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Cryptocurrency Regulations and Enforcement in the U.S.

*By Scott D. Hughes**

ABSTRACT

Decentralized cryptocurrencies are a new type of technology that can be used in several applications, such as transferring money, recording data, and investing. Unlike most businesses that can be invested in, decentralized cryptocurrencies do not have a specific legal entity that is responsible for consumer protection. The virtual and decentralized nature of this technology makes the application of traditional legal frameworks untenable. Furthermore, the absence of a specific legal entity makes enforcement of any new legal framework tenuous. For these two reasons, the current regulatory status of decentralized cryptocurrencies, or digital currencies, is enigmatic. This article contributes to the increasingly important discussion on the patchwork body of U.S. law pertaining to virtual currencies and blockchain technology. The main contribution of this article is to provide a systematic literature review of the governmental guidance releases, agencies, task forces, and proposed and approved bills pertaining to virtual currencies. This article explores the various definitions of virtual currencies provided by local, state, and federal governing bodies. Also, an in-depth review of the enforcement actions taken is documented for the following agencies: the Commodity Futures Trading Commission, Financial Crimes Enforcement Network, Securities Exchange Commission, Department of Justice, Internal Revenue Service, and the Federal Trade Commission. The current legal status in five states that has pioneered the path to regulating Bitcoin and other virtual currencies is examined. These states include New York, California, Washington State, Florida, Hawaii, and Arizona. The difficult challenge for lawmakers is to design laws that stimulate innovation while protecting consumer welfare and satisfaction. This article hopes to help solve this challenge by synthesizing the large body of disparate literature on virtual currency regulation in the U.S.

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INTRODUCTION

Decentralized virtual currencies and blockchain technology are becoming household words. Companies and governments are exploiting this technology for its touted ability to reduce transaction costs and increase traceability. Banks are investigating blockchain's potential to settle interbank transactions. Research consortiums, such as Digital Asset Holdings, and exchanges, such as NASDAQ, are investigating if blockchain technology can improve security issuance and trading. Furthermore, several companies are using "initial coin offerings" (ICOs) to raise venture capital for new start up businesses. Due to the diversity of use cases, regulatory bodies in the United States have weaved a patchwork response of sometimes redundant or contradictory judgments. The difficult question of how to legally treat virtual currencies is being determined independently by each agency. Instead of developing a new set of governing rules for virtual currencies, each case is being tried according to laws that were intended to regulate conventional payment systems, financial services, and investments.¹ The majority of legal cases pertaining to bitcoin and other cryptocurrencies stem from criminal prosecutions and disputes

1. Jerry Brito et al., *Bitcoin Financial Regulation: Securities, Derivatives, Prediction Markets, and Gambling*, 16 COLUM. SCI. & TECH. L. REV. 144 (2014); Kevin V. Tu & Michael W. Meredith, *Rethinking Virtual Currency Regulation in the Bitcoin Age*, 90 WASH. L. REV. 271 (2015).

between bitcoin companies;² however, a growing number of cases are being brought forth by governing bodies such as the Commodity Futures Trading Commission (CFTC), the Federal Trade Commission, and the Financial Crimes Enforcement Network (FinCEN). The local, state, and federal governing bodies are trying to achieve regulatory goals such as consumer protection and anti-money laundering policy without stymieing innovation in financial technology.

Several key challenges exist for regulators. First, most cryptocurrencies have a decentralized structure that is not confined to one legal jurisdiction.³ While legislators can make consumers and businesses within a specific geographic location subject to regulation, a decentralized blockchain is difficult to regulate. Therefore, legislation should specifically state who is bound by the policy. Secondly, legislation should aim to be technology neutral. For example, the New York Bitlicense legislation is atypical because the Bitlicense doesn't regulate a particular business model but instead regulates the use of a specific technology. Legislation that targets a particular cryptocurrency may lead to the success or the demise of a particular cryptocurrency irrespective of that cryptocurrency's particular merits on the market. Thirdly, the goals of the legislation should be clearly formulated and transparent for market participants. In order to reduce compliance costs, governments can provide suggested guidelines for consumers and businesses that are subject to the new legislation.

This article contributes to the increasingly important discussion on the patchwork body of law pertaining to virtual currencies and blockchain technology. In the first section, a brief summary of the technical aspects of cryptocurrency and distributed ledger technology is presented. Following the overview of the technology, the myriad of legal definitions that have been applied to these technologies by U.S. federal and state agencies is presented. The third section provides an in-depth report of the federal enforcement actions taken against companies that are active in the cryptocurrency space. The fourth section provides similar evidence but at the state level. The paper is concluded with a discussion on ways to go forward with multilevel regulations. Key areas of further research are also explored in the conclusion.

I. AN OVERVIEW OF CRYPTOCURRENCIES AND BLOCKCHAIN TECHNOLOGY

After 20 years of failed attempts at making a private virtual currency, Bitcoin emerged somewhat inexplicably out of the 2007/08 global banking crisis. The creator(s) of Bitcoin, who is still unknown, was determined to provide a decentralized, private, and secure means of transferring value online without interference by

2. Max I. Raskin, *Realm of the Coin: Bitcoin and Civil Procedure*, 20 *FORDHAM J. CORP. & FIN. L.* 969 (2015).

3. More information on the decentralized nature of this technology is included in section B.

sovereign entities, central banks, or financial intermediaries⁴ or any other “trusted third party.” Cryptocurrencies are being employed in several different applications including virtual money, identity authentication, security issuance, voting, and gambling, amongst others. These applications are dependent on the system’s ability to securely record, transfer and store data on distributed ledgers, referred to as blockchains.⁵ Bitcoin⁶ is one example of a cryptocurrency. However, many varieties of cryptocurrencies exist including Ethereum, Ripple, Litecoin, Dash, and Metal.

