It was heralded as the technology that would reduce our reliance on the large financial institutions that were at the center of the financial crisis, but it has instead given rise to new institutions that are far less accountable than those big banks. We should not let the hype about Bitcoin or blockchain's potential distract us from the need to improve regulation. That is, there is no case for Bitcoin or blockchain's exceptionalism that warrants a regulatory pass.

In part 2, I discuss the new crypto institutions and their lack of adherence to standards of investor protection and market integrity that are common in other financial sectors. That has given rise to problems such as insufficient protection of customer funds, conflicts of interest and the risk of fraud and manipulation. In part 3, I discuss the fact that the absence of a regulatory framework increases the risk of illicit payments that can finance unlawful activity and the risk of cyber-attacks—two reasons why the regulation of crypto institutions is important to the integrity and safety of our financial system as a whole.

In part 4, I discuss how to fix the gap. I start by explaining the existing legal framework of regulation and its inadequacies. While the Securities and Exchange Commission (SEC) and Commodity Futures Trading Commission (CFTC) each has some jurisdiction—and have been stepping up enforcement efforts—there is a gap that needs to be addressed, and I suggest how we should do so. I believe Congress should set some high level principles for regulation and then delegate authority to the SEC to develop regulations, as it did

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In re Coinflip, Inc., Dkt. No. 15-29 (CFTC September 17, 2015), <http://www.cftc.gov/ide/groups/public/@lrenforcementactions/documents/legalpleading/enfcoinfliporder09172015.pdf>;

In re TeraExchange LLC, Dkt. No. 15-33 (CFTC September 24, 2015), <http://www.cftc.gov/ide/groups/public/@lrenforcementactions/documents/legalpleading/enfteraexchangeorder92415.pdf>;

In re BXFNA Inc. d/b/a Bitfinex, Dkt. No. 16-19 (CFTC June 2, 2016), <http://www.cftc.gov/ide/groups/public/@lrenforcementactions/documents/legalpleading/enfbfxnaorder060216.pdf>.

with crowdfunding platforms. I also discuss why state law is not sufficient and the different regulatory approaches taken by other countries.

In part 5, I discuss potential effects of regulation on innovation, in particular the regulation of initial coin offerings (ICOs) and whether regulation will favor large, centralized platforms and systems that might undercut the decentralizing potential of the technology. In part 6, I provide some suggestions on the path forward. The appendix summarizes my recommendations.

PART I:

THE GAP BETWEEN BITCOIN'S PROMISE AND REALITY

The Promise of Bitcoin and the Global Financial Crisis

In his/her/their original whitepaper, Satoshi Nakamoto, the mysterious creator(s) of Bitcoin, bemoaned the fact that “the fate of the entire money system” must go through a “central trusted authority” like a bank.² By creating the means for non-reversible transactions recorded in a distributed, decentralized ledger (known as a “blockchain,”) Satoshi sought to create a “peer-to-peer system that would reduce our reliance on centralized intermediaries.”³

The technical insight of the paper was coupled with good timing: the paper was published shortly after the onset of the 2008 global financial crisis. Indeed, when launching the code in January 2009, Satoshi appended the message: “Chancellor on brink of second bailout of banks,” the headline of *The Times* on January 3, referring to the impending action by U.K. Chancellor of the Exchequer Alastair Darling during the crisis.⁴

Like an apparition at Lourdes, this vision has inspired great faith in the transformational power of blockchain to lead us out of the garden of evils that caused the financial crisis. In the opening pages of their recently published book, *The Truth Machine*, Michael Casey and Paul Vigna cite the failure of Lehman Brothers as “Exhibit A” in the “breakdown of trust.” Governments “spent trillions to clean up the mess, but all they really did was restore the old order, because they misdiagnosed the problem.” The real problem was a

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² Satoshi Nakamoto, “Bitcoin: A Peer-to-Peer Electronic Cash System.” Accessed January 11, 2019. <https://Bitcoin.org/Bitcoin.pdf>.

³ Ibid.

⁴ Francis Elliott, “Chancellor Alistair Darling on Brink of Second Bailout for Banks,” *The Times*, January 3, 2009. <https://www.thetimes.co.uk/article/chancellor-alistair-darling-on-brink-of-second-bailout-for-banks-n9l382mn62h>

“failure of trust” that is “intrinsically connected with ledgers and recordkeeping.” Blockchain, they say, will fix it.⁵

Similarly, Don and Alex Tapscott begin *Blockchain Revolution* with a chapter titled “The Trust Protocol.” They say the financial crisis was a breakdown in trust and integrity, and they quote Marc Andreessen as saying blockchain will “change everything” and “fix all the problems.”⁶

A recent *New Yorker* profile of hedge-fund billionaire Michael Novogratz, who has been focusing his attention on the crypto sector, says he views cryptocurrencies “as a direct result of the financial crisis, when people lost faith in banks and bankers.” Novogratz says, “I call it the decentralized revolution. We don’t trust institutions, we don’t trust authority.”⁷

Having spent eight years helping combat the financial crisis and implement post-crisis reforms, I share the desire to reduce our dependence on the institutions that almost caused a collapse of the entire global financial system and a second Great Depression. But can blockchain really bring about some massive disintermediation of the financial system, or is this just utopian blather?

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⁵ Michael J. Casey and Paul Vigna, *The Truth Machine: The Blockchain and the Future of Everything*, (USA: Macmillan USA, 2018), pp. 21-22.

⁶ Don Tapscott and Alex Tapscott, *Blockchain Revolution: How the Technology Behind Bitcoin is Changing Money, Business, and the World*, (USA: Penguin, 2016), pp. 4-6.

⁷ Gary Shteyngart, “A Sidelined Wall Street Legend Bets on Bitcoin,” *The New Yorker*, April 16, 2018. <https://www.newyorker.com/magazine/2018/04/16/a-sidelined-wall-street-legend-bets-on-bitcoin>;

The 2018 decline in Bitcoin’s price led Novogratz to warn in an interview with Bloomberg: “Revolutions don’t happen overnight. While I believe in the underlying technology and believe in the crypto movement, when prices get stupid, I sell.” (Billy Bambrough, “Bitcoin Bull Mike Novogratz Has a Stark Warning for the Crypto Community,” *Forbes*, December 12, 2018.

<https://www.forbes.com/sites/billybambrough/2018/12/12/bitcoin-bull-mike-novogratz-has-a-stark-warning-for-the-crypto-community/#4e8289957294>.)

The Reality Today

The revolution certainly isn't here yet. There is a lot of interesting work to develop applications using distributed ledger technology (DLT), of which blockchain is one type, but the reality today is the opposite of the utopian vision: the technology has actually created new financial players — such as trading platforms and other intermediaries — that do not abide by basic standards of investor protection common in other asset classes. This difference is the key regulatory gap. Even tiny crowdfunding platforms are subject to better oversight than the new crypto-asset intermediaries.

As I will discuss in more detail, the problems are many: several trading platforms have collapsed or been hacked, resulting in loss of customers' money. Allegations of manipulation are frequent (and may contribute to volatility). The potential for conflicts of interest is great. There are few rules, and the lack of transparency with respect to these new institutions makes them foils for illicit activity.

In addition, the rash of initial coin offerings (ICOs) has set new lows for poor disclosure. It's not simply that there are no financial statements; many of the "white papers" used to offer new tokens don't even provide an address for the business or inform you where your money is going. To dissemble and deceive is not a good way to solve a "trust" problem.

The transfer process for Bitcoin, the first and largest crypto-currency, raises additional concerns. Although Bitcoin "mining" — the critical gatekeeper function of processing transactions — is a task that in theory anyone can perform, it is in reality concentrated among a handful of firms, often located in jurisdictions with limited regulatory oversight.⁸ It is also highly energy intensive due to computer processing demands. If this is the foundation of the new financial system, I may long for a return of Lehman Brothers.

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⁸ A recent report of the Financial Stability Board said 75% of mining capacity was located in China until Chinese authorities recently began taking action to discourage such activity. It also cited a Blockchain.info report that ten mining pools control more than 90% of Bitcoin creation. See Financial Stability Board, "Crypto Asset Markets: Potential Channels for Future Financial Stability Implications," October 10, 2018, note 22. <http://www.fsb.org/2018/10/crypto-asset-markets-potential-channels-for-future-financial-stability-implications>

Financial Institutions and Financial Intermediation

The hype that Bitcoin and DLT can solve the problems that led to the 2008 financial crisis rests on a simplistic view of the crisis, as well as of financial intermediation generally. While we were wrong to think that large financial institutions understood— and could effectively manage — the risks they were creating, calling that a breakdown of trust doesn't help us identify the causes of the crisis or the solutions. Those causes included excessive household and financial sector leverage; complex derivative products the risks of which were poorly understood; a widespread but erroneous assumption that housing prices would not decline simultaneously across the entire nation; and gaps in our regulatory framework.

To suggest that decentralized peer-to-peer networks using distributed ledgers can solve those problems is not simply overly optimistic; it fails to appreciate the essence of financial intermediation, which is as old as civilization itself. Intermediaries have emerged throughout history to bring buyers and sellers, and savers and borrowers, together. The institutions and technology used to perform the component functions—double entry ledgers, recording information, establishing prices, making payments, clearing trades—have changed over time, but intermediation in some form is always there. In short, we should think of financial intermediation as something closer to a Newtonian law of the universe rather than a problem that a new technology like DLT will fix.

Take maturity transformation—not the kind teenagers experience, but what Mervyn King, former Governor of the Bank of England, called the “inherent fragility” of banking.⁹ The conversion of short-term liabilities like bank deposits into long-term investments matches up those who save with those who need funds. Transforming or allocating risk among those with different risk preferences is a core intermediary function. Large, centralized intermediaries—whether they are institutions like JPMorgan or markets like the NYSE—are well suited to performing these roles, but also vulnerable to panics and runs — one reason why we regulate them. The idea that blockchain or Bitcoin will eliminate intermediaries — or the inherent risk of financial panics — seems farfetched. I doubt Jimmy Stewart could have appeased his angry depositors in “It’s a Wonderful Life” by promising to implement DLT to record their mortgages.

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⁹ Mervyn King, *The End of Alchemy: Money, Banking and the Future of the Global Economy*, (New York & London: W.W Norton & Company, Inc. 2016), p.119.

What some Bitcoin enthusiasts fail to distinguish is that a primary cause of the global financial crisis was the growth of financial intermediation outside our traditional regulatory framework, rather than the mere existence of intermediation. Non-bank mortgage originators, securitization, derivatives and the government-sponsored enterprises all contributed to a dramatic growth in mortgage lending outside of traditional banks. Investment banks not only grew enormously; they were more highly leveraged and far more dependent on short-term funding (such as repo financing) than on more stable banking deposits. There was, in short, no prudential regulation of the so-called shadow banking sector.

The tendency of the financial sector to grow outside of regulation is a pattern we have seen before: The Panic of 1907 started outside of traditional banks, in runs against the newly emerging trust companies. The trust companies did not have access to the liquidity supplied by private clearinghouses. That episode led to the recognition that we needed a central bank with lender of last resort capabilities, and the Federal Reserve was created in 1913.

The crypto sector is small and does not appear to be significant today from a financial stability standpoint. But small new trends have led to bigger problems before, and there are good reasons to improve regulation now, whether or not crypto ever grows into something that could threaten financial stability. In short, the crypto sector does not deserve a free pass because of what some see as the exceptional potential of the underlying technology.

Perhaps DLT can contribute to more decentralized financial activity, but it may also simply enhance the efficiencies and market share of large institutions. That is, perhaps it gives rise to ledgers that record financial transactions and information in real-time and that are widely accessible, rather than records kept solely by individual firms. That might reduce the likelihood that the failure of a single firm creates broader financial instability.

But the technology may also enable large institutions to increase their efficiencies in providing services. In particular, DLT could be used for permission-based systems that are governed or controlled by a single institution or a consortium of institutions. There are many such initiatives by large companies, including the Corda project by R3, the Bakkt platform being created by ICE, a JPMorgan capital markets project and a Walmart

food-tracking project.¹⁰ In that scenario, DLT might actually help large institutions increase their market share. If that happens, the visions of disintermediation and decentralization that crypto enthusiasts articulate will be as hollow as the predictions that the internet would bring democracy to China. Instead, it became an instrument of state control.

The trading of crypto-assets requires a better regulatory response today. Our inability to know how the technology will develop in the long run should not distract us from that objective.

PART II:

THE NEW CRYPTO-ASSET FINANCIAL INTERMEDIARIES

The New Intermediaries Do Not Meet Traditional Standards

The new crypto intermediaries include hundreds of crypto-asset trading platforms or “exchanges,” on which you can buy and sell Bitcoin and other crypto-assets. These new institutions are handling billions of dollars (or the equivalent) in investor assets. By one estimate, there are over 500 such platforms.¹¹

The first chart below lists the largest trading platforms headquartered in the U.S., followed by a chart of some of the largest in the world.¹²

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¹⁰ Sarah Castellanos, “JP Morgan Tests Blockchain’s Capital Markets Potential,” *Wall Street Journal CIO Journal*, May 16, 2018. <https://blogs.wsj.com/cio/2018/05/16/jp-morgan-tests-blockchains-capital-markets-potential/>;

Angus Loten, “The Morning Download: Walmart Makes Blockchain a Requirement for Veggie Suppliers,” *Wall Street Journal CIO Journal*, September 25, 2018. <https://blogs.wsj.com/cio/2018/09/25/the-morning-download-walmart-makes-blockchain-a-requirement-for-veggie-suppliers/>.