Each cryptocurrency has unique features, which present unique challenges for regulators.⁷ One of the chief legal difficulties with regulating cryptocurrencies is that they are incorporeal in nature. The intangible aspect of virtual currencies presents challenges for due process and comity jurisprudence.⁸ If cryptocurrencies are assumed to be stored on physical servers throughout the world, and if courts are able to pinpoint bitcoins to a specific physical location, then existing rules of civil procedure are applicable. However, the distributed data structure of blockchain technology makes pinpointing a specific location of any specific piece of data impossible.⁹ Furthermore, there is no such thing as a “bitcoin.” Even digitally, bitcoins do not exist as fungible coins with unique attributes and tracking numbers.¹⁰ Instead, each “bitcoin” represents a sequence of signatures made by cryptographic private keys controlled by bitcoin users.¹¹ The revolutionary nature of the technology is a major reason why it cannot be easily fit into any existing legal frameworks.

A. *Cryptocurrencies*

The total cryptocurrencies market has a capitalization of approximately \$170 billion at the time of drafting this article. Bitcoin, the largest market capitalization cryptocurrency is worth approximately \$6000 per bitcoin, and approximately 17 million coins have already been mined.¹² Ethereum and Ripple are the second and third most valuable cryptocurrencies, respectively. Ethereum has a market cap of approximately \$18 billion and Ripple is worth approximately \$8 billion.¹³ However,

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4. Stephanie Lo & J. Christina Wang, *Currency Policy Perspectives: Bitcoin as Money?*, 14-4 FED. RESERVE BANK OF BOS. 2 (Sept. 4, 2014), https://www.bostonfed.org/-/media/Documents/Working_papers/PDF/cpp1404.pdf.
 5. Blockchain with upper case “B” refers to the company, and blockchain in lower case “b” refers to the distributed ledger technology (DLT) underlying the Bitcoin network.
 6. Similarly, the literature refers to the Bitcoin ecosystem with a capitalized “B” and refers to the monetary unit, bitcoin, with a lower case “b.”
 7. BEYOND BITCOIN: THE ECONOMICS OF DIGITAL CURRENCIES 165-168 (2016).
 8. *Raskin*, *supra* note 2, at 969.
 9. THE BITCOIN BIG BANG: HOW ALTERNATIVE CURRENCIES ARE ABOUT TO CHANGE THE WORLD 14 (2014).
 10. WHAT MOTIVATES PEOPLE TO USE BITCOIN? 351 (2016).
 11. ARVIND NARAYANAN ET AL., BITCOIN AND CRYPTOCURRENCY TECHNOLOGIES: A COMPREHENSIVE INTRODUCTION 90 (2016).
 12. Luke Graham, *Bitcoin’s blockbuster week in two charts*, CNBC (May 12, 2017), <https://www.cnbc.com/2017/05/12/bitcoin-price-rise-blockbuster-price-in-two-charts.html>.
 13. *Cryptocurrency Market Capitalizations*, COINMARKETCAP, <http://www.coinmarketcap.com/coins> (last visited Oct. 14, 2017).

the Ethereum and Ripple networks have different design features from the Bitcoin protocol. Ethereum allows users to program “smart contracts” that mimic physical contracts but are stored on a decentralized and distributed blockchain database. In contrast with the Bitcoin and Ethereum technologies, Ripple is referred to as a “closed” or “private” blockchain whereby specific users control which transactions are verified on the network. This is in contrast with the open or public structure of the Bitcoin and Ethereum blockchains that employ a decentralized decision-making model whereby any user, with a given amount of investment, can become a transaction validator.

Bitcoin uses a peer-to-peer (P2P) network to record digital payments. Decentralized cryptocurrencies, like bitcoin, allow people to create new units of currency through a process called Proof-of-Work mining. Once coins have been generated, cryptocurrency users can send and receive payments of digital money while hiding their identities behind a pseudonymous account nomenclature.¹⁴ Over the past few years, Bitcoin, Litecoin, and Dash have begun to compete with PayPal, Western Union, and bank wires as a global payment system. The Bitcoin network allows transactions to be sent anywhere in the world for a low fee of approximately \$0.40 cents per transaction.¹⁵ However, as Brito, Shadab, and Castillo (2014)¹⁶ note, the low transaction fees are only half of the story. Bitcoin transactions are not facilitated within a consumer protection framework and measures, such as anti-money laundering (AML) or know-your-customer (KYC) policies, are not inherent to the system. Once a transaction is sent, there is no way to perform a chargeback. Furthermore, transactions that are sent to the wrong public address via “fat-finger” errors are not insured. Therefore, in some ways, you get what you pay for and let the buyer beware have come to perfect fruition. The North American Securities Administrators Association¹⁷ and the Consumer Financial Protection Bureau have both released advisory warnings that using cryptocurrencies can be dangerous.¹⁸

However, the growing adoption of bitcoin as a payment system is testament to the fact that cryptocurrency enthusiasts are not phased by the lack of traditional customer protection policies. Approximately 360,000 transactions are sent daily on this network.¹⁹ Bitcoin accounts, referred to as wallets, enable individuals to transfer accounting units to other users by digitally signing their private key on a transaction. A bitcoin account is a combination of letters and numbers beginning with the number the “1” or “3.” Other cryptocurrencies have similar wallet address nomenclatures. In the

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14. Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, BITCOIN, <https://bitcoin.org/bitcoin.pdf>.
 15. Jerry Brito et al., *Bitcoin Financial Regulation: Securities, Derivatives, Prediction Markets, and Gambling*, 16 COLUM. SCI. & TECH. L. REV., 144 (2014).
 16. *Id.*
 17. *Informed Investor Advisory: Virtual Currency*, N. AM. SEC. ADMIN. ASS’N (April 2014), <http://www.nasaa.org/30631/informed-investoradvisory-virtual-currency/>.
 18. *Risks To Consumers Posed by Virtual Currencies*, CONSUMER FIN. PROTECTION BUREAU (August 2014), http://files.consumerfinance.gov/f/201408_cfpb_consumer-advisory_virtual-currencies.pdf.
 19. *Confirmed Transactions Per Day*, BLOCKCHAIN, <https://blockchain.info/charts/n-transactions> (last visited Nov. 18, 2017).

first quarter of 2017, the total number of bitcoin wallets surpassed 13 million; however, this number does not divulge the real number of bitcoin users since wallet creation does not require identification. Therefore, a bitcoin user can theoretically generate an infinite number of unique wallets.