¹¹Kai Sedgwick, “The Number of Cryptocurrency Exchanges has Exploded,” *Bitcoin*, April 11, 2018. <https://news.bitcoin.com/the-number-of-cryptocurrency-exchanges-has-exploded/>;

For an alternate estimate of the top 300 platforms, see CoinmarketCap, “Top Cryptocurrency Exchanges by Trade Volume,” accessed March 2, 2019. <https://coinmarketcap.com/rankings/exchanges/reported/3>

¹² For 30d volume rankings (adjusted trade volume), see Coinmarketcap, “Top 100 Cryptocurrency Exchanges by Trade Volume,” accessed March 2, 2019. <https://coinmarketcap.com/rankings/exchanges/>

Figure 1: Largest U.S. Trading Platforms

Ranking (30d volume)	Exchange (US-Based)	HQ Location	30d volume (USD equiv)
1	Coinbase Pro	San Francisco	\$2,074,292,863
2	Kraken	San Francisco	\$2,049,827,003
3	Bittrex	Seattle	\$726,781,474
4	Gemini	New York	\$324,483,934
5	Poloniex (Circle)	Boston	\$320,812,027
6	itBit	New York	\$256,272,638

Market share of US-HQ exchanges (30d volume, all pairs)

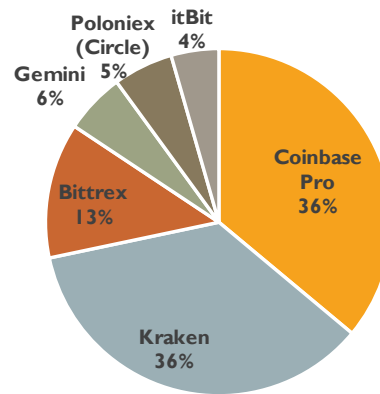
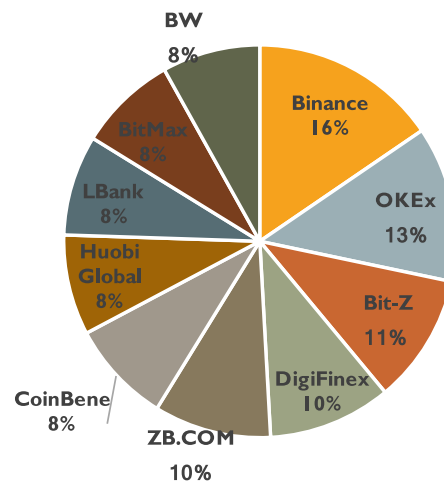


Figure 2: Largest Worldwide Trading Platforms

Ranking (30d volume)	Exchange	30d volume (USD equiv)
1	Binance	\$19,025,497,109
2	OKEEx	\$15,774,920,697
3	Bit-Z	\$13,118,025,809
4	DigiFinex	\$12,495,455,418
5	ZB.COM	\$11,880,679,676
6	CoinBene	\$10,408,887,497
7	Huobi Global	\$10,169,027,497
8	LBank	\$10,168,445,838
9	BitMax	\$9,980,398,237
10	BW	\$9,956,948,773
...
43	Coinbase Pro	\$2,074,292,863
44	Kraken	\$2,049,827,003
...
68	Gemini	\$324,483,934
69	Poloniex	\$320,812,027

Market share of Top 10 exchanges by 30d volume (all pairs)



Many of these firms are not simply trading platforms; they also perform a variety of other functions that we would never allow a traditional securities or derivatives exchange to perform due to the potential conflicts of interest. It is also because of the multiple roles

that crypto-asset exchanges play (or aspire to play) that I use the term “intermediary.”

For example, many of these firms hold your crypto-assets, which saves you the trouble of figuring out how to store and transfer a crypto-asset on your phone. (If you use your phone but lose your private key, your crypto-assets are lost.) Some investors use third party “wallets”—technologies that hold your crypto-assets, just as a physical wallet holds your cash. The crypto-asset platforms may also convert your U.S. dollars or other fiat currency into crypto-assets and vice versa. They may make payments for you.

In the securities and derivatives world, our laws require that the trading platform be separated from the custody function because of the risk of conflicts. Regulations are designed to safeguard customer assets, such as segregation of customer funds from proprietary funds. There are no similar requirements specific to the crypto world.

How an exchange holds your assets may also vary. An exchange might hold your Bitcoin or other crypto-assets in its own wallet, and also hold your private key; the exchange then executes transactions on your behalf, and is not supposed to share your private key with anyone. Alternatively, you might simply have a claim for Bitcoin at an exchange; your claim is an entry in a ledger, much like your claim for your deposits at a bank. An exchange might justify this as a security measure: it is holding your Bitcoin in a “cold” wallet that is off-line and therefore less vulnerable to hacking. But, as Nicholas Weaver has written: “If Bitcoin is the ‘Internet of money’, what does it say that it cannot safely be stored on a computer connected to the internet?”¹³

If the exchange uses a ledger to record customers’ assets, there is no assurance that the exchange actually has the amount of a particular crypto-asset equal to its customers’ claims. Much like banks are only required to hold a small fraction of customer deposits in cash (aka fractional reserve banking,) the exchange could operate with less than the total customer claims.

A recent paper by Ross Anderson and others suggests this practice may be quite common. Anderson and colleagues say some exchanges do not actually book customer transactions

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¹³Nicholas Weaver, “Inside Risks of Cryptocurrencies,” *Communications of the ACM* 61, no. 6 (2018): 20-24. <https://cacm.acm.org/magazines/2018/6/228046-risks-of-cryptocurrencies/abstract>.

on the blockchain; they simply record in their own ledger changes in customer holdings.¹⁴

This situation is especially ironic in light of the claims of the Bitcoin evangelists about creating distributed ledgers that don't rely on central intermediaries or on trust in a central authority. In fact, if practices like this are common, it is the exact opposite. It is the crypto equivalent of modern-day banking, but without any of the law or regulation to protect customers. Your Bitcoin is deposited and probably co-mingled with the deposits of others. It is not recorded on the blockchain; it is represented by an entry in an electronic, centralized ledger. It is uninsured and there is no guarantee you will get it. You must rely on—trust—the intermediary. (There are emerging technologies which enable investors to trade crypto-assets without first giving a platform custody, as I will discuss later.¹⁵)

The failure to actually record transfers of Bitcoin on the blockchain was the subject of one of the first enforcement actions pertaining to virtual currencies that the CFTC brought under my tenure. In 2016, the agency brought an action against Bitfinex for failing to actually *deliver* Bitcoin to its customers. Instead, Bitfinex simply maintained its own ledger.¹⁶

Custody problems reached a bizarre new level with the recent failure of QuadrigaCX, a Canadian crypto exchange. The founder died suddenly, and apparently was the only person who knew the details—or password—for the exchange's cold storage arrangements. Thus far, no one has been able to access the cold wallet, where approximately \$190 million worth of crypto and fiat currency is stored for customers. It may be lost forever.¹⁷

The potential problems arising from lack of a regulatory framework go beyond the issue of how an exchange holds your crypto-assets. There are no rules on how quickly a trade must be executed or whether you are entitled to get the best price. Some firms disclose in their terms and conditions—often buried deep in their websites — that there is no assurance as to when a trade will be executed or settled, but that is not a substitute for rules

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¹⁴ Ross Anderson, Ilia Shumailov, et al., "Bitcoin Redux," *Cambridge University Computer Laboratory*, May 28, 2018. https://weis2018.econinfosec.org/wp-content/uploads/sites/5/2018/05/WEIS_2018_paper_38.pdf

¹⁵ See the discussion under "Will Regulation Favor Centralization" in Part V.

¹⁶ See footnote 1: *In re* BFNXA d/b/a Bitfinex. As I will discuss later, the CFTC does not have general jurisdiction over the cash market but can bring enforcement actions concerning certain retail transactions where there is a failure to deliver, as was the case here.

¹⁷ Nikhilesh De, "QuadrigaCX Owes Customers \$190 Million, Court Filing Shows," *Coindesk*, February 1, 2019. https://www.coindesk.com/quadriga-creditor-protection-filing?utm_source=twitter&utm_medium=coindesk&utm_term=&utm_content=&utm_campaign=Organic%20

that protect the investor. There is not much disclosure of order types or the way in which a firm's matching engine works. There are no rules on pre- or post- trade price transparency, so one cannot be sure about the quality, reliability or timeliness of the disclosure on their websites. There are no rules on margin lending.

The types of disclosures and requirements I have described above are extensive in the securities and derivatives markets. There are no such specific requirements for crypto intermediaries. I will discuss below whether a crypto intermediary could be required to comply with the rules applicable to securities or derivatives platforms - on the basis that the crypto-assets it is trading or handling can be considered securities or derivatives. But the reality is that existing law is not adequate for the sector generally.

Some crypto exchanges also engage in proprietary trading, thus creating the prospect that they are trading against or taking advantage of their customers' trades. The crypto platforms could also engage in wash trading—where the same party trades with itself in order to create the appearance of greater liquidity or to manipulate price. These platforms may also issue their own crypto-assets or receive significant payments for listing other issuers' crypto-assets. They need not disclose that fact, nor must they disclose their criteria or process for deciding what assets to list. They may also increase the amount of a crypto-asset being traded without disclosing that fact to investors.

Imagine if equity securities were traded in the same manner as crypto-assets. Instead of the rules on order routing that we have today in the equity markets, which assure you of receiving the best price, there are no such rules in the crypto market. To the extent there are multiple platforms trading the same crypto-asset, there are no rules governing when any particular platform must execute your trade or at what price. You are left to choose based on your own examination of the platforms. But instead of being able to check the latest prices with confidence as you can today with stocks on the consolidated tape, there are no requirements on trade reporting so you cannot be certain that the information you see on prices prior to or after trading on any platform is in fact reliable. Volume or price may be artificially affected by a variety of shady practices, such as wash trading, or the platform's proprietary desk might actually front run your trade, all of which are prohibited in our securities markets. While the NYSE and NASDAQ have no economic interest in the stocks they list, the crypto platform could be the issuer of the asset or could have a significant economic interest in its success, and may issue more in advance of your trade. Of course, even if the platform itself does not engage in any of these types of bad behavior, there are no rules prohibiting such activity by others nor are there rules requiring a trading platform to engage in surveillance to prevent such activity. There is no equivalent

to the SEC enforcement division nor to the Financial Industry Regulatory Authority (FINRA), which is dedicated to market integrity in our securities markets through constant and highly sophisticated market surveillance and the regulation of broker-dealers.

The Risk of Fraud, Failures and Manipulation

It seems that hardly a month goes by without a media report of a fraud or failure at a crypto intermediary. Some of the more infamous thefts and hacks include the collapse of Mt. Gox in 2014 at a loss of \$450 million; the DAO and Bitfinex in 2016 (\$50 million and \$72 million, respectively); NiceHash in 2017 (\$70 million);¹⁸ and Coincheck, Bithumb and Coinrail in 2018 (\$535 million, \$30 million and \$37 million, respectively).¹⁹

A Reuters report listed 26 thefts between June 2011 and April 2017 totaling almost 1 billion Bitcoin.²⁰ At today's prices that would represent about \$3.5 billion in value (and almost seven times that value at historical peak prices.)

A recent report by Chainalysis says that two professional criminal groups were largely responsible for \$1 billion of exchange hacks in 2018. The hackers typically moved stolen funds 5,000 times (and 15,000 in one case) in order to disguise the funds' criminal origins. The hackers often moved funds through other exchanges because the exchanges could not tell that funds had criminal origins.²¹

The absence of a federal regulatory scheme that requires segregation of assets and other customer protections make recovery more difficult. The Mt. Gox lawsuits, for example, drag on. Its founder filed a motion to dismiss a lawsuit brought against him in the United States on the grounds that he is a French citizen living in Japan.

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¹⁸ Dan Price, "The 8 Worst Cryptocurrency Hacks in History," *Blocks Decoded*, November 30, 2018, <https://blocksdecoded.com/cryptocurrency-hacks/>

¹⁹ Jon Russell, "Korean crypto exchange Bithumb says it lost over \$30M following a hack," *TechCrunch*, June 19, 2018, <https://techcrunch.com/2018/06/19/korean-crypto-exchange-bithumb-says-it-lost-over-30m-following-a-hack/>

²⁰ Steve Secklow, Alexandra Harney, Anina Irrera and Jemima Kelly, "Chaos and Hackers Stalk Investors on Crypto Exchanges," *Reuters Investigates*, September 29, 2017. <https://www.reuters.com/investigates/special-report/Bitcoin-exchanges-risks/>

²¹ Chainalysis, "Crypto Crime Report: Decoding increasingly sophisticated hacks, darknet markets and scams," January 2019, <https://blog.chainalysis.com/2019-cryptocrime-review>

One wonders how many frauds and failures would be reported if there were ongoing oversight of these platforms. Moreover, in the absence of oversight, customers do not even know how often a platform might face an outage or interruption of service, or the reasons for such an event.

Allegations of manipulation are frequent. In a recent paper, Professor John Griffin of the University of Texas argues that Tether, a crypto-asset pegged to U.S. dollars, is being used to manipulate the price of Bitcoin and other cryptocurrencies trading on several exchanges.²² The *Wall Street Journal* recently claimed trading groups had engaged in 175 “pump and dump” schemes that inflated and then crashed the prices of 121 cryptocurrencies in the first six months of 2018, generating millions in losses for others.²³ Another story highlighted the widespread use of bots to manipulate price.²⁴

Securities and derivatives exchanges are subject to a scheme of oversight that does not just rely on government rules and enforcement actions. Self-regulatory organizations are officially recognized as the policemen for broker-dealers in the securities world (the Financial Industry Regulatory Authority) and futures commission merchants in the derivatives world (the National Futures Association). While some crypto exchanges may claim to have surveillance operations, there is neither oversight nor official standards.

There is no insurance scheme to protect investors. If your securities broker absconds with your money or goes bankrupt, there is a good chance you are protected by the Securities Investor Protection Corporation. It protects against the loss of cash and securities from a SIPC-member broker-dealer up to \$500,000. It has overseen the recovery and return of approximately \$12 billion to victims of the Bernie Madoff scandal, for example.²⁵ SIPC has advanced a total of \$2.8 billion since its creation in 1970 through 2017, and SIPC says it has recovered \$139 billion in assets for investors over that time.²⁶ Although we do not

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²² John M. Griffin and Amin Shams, “Is Bitcoin Really Un-Tethered?” June 25, 2018, *SSRN*.