Established merchants, including Dell, Virgin, Expedia, and Microsoft have started to accept Bitcoin for payment.²⁰ After being ridiculed as money for computer nerds and a conduit for illegal activity, businesses and consumers are finally beginning to take notice of the cryptocurrency, bitcoin, and the underlying technology, blockchain. Every day, approximately 315,000 transactions occur worldwide with a volume of approximately \$100 million. The number of brick and mortar and online retailers that accept bitcoin are over 125,000 worldwide. In addition to being used as a means of payment for goods and services, an ecosystem is developing around the technology. New businesses, such as cryptocurrency exchanges, cryptocurrencies custodians, referred to as cryptographic wallet providers, cryptocurrency automated teller machines, blockchain developers, cryptocurrency payment processors, and cryptocurrency mining companies, amongst others, are being developed. These service providers are improving the way people interact with the technology. Millions of dollars are being invested in improving the user experience of cryptocurrencies. Currently, bitcoin enthusiasts can (1) exchange bitcoin into fiat currency; (2) purchase, sell, or store bitcoin; (3) speculate on the price of bitcoin with futures, options, leverage, and much more; (4) record precious data on a public and immutable data ledger; and (5) send remittances to foreign countries instantly. In addition to use as a medium of exchange, investors are using cryptocurrencies as a commodity or security that is ripe for investment. The price of Bitcoin has had a 1000x increase since its inception in 2009. The price of one bitcoin reached \$1200 in November 2013, and recently, the price reached its all-time high of \$6000 in October of 2017.²¹ Academic papers are arguing that bitcoin and cryptocurrencies represent a unique asset class because the correlation of price fluctuations with other asset classes such as securities and bonds is low.²²

B. Blockchains

A blockchain is usually described as a distributed ledger. A distributed ledger is a database of records shared by all clients that have access to the software protocol.²³ A blockchain can be thought of as a type of computer that stores data in blocks that are

20. FREDERICK KENNARD & ADDISON HANNE, *BOOM & BUST: A LOOK AT ECONOMIC BUBBLES* 179 (2015).

21. COINMARKETCAP, *supra* note 13.

22. Kihoon Hong, *Bitcoin as an Alternate Investment Vehicle*, INFO. TECH. MGMT. 1 (2016); Marie Brière et al., *Virtual Currency, Tangible Return: Portfolio Diversification with Bitcoin*, 16 J. OF ASSET MGMT. 365 (2015); Chen Y. Wu & Vivek K. Pandey, *The Value of Bitcoin in Enhancing the Efficiency of an Investor's Portfolio*, 27 J. OF FIN. PLAN. 44 (2014).

23. SIRAJ RAVAL, *DECENTRALIZED APPLICATIONS: HARNESSING BITCOIN'S BLOCKCHAIN TECHNOLOGY* 16 (2016).

connected to one another cryptographically. The blocks of data form a chronological sequence, hence the name blockchain.²⁴ Blockchains can be slower and more expensive than a centralized database structure because they require several computers to store the same copy of the ledger, which implies redundancy of data being stored and latency between when a new database modification is made and when all nodes on the network have heard about the new alteration. However, a blockchain is a truly global database because it does not reside in any particular centralized physical or virtual machine.

The majority of blockchains are decentralized distributed networks that validate new transactions with a collective consensus algorithm known as Proof-of-Work (PoW).²⁵ Transactions contain new information pertaining to which accounts in the ledger should be debited and which accounts should be credited. When one user wants to send cryptocurrency to another user, miners collect the broadcasted information in a new “candidate” block.²⁶ Miners are individuals that run the cryptocurrency software on computers, graphic processing units (GPUs), or special hardware devices known as application specific integration circuits (ASICs).²⁷ Miners compete to be “validators” of new transactions that have been broadcasted to the network by users. The competition involves solving a mathematical problem called a nonce that requires large amounts of computing per second.²⁸ This process is repeated over and over again as new transactions are broadcast to the network. Subsequently, the size of the blockchain and data storage required to store the history of transactions continuously grows over time.

II. THE LEGAL DEFINITIONS OF CRYPTOCURRENCY AND BLOCKCHAIN

The legal classification of cryptocurrencies as a type of money is controversial in the literature. In this section, the basic concepts and definitions of physical and electronic types of money are presented. The differences between traditional and internet-based monies are of direct relevance for the understanding of the applicability of law to individuals and businesses that deal with cryptocurrencies.

A. *The Three Types of Traditional Money*

Prior to cryptocurrencies, there were three main types of money: commodity money, credit money, and fiat money. The term commodity money refers to a physical commodity, which was originally valued for its commercial uses. Examples of

24. ARVIND NARAYANAN ET AL., BITCOIN AND CRYPTOCURRENCY TECHNOLOGIES: A COMPREHENSIVE INTRODUCTION 237 (2016).

25. ANDREAS M. ANTONOPOULOS, MASTERING BITCOIN: UNLOCKING DIGITAL CRYPTOCURRENCIES 188 (2014).

26. NARAYANAN ET AL., *supra* note 24, at 131.

27. RICHARD CAETANO, *Learning Bitcoin: Embrace the New World of Finance by Leveraging the Power of Crypto-Currencies Using Bitcoin and the Blockchain*, 135 (2015).

28. Nakamoto, *supra* note 14.

commodity money include gold and silver. Over time, commodity money gains use as a medium of exchange in addition to its original industrial purpose. As long as it remains a commercial commodity, its value as commodity and money is identical and dependent on the market forces, i.e. the ratio of demand and supply. In the case of gold and silver, the price is set by demand for these commodities and the supply being mined out of the earth. The second type of money, credit money, differs fundamentally from commodity money. It consists of non-interest bearing receivables that cannot be redeemed on demand. As a rule, credit money is often issued as a redeemable rate with commodity money or fiat money. Credit money retains its value because it is widely accepted as a means of exchange. Furthermore, credit money is counted as money in the wider M2 measurement of the money supply.