<https://ssrn.com/abstract=3195066> or <http://dx.doi.org/10.2139/ssrn.3195066>

²³ Shane Shifflett and Paul Vigna, “Traders Are Talking Up Cryptocurrencies, Then Dumping Them, Costing Others Millions,” *The Wall Street Journal*, August 5, 2018.

<https://www.wsj.com/graphics/cryptocurrency-schemes-generate-big-coin/>

²⁴ Paul Vigna and Alexander Osipovich, “Bots Are Manipulating Price of Bitcoin in ‘Wild West of Crypto,’” *The Wall Street Journal*, October 2, 2018. <https://www.wsj.com/articles/the-bots-manipulating-bitcoins-price-1538481600>

²⁵ Securities Investor Protection Corporation, “Madoff Recovery Initiative Reaches Approximately \$13.26 Billion in Recovered Funds,” *SIPC*, July 5, 2018. <https://www.sipc.org/news-and-media/news-releases/20180705.html>

²⁶ Securities Investor Protection Corporation, “History and Track Record,” *SIPC*, Accessed January 11, 2019. <https://www.sipc.org/about-sipc/history>

have an insurance scheme for derivatives, we do have segregation requirements and clear rules on how customers are treated in a bankruptcy.

Customer Agreements That Limit Responsibility

Many of the trading platforms have customer agreements which limit their responsibilities or absolve them of liability in ways not permitted in other financial sectors such as securities, derivatives, and banking. Of course, most customers probably don't read these agreements, but they might find surprising terms if they did. As noted earlier, this includes disclaimers about best execution or timeliness of trades; the customer has no assurance as to when or how a trade will be affected. In addition, the customer is required to promise not to engage in manipulative activities but the firms make no promises as to what they will do to prevent fraud or with respect to their own trading. Many firms require the customer to consent to a broad release and indemnification. I doubt that many crypto investors realize they could be liable to the trading platform. The existence and rampant acceptance of these agreements highlights the limits of relying solely on the industry to police itself.

More pro-customer agreements in conjunction with better disclosure by platforms would help, but I am not suggesting this alone can solve the problem. Our securities regulatory regime is one in which disclosure can cure many things, but you can neither disclose your way out of fraud nor require an investor to waive fraud claims. A business that has no history of profitability and doubtful prospects can go public as long as it chooses to disclose those facts. But a Ponzi scheme is not legal even if it were to say "there are no rules insuring that this is not a Ponzi scheme". Similarly, while it would be a good thing if platforms and sponsors of ICOs made better disclosure of the risks of fraud and manipulation in trading, that is not a substitute for requirements to prevent fraud and manipulation. A "Mind the Gap" sign would not absolve the London subway system if the gap between train and platform were ten feet wide.

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PART III:

SYSTEMIC RISKS: CYBER ATTACKS AND ILLICIT PAYMENTS

Some may take the view that there is no urgency to regulating these crypto intermediaries because the market is small and there is unlikely to be any material adverse consequence to the financial system as a whole. Even at its peak in late 2017, the market capitalization of all cryptocurrencies was around \$800 billion, compared to around \$30 trillion for the U.S. equity markets, for example.²⁷ With the dramatic decrease in prices over the course of 2018, it is now closer to \$130 billion. Some might even say *caveat emptor* — let the buyer beware — is the proper response given the anti-government attitude of many of those who promote the crypto market. And some may oppose creating a regulatory framework because it will legitimize activity in which they see little social value.

But bringing these institutions under regulatory purview can address some broader societal interests, in addition to addressing the problems noted in the previous section. These are most notably the potential harm from cyber-attacks and the use of cryptocurrencies for illicit payments. In addition, we should strengthen the regulatory framework now because our financial history affords plenty of examples of how innovations that started out small and were largely ignored by regulators ultimately generated more significant risks—think back to subprime mortgages and shadow banking. We also need a regulatory framework in order to collect the data necessary to monitor the sector from a financial stability perspective.²⁸

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²⁷ Cryptocurrency market capitalization numbers are from Coinmarketcap.com. The peak was on January 7, 2018. U.S. equity market capitalization is from World Bank reports, <https://data.worldbank.org/indicator/CM.MKT.LCAP.CD?view=chart>.

²⁸ In its 2018 annual report to Congress, the Office of Financial Research classified risks related to crypto assets as one of two “Other Risks [that] Bear Watching”, and noted that “the lack of comprehensive regulatory data about U.S. and global markets in all cryptoassets hinders regulators’ ability to monitor the sector(see FSB 2018).” Office of Financial Research, 2018 Annual Report to Congress, November 15, 2018, <https://www.financialresearch.gov/annual-reports/files/office-of-financial-research-annual-report-2018.pdf>. The Financial Stability Board report also noted the lack of sufficient data (“In this rapidly developing area, the paucity of relevant and reliable data warrants further monitoring and analysis of the market.”) Financial Stability Board, 2018, p. 2.

The Risk of Cyber Attacks

The risk of a cyber-attack on our core financial market infrastructure was my biggest concern while chairing the CFTC. It could result in significant interruption of trading and other services, loss of data and customer assets, and potentially threats to financial stability. We took actions to require trading and clearing platforms to maintain stronger cybersecurity protections. But it is a never-ending battle to keep defenses up to date.

The Office of Financial Research (OFR) concluded in its 2017 Financial Stability Report that cryptocurrencies have increased the risk that cyber-attacks will take place. That's because perpetrators — be they criminals or rogue state actors — can move and hold money pseudonymously and escape detection, and thereby succeed in ransomware demands.²⁹ The OFR Report lists cyber-attacks as the top threat to financial stability, and notes that the risk is especially great in the financial sector because it is so interconnected and heavily reliant on technology.

Some recent attacks illustrate this. In August 2017, North Korea allegedly launched a sophisticated cyber-attack on South Korean cryptocurrency exchanges in an attempt to subvert UN sanctions and acquire Bitcoin to fund Kim Jong Un's regime.³⁰ A more recent, successful hack occurred against Japanese exchange Coincheck, which lost over \$500 million in cryptocurrency in the breach.³¹ Although officially unattributed, it was reported that South Korean intelligence similarly suspects North Korean hackers were the perpetrators.³²

The recent Chainalysis report notes that crypto hacking was on the rise in 2018, even

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²⁹ Office of Financial Research, "2017 Financial Stability Report," December 5, 2017. <https://www.financialresearch.gov/financial-stability-reports/2017-financial-stability-report/>, pp. 7-12

³⁰ Elizabeth Shim, "North Korea targeted bitcoin exchange in hacking attempt, expert says," *UPI*, August 24, 2017. https://www.upi.com/Top_News/World-News/2017/08/24/North-Korea-targeted-bitcoin-exchange-in-hacking-attempt-expert-says/8651503582036/

³¹ Bloomberg, "How to Steal \$500 Million in Cryptocurrency," *Fortune*, January 31, 2018. www.fortune.com/2018/01/31/coincheck-hack-how/

³² Josiah Wilmoth, "NEM Foundation Calls Off Chase for Stolen Coins from \$530 Million Coincheck Hack," *CCN*, Mar 23, 2018. <https://www.ccn.com/nem-foundation-calls-off-chase-for-stolen-coins-from-530-million-coincheck-hack/>

though it represented a smaller percentage of the overall market because the market grew. “Hacking is on the rise,” the report notes, “because it works.”³³

While the crypto sector is a small part of the financial system, it is not isolated. It has an increasing number of interconnections with other financial markets through the trading firms, banks, brokers and technology vendors that transact with crypto intermediaries. These include some of the largest firms in our financial system. Fidelity Investments, for example, recently announced it will start investing in crypto-assets.³⁴ Co-location — where a high frequency trading firm places its computers in the same location that houses an exchange’s matching engine, in order to access prices and transact a split second faster — is increasingly common at crypto exchanges. The same firms that co-locate at a crypto intermediary may co-locate at our major securities or derivatives intermediaries. Banks and brokers may engage in transfers of customer funds to and from crypto intermediaries. Technology vendors that work for crypto intermediaries may also work for other exchanges, trading platforms, banks or brokers.

Could an attack on a crypto intermediary cause collateral damage elsewhere? I am no cyber expert, but we have seen plenty of examples of incidents where malware enters through vulnerable computers at a single firm, and then quickly spreads and infects many other firms. The 2016 “Notpetya” attack — which *Wired Magazine* called the “most devastating cyber-attack in history” and which hit a wide range of global businesses including Maersk, Merck, WPP and FedEx—began with malware in an accounting program that was “Ukraine’s equivalent to Turbo Tax or Quicken.” The malware was designed to spread “automatically, rapidly and indiscriminately.”³⁵ And, of course, it is easy for a phishing attack to spread through emails alone.

The School of International and Public Affairs at Columbia University has a new project on financial stability and cyber risk that has published some thoughtful papers, including one through the Brookings Center on Regulation and Markets exploring the risks created by “the deep interconnections within the financial system and the IT infrastructure.” They cite algorithmic trading as an example of “these two systems becoming further inter-

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³³ Chainalysis, p.9.

³⁴ Nikhilesh De, “Fidelity May Formally Launch Its Crypto Custody Service in March,” Coindesk, January 29, 2019. <https://www.coindesk.com/fidelity-custody-service-launch>.

³⁵ Andy Greenberg, “The Untold Story of Notpetya, the Most Devastating Cyberattack in History,” *Wired*, August 22, 2018. <https://www.wired.com/story/notpetya-cyberattack-ukraine-russia-code-crashed-the-world/>.

twined” and “diversified cyber-crime markets” as one of several amplifiers of risk. The papers are a reminder of the difficulty predicting the consequences of a cyber-attack.³⁶

Financial institutions and financial regulators have made a major push in recent years to heighten cybersecurity across the financial system. At the CFTC, we implemented new system safeguard testing requirements in 2016, which require the core financial market infrastructure firms under the agency’s jurisdiction to engage in regular testing of cyber protections according to industry best practices, including vulnerability, penetration and controls testing and security incident best response measures.³⁷ These regulations also required firms to screen their third-party vendors or service firms. The SEC and the banking regulators have updated their requirements in recent years. As noted in the OFR report, many institutions use the National Institute of Standards and Technology (NIST) Cybersecurity Framework as a starting point for cyber security preparations, and the President ordered all executive branch agencies to adopt that framework in a May 2017 order.³⁸

As security expert Bruce Schneier writes in his latest book, *Click Here to Kill Everybody*, there is insufficient incentive for firms to invest in cybersecurity absent government requiring them to do so. Even a principled CEO who thinks about the long term would invest only to protect the value of the firm. But the costs of a cyber-attack on her firm could be much greater for society as a whole because of the collateral consequences.³⁹ This is particularly the case in financial services given the interconnected nature of the financial system.

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³⁶ Jason Healey, Patricia Mosser, Katheryn Rosen and Alexander Wortner, “The Ties That Bind: A Framework to Assess the Linkages Between Cyber Risk and Financial Stability,” *Columbia University School of International Affairs*, December 2018, <https://sipa.columbia.edu/sites/default/files/CRFS%20Working%20Paper%20The%20Ties%20that%20Bind.pdf>. See also Healey, Mosser, Rosen and Adriana Tache, “The Future of Financial Stability and Cyber Risk,” October 2018, <https://www.brookings.edu/research/the-future-of-financial-stability-and-cyber-risk/>.

³⁷ U.S. National Archives and Records Administration. Office of the Federal Register. “System Safeguards Testing Requirements.” *Federal Register* 81, no. 181. September 19, 2016: 64272. <https://www.cftc.gov/LawRegulation/FederalRegister/finalrules/2016-22174.html>;

U.S. National Archives and Records Administration. Office of the Federal Register. “System Safeguards Testing Requirements for Derivatives Clearing Organizations”, in *Federal Register*, 81. September 19, 2017: 64733. <https://www.federalregister.gov/documents/2016/09/19/2016-22413/system-safeguards-testing-requirements-for-derivatives-clearing-organizations>.

³⁸ Office of Financial Research, “2017 Financial Stability Report,” p.12.

³⁹ Bruce Schneier, *Click Here to Kill Everybody: Security and Survival in a Hyperconnected World*, (New York & London: W.W. Norton & Company, 2018), pp.124-5.

The fact that crypto intermediaries face no such requirements is a gaping hole that is becoming increasingly significant as the sector grows. Such requirements are, admittedly, no guarantee against an attack, but they can certainly reduce the risks and consequences of one. Of course, some crypto exchanges will invest in cyber-security anyway, given their own reputational and financial risk. However, the stakes are too high to rely solely on voluntary actions by firms.

Use of Crypto-Assets for Illicit Payments and Activities

A second problem is the use of crypto-assets for illicit payments, with ransomware being just one form. The pseudonymity of crypto-assets and lack of transparency on the part of the intermediaries make crypto-assets, especially cryptocurrencies, an attractive means to fund other types of illegal activity, the most infamous being the Silk Road dark market created by Ross Ulbricht, on which narcotics, firearms, poisons and other goods were sold. The Justice Department claimed the site generated sales in Bitcoin having an aggregate value in excess of \$1 billion.⁴⁰

Guidance issued by the Financial Crimes Enforcement Network (FinCEN) in 2013 made it clear that cryptocurrency “administrators” and “exchanges” must register as Money Service Businesses and comply with reporting and record keeping requirements.⁴¹ But the absence of a regulatory framework for the intermediaries that would require record keeping, reporting and transparency makes the job of enforcing those regulations difficult. As of October 2018, out of the 100 top exchanges listed on Coinmarket.cap, 13 had reportedly registered with FINCEN.⁴² The director of FinCEN, Kenneth Blanco, expressed his surprise at how many exchanges only began compliance activities because they received notice of an examination. “Compliance does not begin because you may get caught, or be-

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⁴⁰Evander Smart, “Unsealed Transcript Shows How Judge Justified Ross Ulbricht’s Life Sentence,” Cointelegraph, October 9, 2015, <https://cointelegraph.com/news/unsealed-transcript-shows-how-judge-justified-ross-ulbrichts-life-sentence>

⁴¹ Department of the Treasury, Financial Crimes Enforcement Network, “Application of FinCEN’s Regulations to Persons Administering, Exchanging, or Using Virtual Currencies,” FIN2013-G001, March 18, 2013, <https://www.fincen.gov/sites/default/files/shared/FIN-2013-G001.pdf>

⁴² Christopher Casper, “Which Cryptocurrency Exchanges are Registered with FinCEN?” *CoinIQ*, October 3, 2018. https://coiniq.com/crypto-exchange-fincen-registration/#MSB_obligations

cause you are about to be discovered,” Blanco declared. “That is not a culture that protects our national security, our country, and our families. It is not a culture we will tolerate.”⁴³

A recent report by the Office of the New York Attorney General found that the stated procedures of platforms related to onboarding of customers, which is critical to complying with anti-money laundering (AML) and Know Your Customer (KYC) regulations, varied widely, with some being very weak.⁴⁴ Moreover, the report simply surveys what the platforms claim to do; it did not investigate what they *actually* do. Actual AML and KYC compliance may be even weaker.

There is an alternate view of the risk, as expressed by Alex Wearn of IDEX, a decentralized asset exchange for the cryptocurrency Ethereum: “the pseudonymous nature of blockchain-based transactions make it a pretty poor vehicle for money laundering as transactions are forever recorded in a public ledger.”⁴⁵

FBI Supervisory Special Agent Kyle Armstrong, who manages the Bureau's Virtual Currency Initiative, offered a thoughtful reconciliation of these viewpoints. He noted that cryptocurrencies have in fact led to increased availability and accessibility of illicit expenditures. He acknowledged there were some “good” aspects of cryptocurrencies when it comes to detecting and punishing criminal activity: they are more traceable than suitcases full of cash. Once a “wallet is unmasked” — that is, an account is identified—then other crimes and networks could be exposed. However, he also noted that some cryptocurrencies are now designed to be anonymous which makes law enforcement more difficult.⁴⁶ Transfers could also occur “off-chain” and not be easily traceable.

In addition, the rise of cryptocurrency “tumblers” and “mixing services” — which exist to hide a crypto-asset owner’s identity by combining identifiable or tainted assets with others — illustrates how the sector will innovate to escape detection, absent government action.

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⁴³ Ibid.

⁴⁴ Office of the New York Attorney General, “Virtual Markets Integrity Initiative Report,” p.9. See further discussion of report in text at note 69.

⁴⁵ Alex Wearn, “Pragmatic Decentralization: How IDEX Will Approach Industry Regulation,” *Medium*, November 1, 2018. <https://medium.com/aurora-dao/pragmatic-decentralization-how-idx-will-approach-industry-regulations-8b109212128a>

⁴⁶ Presentation at Crypto Evolved conference, June 27, 2018, New York, N.Y.

As noted earlier, a recent Chainalysis report found that organized criminal groups were behind many of the recent exchange hacks and that such groups typically made thousands of transfers of stolen funds to avoid detection.⁴⁷ The report notes that despite aggressive action by law enforcement agencies, darknet markets—used to transfer and disguise the origin of stolen funds—have a “surprising resilience. The report concludes that “crypto crime is evolving to become part of traditional crime, and we think that trend will continue.”⁴⁸ In addition, because cryptocurrencies are increasingly used to evade government financial sanctions, it predicts that “2019 will force a reckoning with the role that cryptocurrencies play in evading sanctions if governments want to giv[e] ‘sanctions back their bite.’”⁴⁹

If all trading platforms and wallets were required to register and comply with basic federal transparency standards, it would be much easier to prevent the use of crypto-assets for illicit payments.

PART IV: CLOSING THE GAP: HOW TO IMPROVE REGULATION

Why Existing Law is Inadequate

I turn now to why we need to change the law, rather than simply rely on enhanced enforcement of existing law. Each of the Securities and Exchange Commission and the Commodity Futures Trading Commission has some jurisdiction, and each has stepped up its enforcement efforts. While this is a move in the right direction, these efforts are not likely to be sufficient due to the gap in authority. In addition, the two agencies already face strained budgets and need additional resources in order to deal with this new sector adequately.

Indeed, the chairmen of the SEC and the CFTC, in an appearance last year, acknowledged

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⁴⁷ Chainalysis. See discussion at note 21.

⁴⁸ Chainalysis, p.4

⁴⁹Chainalysis, p.26.

the gap in the legal framework.⁵⁰ The problem is that crypto-assets do not fit neatly into our existing regulatory framework. Are they securities, commodities or something else? The answer is any and all of those, depending on the type and how they are distributed.

The Limits of SEC Jurisdiction

Here's a quick primer for those unfamiliar with the law, which begins with distinguishing three types of crypto-assets. The first are asset or equity tokens. These represent a claim (equity or debt) on an issuer or a means of benefiting from the enterprise of others. A second category is tokens used as a means of payment or exchange — Bitcoin and other cryptocurrencies. These do not constitute any claim on the issuer of the token. The third is utility or consumer tokens, which represent a right to use or have access digitally to some sort of blockchain based application or service. There is less clarity over what falls into this category. The first category is most likely to be securities under U.S. law. The second and third are probably not intrinsically securities, but the manner in which they are marketed or sold—or even given away—might constitute an offering of securities. Of course, some tokens do not fit neatly into a single category.

The SEC has jurisdiction if a crypto-asset is a security. The Chairman and staff have made it clear that they are applying the standards formulated in the famous Supreme Court case known as *Howey* to determine if an “investment contract” exists, which renders the offering of a crypto-asset a securities offering that is subject to the Securities Act.⁵¹ Four prongs must be met: there must be (1) an investment of money, (2) in a common enterprise, (3) with the expectation of profit, (4) from the managerial efforts of others.⁵² The SEC Director of the Division of Corporation Finance, William Hinman, has also said the staff's analysis will not depend on the intrinsic nature of the token (noting that all tokens are merely code) but rather on how it is offered or distributed.⁵³

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⁵⁰ “Testimony on ‘Virtual Currencies,’” Witness Panel 1, The Honorable Jay Clayton and The Honorable J. Giancarlo Testimonies, *Committee on Banking, Housing, and Urban Affairs*, United States Senate, February 6, 2018, <https://www.banking.senate.gov/hearings/virtual-currencies-the-oversight-role-of-the-us-securities-and-exchange-commission-and-the-us-commodity-futures-trading-commission>

⁵¹ SEC v. W.J. Howey Co., 328 U.S. 293 (1946).

⁵² Id., 298-300.

⁵³ William Hinman, “Digital Asset Transactions: When Howey Met Gary (Plastic),” (speech, San Francisco, CA, June 14, 2018). <https://www.sec.gov/news/speech/speech-hinman-061418>.

If the offer and sale of a crypto-asset constitutes a securities offering, it must be made in accordance with the securities laws. In addition, any exchange or intermediary trading or handling it would be subject to the securities regulatory framework. That could mean that a crypto exchange trading crypto-assets offered as securities must register with the SEC as an exchange or an alternative trading system (or ATS, much like a dark pool in securities trading) and comply with extensive rules designed to ensure integrity and investor protection.

So why isn't that a sufficient basis to assert regulation? After all, Chairman Jay Clayton of the SEC has said most ICOs he has reviewed are offerings of securities subject to the Securities Act.⁵⁴ The Cyber Spotlight page on the agency's website lists about two dozen enforcement actions pertaining to "digital assets/initial coin offerings." This includes a few cases pertaining to secondary trading, including actions against some small unregistered platforms. The site also lists a few trading suspension cases concerning public companies involved in crypto-assets or related technologies.⁵⁵ It also appears to have many investigations pending, so more actions are likely to follow.

The agency formed a Cyber Unit in September 2017,⁵⁶ and in its annual enforcement report, describes its strategy as follows:

"Given the explosion of ICOs over the last year, we have tried to pursue cases that deliver broad messages and have market impact beyond their own four corners. To that end, we have used various tools—some traditional, such as the Commission's trading suspension authority, and some more novel, such as the issuance of public statements—to educate investors and market participants, including lawyers, accountants, and other gatekeepers. We believe these investor-protection efforts have been successful."⁵⁷

The SEC staff also recently issued a statement summarizing its enforcement actions pertaining to when crypto-asset secondary market trading activity requires registration as a

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⁵⁴ "SEC Chief Clayton: 'Every ICO I've Seen Is a Security,'" *CoinDesk*, Feb 6, 2018,

<https://www.coindesk.com/sec-chief-clayton-every-ico-ive-seen-security>

⁵⁵ U.S. Securities and Exchange Commission, "Cyber Enforcement Actions," Accessed January 11, 2019. <https://www.sec.gov/spotlight/cybersecurity-enforcement-actions>.

⁵⁶ U.S. Securities and Exchange Commission, "SEC Announces Enforcement Initiatives to Combat Cyber-Based Threats and Protect Retail Investors," September 25, 2017.

<https://www.sec.gov/news/press-release/2017-176>

⁵⁷ U.S. Securities and Exchange Commission, "Annual Report: Division of Enforcement", 2018.

<https://www.sec.gov/files/enforcement-annual-report-2018.pdf>, p.3.

national securities exchange or as a broker-dealer.⁵⁸

But stepped up enforcement, while desirable and critical, cannot fill the gap. One problem is that the most widely traded crypto-assets are not likely to ever be deemed securities. Bitcoin represents roughly half of the trading activity today, but both Chairman Clayton and his staff have indicated it is probably not a security.⁵⁹ Bitcoin forks such as Litecoin are likely to receive similar treatment. Director Hinman said that “putting aside the fundraising that accompanied the creation of Ether [...] current offers and sales of Ether are not securities transactions.”⁶⁰ So under current law, a trading platform that trades only such crypto-assets would not be required to register. One that traded Bitcoin as well as tokens that are securities would face the question not only of whether to register as and comply with Securities Exchange Act requirements for the trading of tokens deemed securities, but also whether to bifurcate its operations into a registered exchange division and a non-registered division. It is not clear SEC rules can accommodate institutions that want to trade both securities and non-securities.

I am not aware of any significant crypto trading platform that has registered with the SEC as an exchange or an ATS, although one has acquired entities that have ATS registrations.⁶¹ The SEC recently brought an action against a platform that was not registered, claiming that it should have done so.⁶²

Chairman Clayton may intend to use the SEC’s existing authority to limit as much as possible the extent to which crypto-assets can enter—or he might say infect—the regulated securities markets. That is, the agency will try to limit the ability of broker-dealers, trading platforms or other intermediaries over which it has jurisdiction to deal in crypto-assets. Similarly, he has warned what he calls the “gatekeepers”—the lawyers, accountants and underwriters who participate in securities offerings—that the agency will take action

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⁵⁸ U.S. Securities and Exchange Commission, Division of Corporation Finance, Division of Investment Management, and Division of Trading and Markets, “Statement on Digital Asset Securities Issuance and Trading,” November 16, 2018. <https://www.sec.gov/news/public-statement/digital-asset-securities-issuance-and-trading>

⁵⁹ Hinman, “Digital Asset Transactions: When Howey Met Gary (Plastic).”

⁶⁰ Ibid.

⁶¹ Siamak Masnavi, “Coinbase on the Path to Offering SEC-Regulated Crypto Securities,” *Cryptoglobe*, June 7, 2018. <https://www.cryptoglobe.com/latest/2018/06/coinbase-on-the-path-to-offering-sec-regulated-crypto-securities/>

⁶² “SEC Charges EtherDelta Founder With Operating an Unregistered Exchange,” SEC, November 8, 2018, <https://www.sec.gov/news/press-release/2018-258>

against them if they assist in illegal crypto offerings, which has likely contributed to driving illegal ICOs offshore.

But we will still face a bifurcated regulatory framework, where some platforms must register and comply with basic standards while others do not, or do so only for part of their business. That will surely generate confusion not to mention weak investor protection. In addition, in the absence of clear requirements that crypto platforms must register, it will take time—and significant resources—for the SEC to bring enforcement actions against all platforms that should but have not registered.

Creating oversight of trading platforms through one-by-one enforcement actions may also lead to a “whack-a-mole” dynamic between regulators and platforms: just as the SEC succeeds in establishing that a platform must register, we may find that trading activity moves to tokens and platforms that are not yet targets of SEC action.

And while stepped up enforcement is to be applauded, what happens when there is a new Chairman and a new enforcement chief who do not wish to be aggressive in interpreting their existing authority?

The Limits of CFTC Jurisdiction

If a crypto-asset like Bitcoin is not a security but is a commodity, does that eliminate the regulatory gap? The answer is no. The CFTC has jurisdiction over any *derivative* product involving a commodity, but it has limited jurisdiction over the “cash market” for the commodity itself. That means any platform trading any derivative *based* on Bitcoin—as with derivatives based on oil, wheat, foreign exchange or any other commodity—must comply with our commodities laws, as must any firm providing custody or advisory services in regard to such derivatives. But the CFTC has very little jurisdiction over the *cash* market—the trading of Bitcoin or other crypto-assets that are not securities for cash (or other crypto-assets that are not securities). That’s where most of the trading of Bitcoin and other cryptocurrencies takes place today. The agency can pursue cases of fraud and manipulation in the cash market. It can also bring actions pertaining to retail leveraged trades where there is a failure to deliver the commodity—that has been the basis for some enforcement actions.⁶³ But as a general matter, it cannot set oversight standards for the

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⁶³ See discussion at footnote 16.

cash market in crypto-assets as it does with derivatives on those crypto-assets.

When it comes to many commodities, such as oil or wheat, the fact that the CFTC does not have authority to set standards for the cash market is usually not critical, because the cash market has developed standards and norms over decades and may even be subject to other regulatory oversight. But the cash market for crypto-assets—which is where most of the trading takes place today—does not have well-developed standards. This is a problem for oversight generally and for the quality of crypto derivatives: if the underlying cash market is susceptible to (or characterized by) fraud and manipulation, then what confidence can one have in the derivatives?