The last type of money is fiat money. Today, all government issued currencies are fiat. This means that the money itself has no intrinsic value but obtains value from government decree. The value of the currency is not based on a link to the value of a commodity but on trust in the government or central bank that issues the fiat money. Theoretically, the amount of fiat money can be expanded indefinitely, which has led to hyperinflation in the several countries throughout history that have experimented with fiat money. In contrast, cryptocurrencies, such as bitcoin, usually have a mathematically limited amount of supply, and thus also a limited and precisely determinable supply inflation. Due to the decentralized and digital nature of bitcoin, it does not easily fit into any of the three traditional types of money. Although, several authors argue the value of bitcoin is a type of commodity currency.^{29,30} Furthermore, in 2015, the Commodity Futures Trading Commission (CFTC) stated that bitcoin and cryptocurrencies are properly defined as commodities.³¹

B. *Electronic Money*

According to Al-Lahman, Al-Tarawneh, and Abdallat (2009), electronic money is “. . . a record of the funds or “value” available to a consumer stored on an electronic device in his or her possession, either on a prepaid card or on a personal computer for use over a computer network such as the internet.”³² Digital currency or electronic money includes decentralized virtual currencies, such as Bitcoin, and centralized virtual currencies, such as Ripple or Magic the Gathering. Additionally, electronic money can refer to centralized digital payment systems such as PayPal.

29. Jan A. Bergstra & Peter Weijland, *Bitcoin: a Money-like Informational Commodity* (Feb. 20, 2014), <https://arxiv.org/pdf/1402.4778.pdf>.

30. George Selgin, *Synthetic Commodity Money*, J. OF FIN. STABILITY (Aug. 13, 2014), <http://tmtfree.hd.free.fr/albums/files/TMTisFree/Documents/Economy/Synthetic%20commodity%20money,%202015.%20Selgin.pdf>.

31. *CFTC Orders Bitcoin Options Trading Platform Operator and its CEO to Cease Illegally Offering Bitcoin Options and to Cease Operating a Facility for Trading or Processing of Swaps without Registering*, U.S. COMMODITY FUTURES TRADING COMM., (Sept. 17, 2015), <http://www.cftc.gov/PressRoom/PressReleases/pr7231-15>.

32. Mohamad Al-Laham et al., *Development of Electronic Money and Its Impact on the Central Bank Role and Monetary Policy*, 6 ISSUES IN INFORMING SCI. & INFO. TECH. 339 (2009).

Electronic money can also include online bank deposits issued to customers by private banks such as Wells Fargo or Bank of America. In fact, the majority of fiat money issued by governments is only available electronically as opposed to physically.³³ Electronic money includes monetary units that are represented as “1” and “0” in computer programming language. It has become increasingly common for electronic money to serve as a substitute for cash and checks. The possession of electronic money creates a claim against the electronic money issuer, for example PayPal or frequent flyer miles (issued by Oneworld Airline alliance). The electronic money issuer is subject to special duties of technical security in order to ensure that digital accounts are not hacked or changed, and that counterfeit digital units are not spent within the network.

The possession of decentralized cryptocurrencies is slightly different because these digital units are not accompanied by a claim against the issuer of the cryptocurrency. Decentralized cryptocurrencies lack a centralized issuer in the sense of the electronic money regulation. According to Article 4A of the Uniform Commercial Code, electronic money is governed by the Electronic Fund Transfer Act (EFTA).³⁴ Regulation E of this act states the electronic money issuer’s responsibilities and the consumer’s liability when using electronic money.³⁵ In order to improve consumer confidence in electronic money systems, the government has made it mandatory for public disclosure of basic information pertaining to the system. Issuers of electronic money must disclose information as outlined in the EFTA, state law, and 12 U.S.C. 1831t.³⁶

C. *Virtual Currency*

Several definitions of cryptocurrencies have been given over the past few years. The reality is that virtual currencies are a type of digital or electronic currency; however, the converse is not correct.³⁷ This means that all virtual currencies are digital, but not all digital currencies are virtual or cryptocurrencies. Aside from the definitions that the academic community uses to distinguish these concepts, various governing bodies have developed their own terminology and classifications for this technology. The majority of the rulings explicitly state that cryptocurrencies are a form of virtual currencies; however, this begs the question, what precisely are virtual currencies. Cryptocurrency transactions that are completed on a distributed ledger such as the Bitcoin network or Ethereum network are not denominated in dollars or any other

33. *Virtual Currency Schemes*, EUR. CTR. BANK, EUROSISTEM (Oct. 2012), <https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf>.

34. *Financial Institution Letter, FIL-66-2009*, FED. DEPOSIT INS. CORP. (Nov. 27, 2009), <https://www.fdic.gov/news/news/financial/2009/fi109066.pdf>.

35. *An Introduction to Electronic Money Issues, Appendixes*, OFF. OF THE COMPTROLLER OF CURRENCY, <https://www.occ.gov/topics/bank-operations/bit/intro-to-electronic-money-issues-appendix.pdf> (last visited Nov. 18, 2017).

36. *Id.*

37. Andrew Wagner, *Digital vs. Virtual Currencies*, BITCOIN MAGAZINE (Aug. 22, 2014).

country's fiat currency. This is similar to PayPal, where fiat currencies are converted into digital bits that PayPal recognizes as PayPal accounting units. Once the currency is no longer available in physical form, the currency is deemed to be a virtual currency.³⁸ One of the earliest discussions on this definition occurred at the federal level during a United States Senate meeting. In November 2013, a committee hearing titled "Beyond Silk Road: Potential Risks, Threats and Promises of Virtual Currencies" was held in order to discuss virtual currencies. Senator Tom Carper organized the hearing and, during the meeting, bitcoin was referred to as a virtual currency and also it was deemed a "legal means of exchange."³⁹ Furthermore, the hearing discussed that "online payment systems, both centralized and decentralized, offer legitimate financial services."⁴⁰ U.S. officials Peter Kadzik and Mythili Raman made these positive statements about the technology reinforcing its legitimacy.⁴¹ However, a precise definition of virtual currencies was not established at this hearing.