The bottom line is there will be significant gaps in the regulatory framework even if the SEC and the CFTC step up their enforcement efforts, as they appear to be doing. Requirements imposed on intermediaries could vary—some might be required to register, some not, some only for part of their business. It would be better to develop a comprehensive response.

The FX Market is Not a Good Model

We do not have a federal regulatory scheme for the trading of foreign exchange (FX) in the cash or spot market, and some might argue that is good precedent for not creating federal regulation of cryptocurrencies. I think there are several reasons not to emulate that example. First, fiat currencies are different from cryptocurrencies in that they are creatures of central governments and potentially subject to oversight of central banks. Second, there has been significant fraud and manipulation in the trading of foreign exchange, which a reasonable regulatory scheme might have prevented or minimized. While I was at the CFTC, we brought a series of enforcement actions concerning manipulation of FX benchmark rates and imposed substantial fines. The CFTC's enforcement power derived from the relationship of the benchmark rates to the FX derivatives that were under our jurisdiction. The international Financial Stability Board also launched an extensive effort to reform FX trading and benchmarks.⁶⁴

While the FX market is primarily an institutional as opposed to a retail market, the lack of

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⁶⁴ "Final Report on Foreign Exchange Benchmarks," Financial Stability Board, September 30, 2014, www.fsb.org/2014/09/r_140930/

protection for retail investors was of concern at the CFTC. The agency was given very limited oversight of retail FX traders in the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. Although some in Congress wanted to give the CFTC broader authority over the industry, they failed to do so, and as a result it does not have the power to set general customer protection requirements in the FX market.

Some have argued that cryptocurrencies will be especially useful in countries that lack a stable fiat currency. Venezuela is the latest favorite example of many crypto enthusiasts, who point out the increased interest in cryptocurrencies because of the weakness of the Venezuelan bolivar, amidst inflation at over one million percent per annum.⁶⁵ A Venezuelan who is able to convert bolivars today into Bitcoin might find it easier to purchase goods; but a Venezuelan who bought Bitcoin in December 2017 might wish he had simply bought dollars or Colombian pesos, given the dramatic decline in Bitcoin's price. Indeed, some suggest the interest in Bitcoin in Venezuela is primarily driven by a desire to get other stable fiat currencies.⁶⁶ We will see over time if cryptocurrencies prove to be useful in countries that lack a stable currency. But whether or not that occurs, it is not relevant to whether and how we strengthen regulation in this country.

Why State Regulation is Not a Substitute

We cannot expect state regulation to fill the gap. Although crypto-asset intermediaries are subject to regulation under many states' money transmission laws, these laws vary enormously and do not provide the comprehensive framework we need.

New York has implemented a new "BitLicense" regulation that was the first and remains one of the strongest. It imposes a licensing requirement and a variety of requirements on crypto-asset exchanges and wallets. These elements include capital requirements, custody and customer protection standards, complaint procedures, compliance with anti-money

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⁶⁵ Kai Ryssdal, "Bitcoin Offers Stability in Venezuela's Shaky Economy," *NPR*, March 4, 2019. <http://www.nprillinois.org/post/bitcoin-offers-stability-venezuelas-shaky-economy#stream/0>. Helen Partz, "Bitcoin Trading Reaches All-Time High in Venezuela Amidst Ongoing Economic Collapse," *Cointelegraph*, February 7, 2019. <https://cointelegraph.com/news/bitcoin-trading-reaches-all-time-high-in-venezuela-amidst-ongoing-economic-collapse>.

⁶⁶ Leigh Cuen, "Venezuela Isn't the Crypto Use Case You Want it to Be," *Coindesk*, December 19, 2018. <https://www.coindesk.com/venezuela-isnt-the-crypto-use-case-you-want-it-to-be>.

laundering, and business continuity, disaster recovery and cybersecurity requirements.⁶⁷ The New York Department of Financial Services reported eleven exchanges that had received a license as of February 2019.⁶⁸

However, it is worth considering whether this licensing requirement can significantly improve the market. It is difficult for DFS, as a state regulator with limited jurisdiction over these markets, to have much of an impact. One could even question whether its licensing requirement has given a false sense of legitimacy to those that have bothered to register.

Indeed, another New York authority — the Office of the New York Attorney General — recently issued a report as part of a new “Virtual Markets Integrity Initiative” that illustrates just how weak the regulatory framework is. The OAG contacted thirteen platforms to inquire about their policies and procedures; only nine agreed to cooperate, but those included some of the largest in the U.S. such as Bitfinex, Coinbase and Gemini. The report found that “virtual asset trading platforms have not [...] implemented common standards for security, internal controls, market surveillance protocols, disclosures or other investor and consumer protections [...] Accordingly, customers [...] face significant risks.” The principal concerns noted by the OAG were: (i) the potential for conflicts of interest in light of the multiple roles these platforms play; (ii) a failure to “implement serious efforts to impede abusive trading activity; and (iii) “protections for customer funds are often limited or illusory.”⁶⁹

In the area of potential trading abuses, the report notes a number of problems, such as failure to police whether users create multiple accounts (which can then be used to engage in wash trading), failure to disclose order types, and lack of policies on or surveillance of automated trading. The report says, “While participating platforms expressed their commitment to combating market manipulation, only a few reported having a formal policy in place, defining the types of conduct the platform believes to be manipulative or abusive, and outlining how such trading behavior is to be detected and penalized.”⁷⁰

For all the problems noted, the report probably presents the exchanges at their best—that

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⁶⁷ New York State Department of Financial Services. “Part 200: Virtual Currencies” in *New York Codes, Rules, and Regulations: Title 23: Department of Financial Services*. Accessed January 11, 2019. <https://www.dfs.ny.gov/legal/regulations/adoptions/dfsp200t.pdf>

⁶⁸ Department of Financial Services, Accessed March 1, 2019. www.dfs.ny.gov.

⁶⁹ Office of the New York Attorney General, “Virtual Markets Integrity Initiative Report,” September 18, 2018. <https://virtualmarkets.ag.ny.gov/>

⁷⁰ *Ibid.*, p.18.

is, it understates the problems. The report is, after all, simply a survey of what the exchanges claim to do based on their responses to the questionnaire. The Attorney General's office did not actually investigate whether any exchange lives up to its claims.

While the New York BitLicense approach is at least admirable in its objective to strengthen regulation, other states have gone the other way. Wyoming, for example, has adopted several laws designed to make the state much friendlier for crypto-asset businesses, including exemptions of certain transactions from money service business laws and securities laws.⁷¹ Proponents of Wyoming's approach have stated that their goal is to make Wyoming the Delaware of crypto, a reference to Delaware's business friendly regulator system.⁷² Wyoming is essentially creating its own definition of securities for purposes of the crypto industry.⁷³ Although this would not change the federal law treatment of what is a security, it could create confusion. As another point of contrast, Hawaii officials reportedly insisted that Coinbase maintain cash reserves equal to the value of all cryptocurrency traded on its platform, which led the firm to leave the state.⁷⁴

Recent efforts to create a standardized state law approach are a step forward but will not provide the necessary framework of oversight. The Uniform Law Commission (ULC, or the National Conference of Commissioners on Uniform State Laws) has drafted a model law called the Uniform Regulation of Virtual Currency Businesses Act. It covers businesses that engage in (i) the exchange of virtual currencies for cash, bank deposits or other virtual currencies, (ii) the transfer of virtual currencies from one customer to another or (iii) certain custodial and fiduciary services related to virtual currency. It regulates such businesses in a manner similar to the regulation of money transmitters under the Uniform Money Services Act. However, it does not apply to banks or to activity that is regulated by the SEC or the CFTC, among other exclusions.⁷⁵

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⁷¹ Caitlin Long, "What Do Wyoming's 13 New Blockchain Laws Mean?", *Forbes Insights*, March 4, 2019. <https://www.forbes.com/sites/caitlinlong/2019/03/04/what-do-wyomings-new-blockchain-laws-mean/#1f7017b75fde>

⁷² Benjamin Bain, "Wyoming Aims to be America's Cryptocurrency Capital," *Bloomberg*, May 15, 2018. <https://www.bloomberg.com/news/articles/2018-05-15/wyoming-aims-to-be-america-s-cryptocurrency-capital>.

⁷³ Rachel Wolfson, "U.S. State of Wyoming Defines Cryptocurrency 'Utility Tokens' As New Asset Class," *Forbes*, Mar. 13, 2018, <https://www.forbes.com/sites/rachelwolfson/2018/03/13/u-s-state-of-wyoming-defines-cryptocurrency-utility-tokens-as-new-asset-class/>

⁷⁴ See <https://support.coinbase.com/customer/en/portal/articles/2754027-coinbase-accounts---hawaii>

⁷⁵ Uniform Law Commission, Regulation of Virtual Currency Businesses Act. Accessed January 15, 2019. <https://www.dfs.ny.gov/legal/regulations/adoptions/dfsp200t.pdf>.

It requires covered businesses to be licensed and to comply with basic disclosure requirements (such as regarding fees and liability for an unauthorized or mistaken transfer). It contains security and net worth requirements although the levels are left to the state.⁷⁶ It requires a covered business to have sufficient virtual currency on hand to satisfy the entitlements of its customers and ensures that customer property is not subject to the claims of the intermediary's creditors. It requires a business to have programs or policies regarding fraud prevention, risk management, prevention of money laundering, business continuity, disaster recovery and cybersecurity and other matters, but it does not provide any specific requirements in those areas.

While the Uniform Regulation of Virtual Currency Businesses Act is a good framework for state regulation, its lack of specific regulations in many of the aforementioned areas, as well as the explicit deference to federal securities and commodities law noted earlier, make clear that it is not a substitute for comprehensive federal oversight.

Allowing for states to take the lead and experiment can be a virtue in some public policy areas. In the case of crypto regulation, there are certainly aspects where state law should take the lead, such as areas of commercial regulation traditionally left to the states. This would include the implications of virtual currencies under the Uniform Commercial Code. The ULC is at work on this.

As a general matter however, state regulation would be a weak foundation for an industry that strives to be international. When regulatory requirements vary by state, it is expensive to build compliance systems, and difficult to create national, let alone international, markets. Our securities markets would not have become the envy of the world if we had relied solely on state blue sky laws and never adopted the Securities Act and Securities Exchange Act. We should not expect state law to fill the need for this new sector either.

Improving the Regulatory Framework

Ultimately, the issue is not whether crypto-assets will be regulated, but whether that regulation will result from piecemeal actions or from a coherent framework. The former will

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⁷⁶ The Act includes a \$25,000 net worth requirement in brackets. (Uniform Law Commission, Regulation of Virtual Currency Businesses Act, Section 402.)

result in insufficient investor protection, regulatory confusion, greater costs and potentially greater risk to the financial system as a whole. It is time to create a coherent framework.

The first step is for Congress to increase the authority of the SEC and the CFTC. The basic gaps, as noted, are oversight of the cash market for crypto-assets which are not securities, and the institutions such as trading platforms, wallets or other advisors that participate in that space. Both the SEC and CFTC are competent to be the lead agency for oversight, and it would be inefficient to create a new agency. Despite my personal affection for the CFTC, the SEC may be better suited to the task because it is more focused on retail investors and cash markets. Congressional action giving one of the agencies lead authority could also limit or pre-empt inconsistent state laws.

But a caution: we should increase the agencies' resources if we expect them to do a thorough job in the crypto sector. They do not have sufficient resources to carry out their current responsibilities, let alone take on new ones. In particular, I know how an inadequate budget has made it very difficult for the CFTC to do its job, including in critical areas such as monitoring markets for manipulation and oversight of clearinghouses, which is important for financial stability. It would not surprise me if neither agency wanted greater authority over the crypto-asset industry today on the basis of resource concerns. Providing the necessary resources need not have any fiscal impact because the cost can be assessed on the industry. The entire SEC budget is funded this way, and the CFTC's budget could be funded this way—as every President since (and including) Ronald Reagan has proposed.

As part of increasing the regulatory authority, Congress will need to define the assets that are the underlying subject of regulation. One approach is to give the lead agency authority to make that determination, based on what tokens are being distributed or traded as financial instruments, currencies or commodities. Clearly, we want a framework that includes cryptocurrencies. While equity tokens should already be covered by existing securities law, it would make sense to confirm that in any new legislation. I don't think we should impose financial market regulation on tokens that really are utility tokens—that is, tokens that represent the right to use an application, that are distributed only to consumers of that application and that are not being issued or traded as financial instruments. But we should give an agency clear authority to figure out how exactly to define these categories, subject to some general guidelines, and not try to write detailed definitions into the legislation itself.

No agency in our functional regulatory system has the authority to articulate those distinctions today. There was some excitement in the crypto industry last year when the Swiss regulator FINMA came out with some guidelines.⁷⁷ Some said Switzerland was creating a friendlier environment for ICOs and business would move offshore to take advantage of it. But the truth is the guidelines are similar to what our law is today with respect to when an ICO is a security. The FINMA document provides a comprehensive regulatory view on all three types of tokens as well as anti-money laundering and other related concerns, which FINMA can offer because of the breadth of its jurisdiction. As I have noted, the SEC's current jurisdiction ends if the token is not a security. So although its views as to what is *not* a security will emerge as it brings more cases, neither it nor the CFTC is in a position to issue guidelines defining what we should do about those non-security, non-commodity "things" --that is, guidelines that distinguish how different types of crypto tokens should be treated for purposes of financial market regulation. Congress could give them this authority.

Some may say it is not appropriate to expand the jurisdiction of the SEC beyond securities. But I do not see a better alternative. Expanding the jurisdiction of the CFTC to the cash market of crypto-assets which are commodities would also be unusual, and it would divide jurisdiction over the cash market for crypto-assets between two agencies (because the SEC would still have jurisdiction over those crypto-assets deemed securities). Creating a new agency would be highly inefficient. I would also be willing to consider giving the SEC the discretion to regulate in such a way so as to maintain a division between traditional securities intermediaries and intermediaries trading or handling crypto-assets that are not securities. In any event, the historical organization of our financial regulatory system should not deter us from responding to present-day challenges. We should pick the best solution and move forward.

Congress should not try to provide the specifics on how crypto-asset intermediaries should be regulated. Instead, we can follow the precedent of crowdfunding, as discussed below.

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⁷⁷ "FINMA publishes ICO guidelines," Swiss Financial Market Supervisory Authority FINMA, February 16, 2018, <https://www.finma.ch/en/news/2018/02/20180216-mm-ico-wegleitung/>

The Crowdfunding Law: A Model for Congressional Action

It is ironic that crypto-asset trading platforms are subject to less regulation than much smaller crowdfunding platforms. Nevertheless, the history of crowdfunding regulation serves as an example of what we might do in the case of crypto-assets.

Title III of the 2012 Jumpstart our Business Startups Act or Jobs Act permitted crowdfunding through amendments to the securities laws. The legislation imposed basic standards on both issuers that wish to offer or sell securities through crowdfunding and crowdfunding platforms themselves.⁷⁸ SEC regulations implementing this legislation took effect in May 2016.⁷⁹

Companies who seek to raise funds through crowdfunding must comply with fundraising limits, both in the aggregate and on a per investor basis. For example, an issuer may raise not more than \$1,070,000 per year through crowdfunding. Issuers can only make offerings on registered platforms. Some might say these limits are much too low, and that as a result the legislation has not been as successful as its promoters hoped.⁸⁰ But that simply suggests Congress should have given discretion to the SEC to set those limits, just as the agency has discretion to set accredited investor thresholds.

In any event, the basic approach of responding to a financial innovation by adopting

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⁷⁸ Title III of the Jumpstart our Business Startups Act, 112 U.S.C. §301-305 (2012);

While most people may not think of crowdfunding as an acronym, Congress made it one by calling the law “Capital Raising On-Line While Deterring Fraud and Unethical Non-Disclosure Act of 2012 or the Crowdfund Act”. (Capital Raising On-Line While Deterring Fraud and Unethical Non-Disclosure Act, 112 U.S.C. (2012)). In this section I refer only to crowdfunding that involves the offer or sale of securities. I am not referring to, nor does Title III regulate, donation crowdfunding—when an individual solicits contributions for a project or cause without offering anything in return—or what is known as reward crowdfunding—where a contributor receives a reward other than in the form of securities, such as a sample of a new product.

⁷⁹ U.S. National Archives and Records Administration. Office of the Federal Register. “Crowdfunding” *Federal Register* 80, no. 220. November 16, 2015: 71387. <https://www.gpo.gov/fdsys/pkg/FR-2015-11-16/pdf/2015-28220.pdf>.

⁸⁰ Estimates vary as to the amount of capital raised by these platforms. One source says \$49 million was raised from over 44,000 investors in 2017, an amount that was almost twice the total capital raised in 2016. This firm predicts the market will grow to \$1 billion within five years. (Crowdfund Capital Advisors, “2017 State of Regulation Crowdfunding Report,” January 24, 2018. [http://crowdfundcapitaladvisors.com/2017-state-regulation-crowdfunding-report/.](http://crowdfundcapitaladvisors.com/2017-state-regulation-crowdfunding-report/))

broad principles and delegating authority to the SEC to implement regulations is one that should be followed here. The law itself is quite short. Crowdfunding platforms must register with the SEC and comply with standards designed to insure integrity and transparency that are similar to but less onerous than those we impose on securities and derivatives exchanges. For example, they must engage in customer education and provide disclosures on the issuer and on the platform itself. They must implement measures to prevent fraud, including obtaining background checks on the directors, officers and 20% stockholders of every issuer using the platform. They may not pay compensation to finders for identifying investors. Their directors, officers and partners cannot have any financial interest in any issuer. They may not offer investment advice or recommendations or solicit purchases. In addition, investor funds must be held by a qualified third party, such as a bank or registered broker-dealer, pending completion of an offering.

The history of Title III offers a useful lesson in terms of process. The bipartisan will to liberalize securities laws to permit this type of fundraising gathered steam suddenly and took many securities professionals by surprise. Of course, liberalizing the law is different than changing the law to increase regulation of existing activity, but the point is that political winds can change quickly. We should be ready with how to change the law to enhance regulation of the crypto sector in case the opportunity arises.

Title III is a good model for the level of prescription by Congress, in that it established broad principles and left the detail to the SEC. Many of the same principles will apply also, but there are important differences. Crowdfunding platforms are used to raise funds but not trade assets. We need principles that are suitable for trading platforms, such as the core principles for designated contract markets contained in the Commodity Exchange Act. These range from providing competitive and open execution of transactions, to protection of customer assets, to publication of trading information. In addition, system safeguards (to protect against cyber-attacks and other business interruptions) are necessary. We also need principles similar to those for brokers and custody agents, which raises the issue of multiple roles and potential conflicts of interest.

The Issue of Multiple Roles

Should a crypto institution be permitted to perform multiple roles—such as to act as a trading platform in addition to a custodian, issuer and proprietary trader? To the extent that multiple roles are allowed, what procedures must be followed to minimize conflicts

of interest and ensure investor protection, such as segregation of assets or independent governance?

Crypto exchanges might say that the nature of digital assets warrants allowing them to perform multiple functions. But is it really any different from the world of equities? Could there be a central depository, separate from the trading platforms, that makes the entries on the blockchain, just as the Depository Trust and Clearing Corporation (DTCC) keeps track of all publicly traded equities? In that case, the trading platforms would simply have ledger accounts and then direct the central depository to actually transfer holdings on the blockchain, but that would seem to undermine one of the most innovative and valuable aspects of the technology. If instead the infrastructure and technology develop so that investors can easily hold their own assets and trade on multiple platforms, then custody-based trading platforms may become less significant.

In any event, while Congress might be tempted to legislate specific requirements or prohibitions, I would favor legislation that directs the lead regulatory agency to make those determinations. That would afford an opportunity for market input in formulating the standards, as well as flexibility to revise standards over time.

The Regulatory Sandbox Approach

Some may say that rather than new authority for the SEC or CFTC, we need regulatory sandboxes in which rules can be relaxed in order to advance innovation. This argument is often made for fintech generally. It's worth reviewing how sandboxes are being generally used and then turning to the novel approach recently announced by Hong Kong, which actually complements my call for stronger regulation.

Many jurisdictions have recently launched sandboxes.⁸¹ While the basic idea is to promote or at least not inhibit technological innovation, the means used vary enormously.

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⁸¹ These include the United Kingdom's Financial Conduct Authority, the Australian Securities and Investment Commission, the Monetary Authority of Singapore and the Hong Kong Monetary Authority as well as the Hong Kong Securities and Futures Commission. The U.K. FCA is now on its fourth "cohort" of firms selected to participate in the sandbox, although exactly what that means is unclear. In addition, the SEC has created "FinHub", its "Strategic Hub for Innovation and Financial Technology" and the CFTC has created LabCFTC. Both of these efforts, however, appear to be designed primarily to engage with market participants, facilitate understanding of regulations and

They range from simply having a division of the agency that helps those with innovative ideas understand how agency rules would apply, to granting waivers or exemptions from existing rules, to other forms of participation.

There may be rules that get in the way of innovation, and the regulatory process can be slow to adapt. Of course, there are some benefits to being slow — in the United States at least, agencies must comply with substantive and procedural requirements for any change in regulation and must afford the public the opportunity to comment. But sometimes an agency is slow because it is out of touch. Having a dedicated “innovation” division or point person can be a way to promote a more responsive attitude within the agency and connect more with industry participants. It is certainly important for regulators to engage with industry participants to identify rules that might inhibit innovation.

While chairing the CFTC, I met regularly with participants in the fintech space including those working on blockchain initiatives. I always asked whether there was anything in our rules standing in the way of developing such initiatives. The only thing that was ever identified was something we wanted to change anyway: our rules regarding how information must be reported to the agency. Those rules varied, but were often technologically out of date, with some even referring to facsimile copies, and plenty referring to paper records. Therefore, we initiated a rulemaking process to modernize and make technologically neutral all of our record keeping rules. The outcome was that records could be retained in any form as long as the method ensured authenticity and reliability.⁸²

Using sandboxes to grant waivers to regulations can create problems, however, including lack of transparency as well as favoritism: it's often hard to tell exactly what waivers or exemptions are being granted by the regulator to private firms, or whether the regulator is providing other means of support. When the regulator is also the gatekeeper for entry into the sandbox it is hard to know why a particular firm, rather than others similarly situated, is “in the sandbox.”

Insofar as existing rules create uncertainty for a new innovation, U.S. regulators have a tool that many other jurisdictions lack, and which is more transparent and poses less risk

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collect information on market developments rather than means to grant exemptions or waivers or actively promote a particular innovator.

⁸² U.S. National Archives and Records Administration, Office of the Federal Register, “Record-keeping,” *Federal Register* 82, no. 102, May 30, 2017: 24479, <https://www.federalregister.gov/documents/2017/05/30/2017-11014/recordkeeping>. The proposed changes were adopted unanimously shortly after I left the Commission.

of favoritism than the typical sandbox: the “no-action” letter. Both the SEC and CFTC can issue a letter in response to a written inquiry seeking clarification as to the application of a rule or seeking a waiver of a rule for a particular reason. If the agency agrees, it responds with a letter indicating that it will not take enforcement action against the inquirer, based on the particular facts stated, and subject to whatever conditions the agency wishes to add. That promise can be time limited or open ended. Of course, the agency must conclude there is a rational basis, consistent with law and the purposes of its regulations, for granting the request.

The advantage in terms of transparency is clear: no-action letters are available to the public, so everyone can see what exceptions have been granted and why. A party in a similar situation could seek a similar letter, which minimizes the risk that any particular party is favored. The no action letter procedure also ensures that the regulator is not stepping outside its role and trying to shape the innovative process.

In that regard, I share the concerns noted by SEC Commissioner Hester Peirce in a recent speech. While acknowledging the challenge regulators face in keeping up with technological innovation, Peirce said that the problem with sandboxes is that the “regulator in a sense sits in the sandbox with the innovator.” The regulator “may insert itself inappropriately into the creative process” and must “be careful not to try to control the development of new technologies.” The last thing we want is for regulators “to take on the impossible task of deciding what products and services will win over consumers.”⁸³

Meanwhile, Hong Kong has recently turned the sandbox concept on its head. Hong Kong’s Securities Futures Commission (SFC) has announced that it will use its sandbox to create a new regulatory template for trading of crypto-assets. Hong Kong law is similar to U.S. law when it comes to regulation of crypto-assets: the SFC has authority to regulate exchanges trading crypto-assets that are securities or futures contracts but not other crypto-assets. Hong Kong law is code-based. The SFC does not have the flexibility that comes with the Howey test, and broadening the law to cover crypto-assets generally was not on the table. Therefore, the SFC announced that as part of its exploration of whether and how it should regulate crypto-asset intermediaries, any exchange that ultimately

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⁸³ Hester Peirce, “Beaches and Bitcoin: Remarks Before the Medici Conference,” (speech, Los Angeles, CA, May 2, 2018), U.S. Securities and Exchange Commission. <https://www.sec.gov/news/speech/speech-peirce-050218>.

wishes to be licensed must voluntarily put themselves in the sandbox. In order to participate, an exchange must trade at least one crypto-asset that is a security or a derivative contract—in other words, the exchange must take action so that it does not fall in the regulatory gap. And instead of receiving waivers, jumping in the sandbox means that during the SFC’s exploratory period, the exchanges must agree to several restrictions, such as being barred from dealing with retail customers or offering leverage or margin trading.⁸⁴

SFC Chairman Ashley Alder told me that they decided on the approach because they see “lots of problems” with the exchanges—similar to those I have discussed here—but their jurisdiction is limited, as with the SEC and CFTC. He acknowledges that the approach is unlike a normal sandbox which is designed to test a new concept or innovation before launching it in the market. Here, the platforms are already operating. He believes the Hong Kong-based platforms will participate because they want the imprimatur of SFC regulation. During the exploratory period, the SFC will decide whether the platforms are “suitable to be regulated.”⁸⁵

To my knowledge, this is the first time a sandbox has been used to effectively impose new regulation. Perhaps not surprisingly, the head of the Hong Kong Bitcoin Association described the approach as “a cage” rather than a sandbox.⁸⁶ While I find the approach very creative, I don’t know that it could work in the United States. Hong Kong law gives the SFC authority over the entire exchange if it trades at least one crypto-asset that constitutes a security or derivative contract. It’s not clear that under existing U.S. law, the SEC or CFTC could assert similar jurisdiction. However, the approach is worth keeping in mind as we consider options for bringing oversight to the sector.

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⁸⁴ Hong Kong Securities and Futures Commission, “Statement on regulatory framework for virtual asset portfolios managers, fund distributors and trading platform operators,” November 1, 2018. <https://www.sfc.hk/web/EN/news-and-announcements/policy-statements-and-announcements/reg-framework-virtual-asset-portfolios-managers-fund-distributors-trading-platform-operators.html>.

⁸⁵ Author’s conversations with Chairman Alder.

⁸⁶ Zheping Huang, “Explainer: What is Hong Kong’s plan for licensing cryptocurrency exchanges,” *South China Morning Post*, November 6, 2018, <https://www.scmp.com/tech/blockchain/article/2171727/explainer-what-hong-kongs-plan-licensing-cryptocurrency-exchanges>

International Standards

There is great variation in international regulation of crypto-assets and crypto intermediaries, but that should not cause us to hesitate in moving forward. In fact, it is all the more reason for the United States to take action to create a comprehensive framework, as it will provide leadership that others may follow. Today, a few countries such as China have banned most cryptocurrency activity and a few are seeking to attract it, but most fall in between. Several jurisdictions that have significant financial markets face gaps in regulation similar to ours, where existing law covers some but not all crypto-assets, and regulators are considering what to do.