November 2013 was a big month for Federal hearings related to virtual currencies. First, the U.S. Treasury classified bitcoin as a convertible decentralized virtual currency.⁴² Then, the Federal Election Commission (FEC) deadlocked on the legality of politicians accepting bitcoin contributions to financially support campaigns. Three Democrat members voted no while three Republicans voted yes.⁴³ Several politicians do accept bitcoin donations including New Hampshire House member Mark Warden, Southern California politician Michael B. Glenn, and Kentucky senator and former presidential candidate, Rand Paul.^{44, 45, 46} Due to the popularity of bitcoin campaign donations, the FEC issued guidance pertaining to bitcoin donations in May 2014. In the draft guidance, the exact definition of bitcoin or virtual currencies was neglected. Instead, the document states that bitcoins fit into its "anything of value" definition.⁴⁷

In addition to federal hearings, federal and state court cases have been a source of definitions for cryptocurrencies and virtual currencies. In August of 2013, a Texas U.S. District Court Magistrate Judge referred to bitcoin as a currency during a case

38. Brito et al., *supra* note 15.

39. KENNARD & HANNE, *supra* note 20, at 181.

40. *Id.*

41. *Id.*

42. *Testimony of Jennifer Shasky Calvery*, DIRECTOR FINANCIAL CRIMES ENFORCEMENT NETWORK (MAY 2016).

43. Matea Gold, *Federal Election Commission Approves Bitcoin Donations To Political Committees*, THE WASHINGTON POST (2014), https://www.washingtonpost.com/news/post-politics/wp/2014/05/08/federal-election-commission-approves-bitcoin-donations-to-political-committees/?utm_term=.40337af53191.

44. Mark Warden, *Donate to the Campaign*, MARKWARDEN.COM (2014), <http://www.markwarden.com/page/contribute-campaign>.

45. Emily Foxhall, *Bitcoin Donations Welcome, Newport Beach City Council candidate says*, THE LOS ANGELES TIMES (2013), <http://articles.latimes.com/2013/dec/20/local/la-me-ln-bitcoin-accepted-newport-city-council-race-20131220>.

46. Eric Lichtblau, *In Accepting Bitcoin, Rand Paul Raises Money and Questions*, THE NEW YORK TIMES (2015), https://www.nytimes.com/2015/04/10/us/politics/in-accepting-bitcoin-rand-paul-raises-money-and-questions.html?_r=0.

47. Dave Levinthal, *What the FEC's Bitcoin ruling means*, THE CENTER FOR PUBLIC INTEGRITY (2014), <https://www.publicintegrity.org/2014/05/08/14739/what-fecs-bitcoin-ruling-means>.

between the Securities Exchange Commission and Trendon T. Shavers. Shavers was the creator of Bitcoin Savings and Trust (BTCST).⁴⁸ More recently, during the court proceedings of *U.S. v Anthony Murgio* in September 2016, a federal judge ruled that “Bitcoins are funds within the plain meaning of that term.”⁴⁹

III. FEDERAL LAWS PERTAINING TO CRYPTOCURRENCY AND BLOCKCHAIN TECHNOLOGY

The pseudonymous nature of cryptocurrency enables cross-border transactions to bypass Know-Your-Customer (KYC) and Anti-Money Laundering (AML) regulation. The ability to track every transaction without the ability to track who sent the transaction will change the relationship between the citizen and the state. The ability to hide wealth from the government can critically challenge existing governance models.

A. *Commodity Futures Trading Commission*

The Commodity Futures Trading Commission (CFTC) has been active in enforcing CFTC regulations on bitcoin exchanges that offer Bitcoin based trading products. Several sites offer leveraged trading, and a few sites offer future contracts on bitcoin. However, American retail investors that use these websites may be in contravention of CFTC regulations. The CFTC states that American retail investors can buy leveraged or margined derivative products on a regulated exchange but not outside of an exchange.⁵⁰ If this CFTC regulation applies to bitcoin derivatives, then off-exchange margined trades would be illegal. There are only two times when American retail investors can invest in off-exchange derivative products. The first time is when a Retail Foreign Exchange Dealer (RFED) that is reregistered with the National Futures Association (NFA) facilitates the trade. The second time is when the trade is facilitated with a bank registered with a regulatory body. However, these exceptions only apply to foreign exchange (forex) derivative products. The CFTC announced that Bitcoin and virtual currencies are not foreign currencies. Therefore, these technologies do not neatly fall under the CFTC’s regulations for forex derivative trading. Instead of being considered a foreign currency, the CFTC stated in September of 2015 that Bitcoin and virtual currencies are a type of commodity.⁵¹ According to Section 1a(9) of the Commodity Exchange Act (CEA), a commodity is defined as “all

48. *SEC v. Trendon T. Shavers and Bitcoin Sav. and Tr.*, No. 4:13-CV-416, 2013 U.S. Dist. LEXIS 110018, at *6 (E.D. Tex. Aug. 6, 2013).

49. *United States v. Murgio*, 209 F. Supp. 3d 698, 707 (S.D.N.Y. 2016).

50. COMMODITY FUTURES TRADING COMMISSION, COMMODITY EXCHANGE ACT, *available at* <http://www.cftc.gov/files/ogc/comex060601.pdf>.

51. *In re Coinflip, Inc., d/b/a Derivabit, and Francisco Riordan*, CFTC Docket No. 15-29, 2015 WL 5535736 (Sept. 17, 2015).

services, rights, and interests in which contracts for future delivery are presently or in the future dealt in.”⁵²

The CFTC’s involvement in cryptocurrency regulation began after an exchange called TeraExchange, LLC, announced plans to issue a swap product based on bitcoin. The CFTC gave temporary approvals to TeraExchange and Ledger X. Both of these companies are registered to act as swap execution facilities (SEFs). TeraExchange’s product is based on an index of the price of bitcoin that was derived from six different bitcoin exchanges.⁵³ The swap product locked in a dollar to bitcoin exchange rate. In 2014, the CFTC gave TeraExchange a temporary approval. In May of 2016, the SEC approved the TeraExchange’s registration, which made the derivative offering official.⁵⁴ However, in 2015, the CFTC issued a cease and desist letter to TeraExchange on the grounds that their swap market had prearranged “wash” trades, which inaccurately portrayed the liquidity of the exchange.⁵⁵ TeraExchange was a registered swap exchange facility (SEF) with the CFTC; however, TeraExchange misrepresented the volume of transactions occurring on their exchange.⁵⁶ Another SEF registered with the CFTC, the North American Derivatives Exchange, Inc., offered margined binary contracts until December of 2016. Nadex decided to remove the offering and filed a self-certification to delist their binary contracts on Bitcoin.⁵⁷ A third company, Ledger X, is planning to offer bitcoin derivatives and has applied to be a bitcoin derivative clearinghouse.⁵⁸ Although, LedgerX is not officially launching the exchange until permanent licensure has been granted.

In addition to registered companies, the CFTC has also taken action against unregistered companies. On September 17, 2015, the CFTC charged Coinflip Inc. with conducting commodity option transactions that did not comply with the CEA. Specifically, the chief executive officer, Francisco Riordan, allowed buyers and sellers to engage in bitcoin option contracts via his platform, Derivabit.⁵⁹ The order requires a cease and desist of the online offering. The CFTC’s Director, Aitan Goelman, of Enforcement noted that:

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52. Order Instituting Proceedings Pursuant to Sections 6(c) and 6(d) of the Commodity Exchange Act, COMMODITY FUTURES TRADING COMMISSION, (2015), <http://www.cftc.gov/idc/groups/public/@enforcementactions/documents/legalpleading/enfcoinfliporder09172015.pdf>.
 53. TeraExchange, LLC Swap Execution Facility Rulebook Version 1.89, COMMODITY FUTURES TRADING COMMISSION (2016), <http://www.cftc.gov/filings/orgrules/rule041816teraexcsef002.pdf>.
 54. CFTC GRANTS REGISTRATION TO 3 SWAP EXECUTION FACILITIES, COMMODITY FUTURES TRADING COMMISSION (2016), available at <http://www.cftc.gov/PressRoom/PressReleases/pr7375-16>.
 55. In re TeraExchange LLC, CFTC Docket No. 15-33, 2015 WL 5658082 (Sept. 24, 2015).
 56. *CFTC Settles with TeraExchange LLC, a Swap Execution Facility, For Failing to Enforce Prohibitions on Wash Trading and Prearranged Trading in Bitcoin Swap*, COMMODITY FUTURES TRADING COMMISSION (2015), <http://www.cftc.gov/PressRoom/PressReleases/pr7240-15>.
 57. *Nadex Self-Certification to Delist Bitcoin*, NADEX (2016), <https://www.nadex.com/notices/2016/nadex-self-certification-delist-bitcoin>.
 58. *Exhibit A-1, LEDGERX LLC*, <http://www.cftc.gov/idc/groups/public/@otherif/documents/ifdocs/ledgerxdcappexa-1.pdf>.
 59. In re Coinflip, Inc., d/b/a Derivabit, and Francisco Riordan, CFTC Docket No. 15-29, 2015 WL 5535736 (Sept. 17, 2015).

*“While there is a lot of excitement surrounding Bitcoin and other virtual currencies, innovation does not excuse those acting in this space from following the same rules applicable to all participants in the commodity derivatives markets.”*⁶⁰

The CFTC followed up on their charges against Derivabit with charges against one of the largest bitcoin exchanges, Bitfinex. In June of 2016, the CFTC stated Bitfinex and its predecessor iFinex violated Sections 4(a) and 4d of the Commodity Exchange Act (“Act”), 7 U.S.C. §§ 6(a) and 6d (2012). According to the CFTC:

*“Bitfinex was not registered with the Commission. During the Relevant Period, Bitfinex did not actually deliver bitcoins purchased on a leveraged, margined, or financed basis to the traders who purchased them within the meaning of Section 2(c)(2)(D)(ii)(III)(aa) of the Act. Instead, Bitfinex held the purchased bitcoins in bitcoin deposit wallets that it owned and controlled. Therefore, Bitfinex engaged in illegal, off-exchange commodity transactions and failed to register as a futures commission merchant, in violation of Sections 4(a) and 4d of the Act, 7 U.S.C. §§ 6(a) and 6d.”*⁶¹

Effectively, the main charge against Bitfinex was that they did not register with the CFTC despite allowing customers to trade Bitcoins. Bitfinex immediately agreed to a settlement with the CFTC. However, exchanges are claiming that CFTC regulation does not apply to bitcoin transaction because traders are “making and taking delivery” when the trader transfers the bitcoin into their personal bitcoin wallets. According to CFTC regulations, the CFTC’s jurisdiction only applies to when private trades involve deliveries with 28 days or more. However, the CFTC answered these criticisms by pointing out that exchanges such as Bitfinex did not make full delivery to traders because of the technological specifications of the bitcoin wallets. Specifically, Bitfinex controlled the private keys of the bitcoin wallet, and therefore, had not fully delivered control of the coins to traders. Also, CFTC states that any “financed retail transaction” is grounds for CFTC supervision. Therefore, any margined or leveraged spot trades can be held accountable according to CFTC law. Bitfinex has since ceased doing business with U.S. based customers.

B. Financial Crimes Enforcement Network

At the federal level, the Financial Crimes Enforcement Network (FinCEN) has been very active in regulating virtual currencies. FinCen has released several administrative rulings on virtual currency cases online.⁶² In general, any firm that

60. COMMODITY FUTURES TRADE COMMISSION, *CFTC Orders Bitcoin Options Trading Platform Operator and its CEO To Cease Illegally Offering Bitcoin Options and To Cease Operating a Facility for Trading or Processing of Swaps Without Registering* (2015), <http://www.cftc.gov/PressRoom/PressReleases/pr7231-15>.

61. *In re BFXNA INC. d/b/a BITFINEX*, CFTC Docket No. 16-19, 2016 WL 3137612 (June 2, 2016).