For example, the United Kingdom's Financial Conduct Authority (FCA) has recently launched an effort to develop guidance on when crypto-assets fall within their regulatory purview.⁸⁷ An earlier report by the FCA together with HM Treasury and the Bank of England noted regulatory gaps and called for exploring how crypto trading platforms could be better regulated.⁸⁸ Although it is too early to say definitively, the FCA's articulation of types of crypto-assets suggests it may conclude that only those assets which carry clear contractual rights (such as to cash flow or claims on assets) fall within their jurisdiction. This might result in a narrower view of when a crypto-asset would be deemed a security than under the Howey test, which is premised on there being an investment contract. Germany's BaFin has stated that it will "determine on a case-by-case basis whether a token constitutes a financial instrument" within the meaning of four different laws regulating securities and capital investments.⁸⁹ Canada considers crypto-assets to be "invest-

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⁸⁷ Financial Conduct Authority, "Guidance on Cryptoassets: Consultation Paper," January 2019, <https://www.fca.org.uk/publication/consultation/cp19-03.pdf>

⁸⁸ HM Treasury, Financial Conduct Authority, and the Bank of England, "Cryptoassets Task Force: Final Report," Updated October, 2018, <https://www.gov.uk/government/publications/cryptoassets-taskforce>

⁸⁹ BaFin, "Initial Coin Offerings: Advisory letter on the classification of tokens as financial instruments," March 28, 2018, https://www.bafin.de/SharedDocs/Downloads/EN/Merkblatt/WA/dl_hinweisschreiben_einordnung_ICOs_en.html?nn=11089708

ment contracts” subject to regulation if they meet a four-part test that is essentially equivalent to our Howey test.⁹⁰ Singapore considers whether a crypto-asset is a “capital markets product” subject to regulation under the Securities and Futures Act.⁹¹ As noted earlier, Hong Kong faces a gap in regulation similar to that in the United States, but its Securities and Futures Commission has effectively sought to bridge that by calling on firms to voluntarily submit to a “sandbox” effort.⁹²

Japan is one of the few jurisdictions to implement a licensing and supervisory regime specific to businesses providing exchanges or trading platforms for virtual currencies.⁹³

The International Organization of Securities Commissions, which is comprised of securities regulators from around the world (and claims to represent 115 jurisdictions)⁹⁴, has published the regulatory pronouncements of its members on crypto and is also working to harmonize standards.⁹⁵ If the United States clarifies and strengthens its regulatory framework, that will be a boost to such harmonization efforts.

In connection with closing the regulatory gap in this country, we would be wise to give the SEC and CFTC the ability to address the risks that offshore platforms pose to U.S. investors. We could explore requiring offshore platforms to comply with U.S. standards if they wish to provide access to U.S. persons, though it can be difficult to enforce such restrictions. Alternatively, we could require offshore platforms that seek to provide access to U.S. persons to make certain disclosures—essentially a warning label that they are not subject to U.S. standards regarding such matters as protection of customer assets, prevention of fraud and avoidance of conflicts of interest—unless they demonstrate to the lead agency that they are subject to comparable standards, similar to what the CFTC does today with offshore trading platforms.

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⁹⁰ CSA, “Securities Law Implications for Offerings of Tokens,” June 11, 2018, http://www.osc.gov.on.ca/en/SecuritiesLaw_csa_20180611_46-308_security-law-implications-for-offerings-of-tokens.htm

⁹¹ Monetary Authority of Singapore, “A Guide to Digital Token Offerings,” November 30, 2018, <http://www.mas.gov.sg/~media/MAS/News%20and%20Publications/Mono-graphs%20and%20Information%20Papers/Guide%20to%20Digital%20Token%20Offerings%20last%20updated%20on%2030%20Nov.pdf>.

⁹² See discussion at note 84.

⁹³ See The Law Library of Congress, “Regulation of Cryptocurrency in Selected Jurisdictions,” Accessed June 2018, <https://www.loc.gov/law/help/cryptocurrency/index.php>

⁹⁴ International Organization of Securities Commissions, “Fact Sheet,” Updated October, 2018, <https://www.iosco.org/about/pdf/IOSCO-Fact-Sheet.pdf>

⁹⁵ See International Organization of Securities Commissions, “Regulators Statements on Initial Coin Offerings,” Accessed January 28, 2019, <https://www.iosco.org/publications/?subsection=ico-statements>

PART V: REGULATION AND INNOVATION

There will undoubtedly be passionate advocates of blockchain and crypto-assets who believe that my call for better regulation will harm innovation. In fact, if done properly, improved regulation can actually enhance innovation in the long run. Let me address two issues: the first, ICOs, and the second, how we should think about centralization versus decentralization in the design of regulations.

Do We Need to Relax the Rules on ICOs?

Some have said we need to relax our regulation of ICOs if we want to advance innovation. The argument is ultimately a practical one: by treating ICOs as offerings of securities, the United States is making it more expensive and difficult for innovators to raise funds, and therefore we will lose ground to countries that are creating more favorable regulatory environments.

I disagree. I believe that the SEC is taking the right approach in applying traditional doctrine to the question of whether distribution of a crypto-asset constitutes the offer and sale of a security. I would only urge that it aim to increase enforcement and be given sufficient authority that it can provide better guidance to the market as to overall regulation of different types of crypto-assets.

There are some legitimate questions about whether we can reduce the regulatory burden on companies—especially smaller, non-public companies—seeking to raise capital while still maintaining adequate investor protections. These include whether the definition of accredited investor should change and whether offering and publicity rules should be modified. Chairman Clayton has spoken about this, and Congress continues to consider legislation in this regard.⁹⁶ It's good to explore these questions.

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⁹⁶ See for example Chairman Jay Clayton, "Remarks on Capital Formation at the Nashville 36/86 Entrepreneurship Festival," August 29, 2018. <https://www.sec.gov/news/speech/speech-clayton-082918>. Congressional Research Service, "Jobs and Investor Confidence Act (House-Amended S. 488): Capital Markets Provisions," September 7, 2018. <https://fas.org/sgp/crs/misc/R45308.pdf>

I think it's nonsense, however, to suggest that we need to relax the rules just for ICOs for the sake of innovation. There is plenty of money looking to get into the space and ample ways to raise it. Securities laws don't prohibit offering an interest in a business that doesn't have a product yet or a financial history — just don't expect to be absolved of liability if you make a material misstatement or omission.

Indeed, Chairman Clayton's concern about private offering rules was not motivated by a concern that there was insufficient private capital but just the opposite. He noted that “the private markets are awash in capital” and raised the question of whether a broader class of investors ought to be able to participate.⁹⁷

It is difficult to estimate the amount of non-ICO funding going into blockchain projects, or to say how much of the money raised by ICOs would find its way to legitimate projects if non-compliant ICOs ended. There are reports that put non-ICO venture capital funding at almost \$4 billion in just three quarters of 2018—a 280% increase over 2017 in venture capital funding of blockchain projects. The venture capital deals appear to be increasing both in quantity and in the size of funding per deal as well.⁹⁸

Will Regulation Favor Centralization?

Will a stronger regulatory framework favor the development of larger, more concentrated institutions and thereby undermine the potential of DLT to create a more decentralized financial system? If less concentration is better from a financial stability perspective, should we consciously make adjustments to new rules to avoid favoring large, centralized firms or systems?

The crypto trading universe today includes many so-called “decentralized” exchanges. Their advocates are passionate that they are more in tune with the original vision of Bitcoin. But there is, not surprisingly, considerable debate over what really constitutes a

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⁹⁷ Dave Michaels, “SEC Chairman Wants to Let More Main Street Investors in on Private Deals,” *Wall Street Journal*, August 30, 2018. <https://www.wsj.com/articles/sec-chairman-wants-to-let-more-main-street-investors-in-on-private-deals-1535648208>

⁹⁸ “US Cryptocurrency Exchanges Move at Different Speeds,” *Diar* 2:39, October 1, 2018. <https://diar.co/volume-2-issue-39/>. This report says that ten of the largest deals in 2018 raised more than \$1.3 billion, mostly not for utility tokens but as traditional equity investments.

decentralized exchange. Decentralization may cut both ways in terms of regulatory objectives. Decentralized markets and systems might be positive from the standpoint of financial stability—we have painfully learned the risks that large, systemically important institutions can pose. But enforcement of AML and other requirements might be more difficult at decentralized exchanges.

What makes a crypto exchange “decentralized”? One commentator suggests a decentralized exchange is one that is not dependent on a “trusted third party” and is free of “censorship.”⁹⁹ But exactly what that means—and whether it means seeking to avoid any government regulation—is unclear.

Several platforms that call themselves decentralized seem to offer essentially peer-to-peer trading, often without a custody function. Instead of a central limit order book, they look like Craigslist for crypto. You go to a website and select a buy or sell offer and then transact directly with the counterparty. Just as a reasonable person might worry about who will show up at the door when selling an old chair on Craigslist, you might wonder who your counterparty is here. But you are unlikely to know, as protecting the privacy of users is often a key attribute. One of the more sophisticated sites seems to be Airswap, which sets forth in its protocol an explanation of why peer-to-peer trading is superior to order books on blockchain. Among its reasons is that with order books, miners are more able to front run a trade. It also claims to provide AML compliance.

Another site had an option for a local transaction that is payable “in cash.” This appears to mean the buyer shows up in person, like the guy buying my old couch on Craigslist.¹⁰⁰ One wonders who would elect that option. One platform says it has “no registration or identification process” and describes its advantages over centralized exchanges as follows:

“Most centralized platforms and exchanges (like Coinbase, Binance, Kraken, etc.) track your personal information, putting you at risk by tying your identity to the Bitcoin you buy and sell there. And because Bitcoin transactions are public and easily traceable, potentially *all* of your future transactions involving those Bitcoin could be traced back to you. Bisq is built from the ground up to avoid this privacy fiasco [...]”¹⁰¹

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⁹⁹ Tony Sheng, “Let’s Ditch Decentralized,” September 3, 2018. <https://www.tonysheng.com/de-centralized-definition>

¹⁰⁰ Local Bitcoins. Accessed March 1, 2019. <https://localbitcoins.com/>

¹⁰¹ Bisq, “Getting Started with Bisq,” *Bisq*, Accessed March 1, 2019. <https://docs.bisq.network/getting-started.html>

Other platforms appear more sophisticated in their approach. Alex Wearn of IDEX – an exchange that describes itself as decentralized – notes that the word “decentralized” has practically become meaningless, because it is used to describe so many different types of platforms.¹⁰²

He suggests four criteria that should be met before an exchange calls itself decentralized:

- **Non-custodial**—the exchange does not hold or manage any funds
- **Censorship resistant**—no one person or individual can shut down the exchange or prevent others from using it
- **Transparent**—open source and verifiable code
- **Auditable**—all trades are written into the blockchain and history is retained into perpetuity.

He also states that “as long as a project has a website, off-chain orderbook, or known team, they are not “fully decentralized”.”¹⁰³

Wearn acknowledges this is challenging. He says that their company “is working to create a fully-decentralized financial system, but the path to getting there requires significantly more control and centralization than the end state.”¹⁰⁴ Wearn does not equate being “censorship resistant” with refusing to abide by government requirements. But his choices on where and how to comply create some strange bedfellows. For example, he notes how IDEX has blocked access by “IPs in New York, North Korean and Iran [and] we will soon be rolling out IP blocks to Cuba, Syria, Crimea State and Washington State.”¹⁰⁵ Apparently, it’s easier to treat people in states like Washington with burdensome regulations as if they were in countries facing U.S. sanctions than to comply. Nevertheless, he says IDEX will implement KYC procedures to comply with AML and sanctions laws, but in a tiered fashion so that larger transactions and users provide more information and so that IDEX maintains “a light touch wherever possible.”¹⁰⁶

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¹⁰² Alex Wearn, “Pragmatic Decentralization: How IDEX Will Approach Industry Regulation,” November 1, 2018. <https://medium.com/aurora-dao/pragmatic-decentralization-how-idex-will-approach-industry-regulations-8b109212128a>

¹⁰³ Alex Wearn, “Pragmatic Decentralization: How IDEX Will Approach Industry Regulation,” November 1, 2018. <https://medium.com/aurora-dao/pragmatic-decentralization-how-idex-will-approach-industry-regulations-8b109212128a>

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

¹⁰⁶ Ibid.

This is at least more responsive than other platforms which simply leave it up to the seller. One so-called decentralized exchange website has a glossary that defines AML and KYC: “a group of laws in the United States that require Bitcoin sellers to know who their customers are. Certain sellers will ask for your identification to comply with these laws. Other countries around the world may have similar laws and requirements.”¹⁰⁷ But it also has a more prominent “Frequently Asked Questions” section which addresses what a user should do if asked for his or her identification. “If you do not wish to give the seller your ID, you can always cancel the trade and search for a trader with less strict requirements.”¹⁰⁸ Recently, the creator of this site pled guilty to operating an exchange without registering with FinCEN and admitted not having any AML or KYC procedures.¹⁰⁹

Financial market regulation, at least in the case of securities and derivatives, has tended to favor centralized solutions. For example, futures laws require almost all trades to take place on exchanges that must register with the CFTC and comply with extensive requirements. Over time, we have seen the industry move from many exchanges to a market with just a few dominant exchanges and clearinghouses. Our regulation of securities has also created a push toward centralization, though to a lesser extent than with futures. Securities trading was quite centralized until the SEC allowed electronic trading platforms to compete with the dominant exchanges like the NYSE. Trading off of regulated platforms is permitted only for private, non-public transactions.

Of course, there are many non-regulatory factors that favor centralization in trading platforms and other forms of intermediation. Investors benefit from large liquidity pools, and thus may gravitate toward larger exchanges, which in turn may cause them to grow. Liquidity begets liquidity. Price discovery is more robust on large exchanges. There are considerable economies of scale and network, so costs may be lower.

But even if regulations appear on their face to be neutral toward size, capital requirements and compliance costs can often favor larger players. Smaller platforms may find the fixed cost elements of compliance—whether it is for KYC and AML, or anti-fraud and manipulation, or risk management generally—simply too high in relation to volume.

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¹⁰⁷ Localbitcoins, “Frequently Asked Questions—Local Bitcoins Glossary,” accessed March 1, 2019, <https://localbitcoins.com/faq>.

¹⁰⁸ Ibid, “Frequently Asked Questions—Common Problems and Solutions.”

¹⁰⁹ U.S. Department of Justice: U.S. Attorney’s Office, Southern District of California, “Bitcoin Dealer Pleads Guilty and Agrees to Forfeit Ill-Gotten Gains,” October 29, 2018. <https://www.justice.gov/usao-sdca/pr/bitcoin-dealer-pleads-guilty-agrees-forfeit-ill-gotten-gains>

If we adopt regulatory requirements in the crypto sector that effectively favor larger, centralized platforms, we may inhibit the development of decentralized systems that might, in turn, help us think of ways to improve financial stability in existing financial market infrastructure. Today, the few clearinghouses associated with the large global derivatives exchanges rank high on the list of overall financial stability concerns. During my time at the CFTC, we spent a lot of time working on recovery plans and resolution strategies in case a major clearinghouse were to fail, and the topic continues to be a priority for regulators around the world. If the crypto sector were to come up with novel, decentralized clearance and settlement mechanisms, that could have broader applicability. For example, could so-called atomic swaps—smart contracts in which performance by each counterparty occurs at exactly the same moment in time, so that neither side is exposed to the risk of the other’s nonperformance—become realistic alternatives for existing settlement mechanics and thus reduce our need for clearinghouses?

Of course, those decentralized systems may have their own, distinct risks which may include financial stability risks. For example, decentralized platforms might have less robust defenses to potential cyber hackers, or less comprehensive procedures to prevent illicit activity.

Nevertheless, I would direct regulators to consider the financial stability impact of regulations, including the issue of whether regulations tend to favor larger, centralized players. Perhaps regulators can devise a hybrid approach in writing regulations, one that allows for meeting investor protection requirements in multiple ways. That is, let’s not just impose financial resource requirements that favor the better capitalized players, or requirements that can only be met through large centralized compliance operations. Let’s consider whether there are alternative ways to ensure integrity, transparency, prevention of fraud and conflicts of interest and protection of customer funds in trading, clearing and settlement, depending on whether the activity is taking place on a centralized platform or in a more decentralized, distributed manner.

Such an approach would require some creative thinking to define what we mean by “decentralized” and to craft appropriate standards. Of course, it should not mean freedom from compliance, and we must make sure any alternative standards do not simply create regulatory loopholes.

In *Blockchain and the Law*, Primavera De Filippi and Aaron Wright suggest there could be alternative “modes of regulation” when it comes to blockchain. Governments could use taxes to regulate markets as well as prohibitions to achieve necessary ends. In addition to

the blockchain-specific intermediaries that are emerging, governments could “hold end-users vicariously liable for interacting with undesirable blockchain-based applications.”¹¹⁰ Governments could impose restrictions on “information intermediaries” such as search engines and “transportation layers” such as ISPs.¹¹¹ Or they could target miners or transaction processors:

“[G]overnments could force mining pools to implement specific protocol changes or even block applications, organizations, persons or devices. Alternatively, governments could provide miners with specific incentives—such as limitation of liability or safe harbor—if they abide by the law and only process smart contracts that comply with legal requirements.”¹¹²

De Filippi and Wright do not give many specific examples, and there are challenges with these ideas. Regulating ISPs may be seen as undesirable censorship of internet content. It may be difficult for the U.S. to regulate miners if most of the mining capacity is offshore.

Still, De Filippi and Wright are right to suggest we may need to be creative. We should just remember that the relationship between regulation and innovation in the financial sector is a bit like Newton’s third law: an action can provoke an equal and opposite reaction. De Filippi and Wright’s suggestion that we tax crypto-assets or markets to induce appropriate behavior may lead the crypto industry to innovate around the regulation. Their suggestion reminds me of the introduction of a national currency around the time of the Civil War. In order to support the use of the new “greenbacks”, Treasury Secretary Samuel Chase sought to discourage the use of notes issued by state chartered, private banks, which were presented by bank customers to third parties to pay for goods and services. Chase persuaded Congress to impose a 10% tax on the state bank notes, a tax that was ultimately upheld by the Supreme Court (it helped that Chase was Chief Justice by the time the case was heard). But when presenting state bank notes was no longer an efficient means of third-party payment, state banks created checking accounts. Checking accounts gave their depositors the direct ability to pay a third party. Through this innovation, the state banks were able to serve their customers and avoid the tax.¹¹³

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¹¹⁰ Primavera De Filippi and Aaron Wright, *Blockchain and the Law: The Rule of Code*, (USA: President and Fellows of Harvard College, 2018), p.176.

¹¹¹ *Ibid.*, pp.177-8.

¹¹² Primavera De Filippi and Aaron Wright, *Blockchain and the Law: The Rule of Code* p.180.

¹¹³ Richard Scott Carnell, Jonathan R. Macey and Geoffrey P. Miller, *The Law of Financial Institutions*, Sixth Edition, (Wolters Kluwer: 2017) pp. 10-12.

The dynamic nature of our financial system is one of its strengths, even if regulators are constantly running to catch up.

PART VI: THE PATH FORWARD

Will We Stumble Along or Take Comprehensive Action?

I favor congressional action to create a comprehensive regulatory framework. I recognize, however, that there is a good chance we will proceed on the current path, with the SEC and the CFTC stepping up efforts as best they can, but with inadequate authority and resources. There is no organized constituency pushing for reform and some crypto enthusiasts oppose regulation. Finally, many skeptics may think that the sector is not big enough to warrant making it a priority, or that regulation might legitimize activity they hope will decline. Nor have the hacks and frauds been big enough to create a demand for action. Many of those who suffered losses may well believe regulation would be a bad thing and have not contacted their Member of Congress.

In short, we have not had an Enron type incident that becomes a catalyst for reform. Needless to say, it would be unfortunate if such an incident occurred—it would be better if we acted before.

A Good Role for the Financial Stability Oversight Council

That is why I suggest the Trump Administration use the Financial Stability Oversight Council (FSOC) to articulate a path forward for the regulation of crypto-assets. The FSOC is well-suited to the task, and its involvement could draw bipartisan support. Many Republicans have been critical of FSOC because of its power to designate firms as systemically important, but it isn't exercising that power today. Instead, its utility is that it brings all financial regulators together and thus provides a forum for looking at issues that cut across regulatory jurisdictions—which is precisely what is needed here.

The law that created FSOC makes clear its relevance to this type of challenge. The law says it should “identify gaps in regulation that could pose risks to the financial stability of

the United States,” “provide a forum for discussion and analysis of emergency market developments and financial regulatory issues” and “make recommendations [to Congress][...] that will enhance the integrity, efficiency, competitiveness and stability of the U.S. financial markets.”¹¹⁴ The FSOC could produce, and solicit public comment on, a report on regulation of crypto-assets that combines the views of the SEC, CFTC, the Federal Reserve and bank regulators, as well as those of the Consumer Financial Protection Bureau and even FinCEN, which is part of the Treasury Department. Although the latter is not a direct FSOC member, because it is directly under the Treasury Department’s control and the Treasury Secretary is the FSOC Chair, it would be good to have its input for anti-money laundering issues. The FSOC also has non-voting membership from the state securities commissioners, state banking supervisors and state insurance commissioners who could also provide useful input in light of the state regulatory issues. Such a report would also fulfill the Administration’s regulatory principles, which call for making regulation “efficient, effective and appropriately tailored” and for regulation that enables American companies to be internationally competitive.¹¹⁵

The issuance of a report would be a precursor to legislation. It is easier for the FSOC to do such a report than for the SEC or CFTC to do so for several reasons. First, the FSOC would not be bound by the jurisdictional limits that the agencies currently face. Second, it would not be a formal notice and comment process used for rule making, where an agency must abide by detailed administrative law procedures that can make for a slow process. The FSOC could move fairly quickly.

A recent Treasury Department report on nonbank financials, fintech, and innovation says there is a working group at FSOC on digital assets and blockchain (the report itself does not address the subject).¹¹⁶ That is good news. Something endorsed by the FSOC principals would carry more weight, but a staff report that is then put out for comment would be a start.

In lieu of an FSOC report, a report by the Treasury Department would certainly help. Treasury has issued four reports on various aspects of the financial industry which have

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¹¹⁴ Dodd Frank Wall Street Reform and Consumer Protection Act, 112 U.S.C § 112, (2010), Section 112(a)(2), paragraphs (D), (G) and (M).

¹¹⁵ “Presidential Executive Order on Core Principles for Regulating the United States Financial System,” February 3, 2017, <https://www.whitehouse.gov/presidential-actions/presidential-executive-order-core-principles-regulating-united-states-financial-system/>

¹¹⁶ U.S. Department of the Treasury, A Financial System That Creates Economic Opportunities: Nonbank Financials, Fintech and Innovation, July 2018, p.6.

outlined desired reforms, including its recent fintech report.

The Importance of Industry Self-Regulatory Efforts

Meanwhile, the crypto industry should not wait around for regulators to act. It should formulate self-regulatory standards now—for trading, custody and other functions. The knowledge of the industry can help inform the development of the legal framework, and there will be a need for self-regulation to supplement government oversight as in the securities and futures industries. There are already efforts to develop self-regulatory standards and they should be encouraged and accelerated: see the work of the Global Digital Finance, the Virtual Commodity Association launched by the Winklevoss brothers, and the Association for Digital Asset Markets.¹¹⁷

The development of standards for swaps by the International Swap Dealers Association (ISDA) is both an example of the usefulness of industry action, as well as a sober reminder of its limits. ISDA helped standardize contracts and practices in ways that contributed initially to more orderly and transparent markets.¹¹⁸ But ISDA also pushed for the Commodity Futures Modernization Act of 2000, which prevented the CFTC from regulating swaps and which in turn contributed to the causes of the financial crisis. Self-regulation is no substitute for government regulation.

CONCLUSION

I have argued that there is a significant gap in the regulation of crypto-assets—in particular in the distribution and trading of cryptocurrencies—that needs to be fixed. Although the promise of Bitcoin was to reduce our reliance on large intermediaries, it has instead given rise to the creation of new financial intermediaries that are subject to inadequate oversight. These institutions are not required to follow traditional standards of customer

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¹¹⁷ Global Digital Finance, accessed March 1, 2019. <https://www.gdf.io>; Cameron Winklevoss, “Joining the Virtual Commodity Association,” *Medium*, August 20, 2018. <https://medium.com/gemini/joining-the-virtual-commodity-association-8bdf3b2f803e>; Association for Digital Asset Markets, accessed March 1, 2019. <http://www.theadam.io>.

¹¹⁸ I was part of a small group of lawyers who drafted the initial ISDA Master Agreements and User’s Guide.

protection and market integrity. This has led to a situation where allegations of manipulation and fraud are common and customer protection is weak.

Better regulation would serve broader societal interests as well. These institutions have been the targets of frequent cyber hacks, and successful attacks can cause unpredictable collateral damage. The use of crypto-assets for illicit payments is another concern. Better regulation would bring greater transparency and risk management which could help address both problems.

Although the SEC and CFTC have stepped up their enforcement efforts, this development will not result in adequate oversight because of the gaps in our regulatory framework. In addition, their budgets are already strained, and the agencies lack the resources to engage in adequate enforcement. Congress needs to take action to create a comprehensive oversight framework, by defining core principles and delegating responsibility to the SEC (or alternatively, the CFTC) to develop regulations. A good first step toward this end would be for the FSOC to produce a report recommending legislative action. Its structure is suited to the task because its membership cuts across the financial sector, as do the issues pertaining to regulating crypto-assets. Meanwhile, the industry should accelerate and expand its own efforts to develop self-regulatory principles.

Blockchain's potential won't be determined by regulation. However, we can, and should, act to create a regulatory framework with respect to the distribution and trading of crypto-assets that improves investor protection and addresses the broader societal interests at stake.

APPENDIX

Seven Recommendations

1. Congress should pass legislation providing the SEC (or alternatively the CFTC) with the authority to regulate the offering, distribution and trading of crypto-assets, including regulation of trading platforms, custodians (or wallets), brokers and advisors.
2. Congress should increase the resources of both the SEC and the CFTC to implement new as well as existing authorities pertaining to regulation of crypto-assets.
3. The legislation should set forth core principles, rather than specifics for regulations, as Congress has done for the futures industry and crowdfunding. Core principles should cover, at minimum, the following:
 - a. protection of customer assets
 - b. governance standards (including fitness standards for directors and officers)
 - c. conflicts of interest, including discretion to the lead agency to set regulations prohibiting or restricting the performance of multiple functions by the same entity;
 - d. recordkeeping and periodic reporting
 - e. execution and settlement of transactions in a timely, efficient and transparent manner;
 - f. pre- and post-trade transparency requirements
 - g. prevention of fraud, manipulation and abusive practices
 - h. disclosures to platform users, including regarding fees; order types and policies on execution of transactions; liabilities; and recourse for customers
 - i. risk management
 - j. business continuity, cybersecurity, and disaster recovery procedures and backup facilities;

- k. financial resources; and
- l. AML, KYC and similar measures to minimize illicit activity risk and ensure transparency.

Congress should direct the agency to issue regulations to implement the core principles and on such other matters as the agency believes are necessary to promote transparency, integrity, customer protection and financial stability.

- 4. With respect to offshore platforms that solicit or provide access to U.S. investors, Congress should give the relevant agencies the authority to determine whether such platforms should be required to comply with U.S. standards, or demonstrate compliance with comparable standards, or disclose prominently that they do not meet such standards.
- 5. Congress should direct the relevant agencies to consider whether there may be different ways of meeting core principles for centralized versus decentralized platforms and systems and, where practicable, have regulations that do not favor one approach over another.
- 6. As a first step toward the development of legislation, the Financial Stability Oversight Council or the Treasury Department should issue a report recommending Congressional action to strengthen and clarify regulation of the sector.
- 7. The industry should continue to develop its own self-regulatory standards. The legislation should give the lead agency the authority to allocate responsibility for certain enforcement or compliance matters to a self-regulatory entity.

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