62. Financial Crimes and Enforcement Network, *FIN-2014-R001, Application of Fincen’s Regulations to Virtual Currency Mining Operations*, U.S. DEP’T OF THE TREASURY (Jan. 30, 2014), http://www.fincen.gov/news_room/rp/rulings/pdf/FIN-2014-R001.pdf; Financial Crimes and Enforcement Network, *FIN-2014-R002, Application of Fincen’s Regulations To Virtual Currency Software*

transfers funds from one person to another typically requires a money transmitter license.⁶³ Since cryptocurrency networks enable users to transfer funds from one person to another, companies that facilitate these transactions require a money transmitter license. Several of the earliest legal cases involved companies or persons that failed to acquire a money transmitter license prior to facilitating cryptocurrency transactions.

On March 18 of 2013, FinCEN announced that the Bank Secrecy Act (BSA) applies to consumers and businesses engaged in the cryptocurrency ecosystem.⁶⁴ This opinion means that exchangers and administrators of cryptocurrencies are expected to register with FinCEN as a Money Service Business (MSB) and that any firm working with cryptocurrencies are expected to comply with anti-money laundering (AML) and Know-Your-Customer (KYC) regulations. Exchanges, such as Coinbase and Gemini that receive large sums of money from users in suspicious patterns are expected to file Suspicious Activity Reports (SARs) on customer transactions that are over \$2,000. These exchanges can also freeze accounts during investigations. In accordance with FinCEN regulations on MSBs, cryptocurrency exchanges must allow the federal government to access business records in a transparent manner. Also, the cryptocurrency firm is responsible for reporting to FinCEN on a regular basis, and FinCEN can perform random audits on the firm. This guidance provided by FinCEN specifically stated that consumers of cryptocurrencies are not considered to be MSBs, and therefore, the regulations do not specifically apply to individuals. In January of 2014, FinCEN issued guidance for miners and further clarification of the 2013 virtual currency guidance. According to FinCEN, miners, or individuals that perform transaction validation in a decentralized proof-of-work consensus network, are not required to register as a MSB in most cases.⁶⁵ Furthermore, companies that develop software that enable users to trade cryptocurrencies are also not subject to registering as a MSB with FinCEN.⁶⁶

Two years later, on May 5, 2015, FinCEN and the U.S. Attorney's Office for the Northern District of California (USAO) initiated the first civil monetary penalty action against a cryptocurrency and a cryptocurrency exchange. Ripple Labs, Inc. and its subsidiary, XRP II, LLC, were charged with failing to comply with the BSA. Ripple Labs received a fine of \$700,000 for failing to register with FinCen as an MSB.

Development and Certain Investment Activity, U.S. DEP'T OF THE TREASURY (Jan. 30, 2014), http://www.fincen.gov/news_room/rp/rulings/pdf/FIN-2014-R002.pdf.

63. *Hearing on the Regulation of Non-Bank Money Transmitter—Money Services Businesses: Hearing Before the Subcomm. on Fin. Insts. & Consumer Credit of the House Comm. on Fin. Servs.*, 112TH CONGRESS (2012), available at <http://financialservices.house.gov/uploadedfiles/hhrg-112-ba15-wstate-elevine-20120621.pdf>.
64. Financial Crimes and Enforcement Network, *Application of Fincen's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies*, U.S. DEP'T OF THE TREASURY (Mar. 18, 2013), http://www.fincen.gov/news_room/rp/rulings/pdf/FIN-2013-G001.pdf.
65. *Application of FinCEN's Regulations To Virtual Currency Mining Operations*, U.S. DEP'T OF THE TREASURY (Jan. 30, 2014), <https://www.fincen.gov/sites/default/files/shared/FIN-2014-R001.pdf>.
66. *Application of FinCEN's Regulations To Virtual Currency Software Development and Certain Investment Activity*, U.S. DEP'T OF THE TREASURY (Jan. 30, 2014), http://www.fincen.gov/news_room/rp/rulings/pdf/FIN-2014-R002.pdf.

Furthermore, FinCEN accused Ripple of failing to implement and maintain proper AML and KYC protocols. The cryptocurrency associated with Ripple is called XRP. Founded in 2012, Ripple gained a lot of interest with major banks all across the globe. Ripple is an example of a cryptocurrency that relies on a closed blockchain where transactions can only be validated by the company Ripple instead of by a decentralized network of peers. Similar to other cryptocurrencies, Ripple allows its users to send cross-border payments without settlement delays and high fees.

According to FinCEN, Ripple's lack of adherence to FinCEN regulation enabled money launderers and terrorists to use the cryptocurrency to finance criminal activity.⁶⁷ In addition to the \$700,000, Ripple Labs made a settlement agreement with USAO for \$450,000 to account for criminal or civil activity that occurred because of Ripple's actions. Also, Ripple agreed to fully comply with U.S. government agencies during the investigation.

During the investigation, Ripple was found guilty of operating without a MSB license. In the "Statement of Facts and Violations," Ripple admitted to failing to adhere to AML regulations on several occasions.⁶⁸ One incidence occurred in September of 2013 when Ripple's subsidiary, XRP II, sold \$250,000 worth of cryptocurrency to a customer without requiring the customer to provide identification. A second offense occurred in November of 2013, when XRP II failed to file a Suspicious Activity Report (SAR) after rejecting a customer's transaction because the legitimacy of the source of funds was put into question during the transaction. Although XRP II was registered with FinCEN, the subsidiary failed to report suspicious activities to the government. However, Ripple's reputation has recovered since that investigation. As of May of 2017, Ripple is the third largest cryptocurrency with a market capitalization of approximately \$10 billion.⁶⁹

Finally in 2016, FinCEN released further guidance on how cryptocurrencies can be used to facilitate terrorism and cyber-enabled crimes. In May of 2016, the Director of FinCEN, Jennifer Shasky Calvery stated that FinCEN's regulation of virtual currency is trying to balance the interests of preventing terrorism while supporting innovation in financial technology.⁷⁰ In October of 2016, FinCEN released further guidance on how cryptocurrencies can be used to facilitate terrorism and cyber-

67. Financial Crimes Enforcement Network, *FinCEN Fines Ripple Labs Inc. in First Civil Enforcement Action Against a Virtual Currency Exchanger*, U.S. DEP'T OF THE TREASURY (May 5, 2015), <https://www.fincen.gov/news/news-releases/fincen-fines-ripple-labs-inc-first-civil-enforcement-action-against-virtual>.

68. *Id.*

69. *CryptoCurrency Market Capitalizations*, COINMARKETCAPS, <https://coinmarketcap.com/coins/> (last visited Nov. 18, 2017).

70. Financial Crimes and Enforcement Network, *Stopping Terror Finance: A Coordinated Government Effort United States House of Representatives Committee on Financial Services Task Force to Investigate Terrorism Financing*, U.S. DEP'T OF THE TREASURY (May 24, 2016), <https://www.fincen.gov/news/testimony/testimony-jennifer-shasky-calvery-director-financial-crimes-enforcement-network>.

enabled crimes.⁷¹ FinCEN stated that in order to prevent virtual currencies from becoming a conduit for crime, businesses and government agencies must share information about suspicious activity involving this new payment system.

C. Department of Justice

The largest and most famous bitcoin related court case arose from the Department of Justice's prosecution of Ross Ulbricht, an operator of an online drug trafficking website called the Silk Road. The DOJ seized 600,000 Bitcoins from Silk Road's wallet, and subsequently, auctioned them off. Ross Ulbricht was sentenced to three life sentences in jail.⁷² Prior to shutting down the Silk Road operated by Ross Ulbricht for a period of time, the DOJ also shut down the virtual currency "Liberty Reserve" in 2013. The creator of the Liberty Reserve was sentenced to 20 years in jail and fined \$500,000 for money laundering.⁷³

In an affidavit by the Department of Justice (DOJ) in March of 2015, an undercover agent of the Homeland Security Investigations team averred,

*"I [Matthew Larsen] am part of a digital currency task force focused on identifying the use of digital currency to launder the proceeds of criminal activity. As part of this task force, I have been involved in several investigations into unlicensed digital currency exchangers and narcotics distributors on the dark web who use digital currency to receive payment for the sale of narcotics. These investigations have brought my attention to numerous individuals who have been cycling through large amounts of Bitcoin."*⁷⁴

Although, the inner-workings of the Homeland Security's virtual currency task force are confidential, the DOJ indicted David Ryan Burchard of trafficking drugs and using virtual currencies to facilitate the transactions.⁷⁵

After being criticized by the Government Accountability Office (GAO) for "missing an opportunity to address virtual currency tax compliance risks,"⁷⁶ the DOJ took public action. In November of 2015, the DOJ held a seminar at the Federal Reserve Bank in San Francisco on the enforcement of digital currency companies. The DOJ stated in an official press release that in attendance were:

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71. Financial Crimes and Enforcement Network, *Advisory To Financial Institutions on Cyber-Events and Cyber-Enabled Crime*, U.S. DEP'T OF THE TREASURY (Oct. 25, 2016), <https://www.fincen.gov/resources/advisories/fincen-advisory-fin-2016-a005>.
 72. Sydney Ember, *At An Auction of Bitcoins Seized From Silk Road, One Exchange Wins Big*, NEW YORK TIMES DEALBOOK B3 (DEC. 10, 2014).
 73. Office of Public Affairs, *Liberty Reserve Founder Sentenced To 20 Years for Laundering Hundreds of Millions of Dollars*, U.S. DEP'T OF JUSTICE (May 6, 2016), <https://www.justice.gov/opa/pt/liberty-reserve-founder-sentenced-20-years-laundering-hundreds-millions-dollars>.
 74. *Affidavit in the Case of U.S. v. David Burchard*, U.S. DEP'T OF JUSTICE (2015), available at <https://www.justice.gov/usao-edca/file/836576/download>.
 75. *Id.*
 76. U.S. GEN. ACCOUNTING OFFICE, *Virtual Economies and Currencies: Additional IRS Guidance Could Reduce Tax Compliance Risks*, GAO-13-516 (2013).

*“approximately 175 government and industry participants, including representatives of federal and state law enforcement and regulatory agencies, digital currency and blockchain companies and organizations, and other technology companies and financial institutions,”*⁷⁷

At this meeting, Kathryn Haun, the leader of the Digital Currency Task Force, discussed the role of regulation in the virtual currency ecosystem.⁷⁸

The following year, in November of 2016, the DOJ requested a “John Doe” summons to be issued to Coinbase, Inc. Coinbase was founded in 2012, and is the largest cryptocurrency exchange company in the world. The company is headquartered in San Francisco. Therefore, the DOJ filed the summons in the United States District for the Northern District of California. The DOJ demanded a list of all United States persons who conducted transactions in a “convertible virtual currency” between January 1, 2013 and December 31, 2015.⁷⁹ Specifically, the DOJ wanted a list of all individuals that bought and sold bitcoin during that two year time period. According to the government,

*“Since 2009, the use of virtual currency has increased exponentially. Some users value the relatively high degree of anonymity associated with virtual currency transactions because only a transaction in virtual currency, such as buying goods or services, is public and not the identities of the parties to the transaction. Because of that, virtual currency transactions are subject to fewer third-party reporting requirements than transactions in conventional forms of payment. However, due to this anonymity and lack of third-party reporting, the IRS is concerned that U.S. taxpayers are underreporting taxable income from transactions in virtual currencies. Further, because the IRS considers virtual currencies to be property, United States taxpayers can realize a taxable gain from buying, selling, or trading in virtual currencies. There is a likelihood that United States taxpayers are failing to properly determine and report any taxable gain from such transactions.”*⁸⁰

The government states their request is in line with IRC §7609(f), which grants the authority to the government to request a “John Doe” summons. Coinbase has not yet provided the information, although, they are reviewing the request. Some Coinbase customers are also challenging this motion.

In addition to the Coinbase summons issued by the DOJ, the DOJ reported on the case *U.S. v. Murgio*. In 2016, the United States Attorney for the Southern District of New York convicted Anthony R. Murgio with conspiring to obstructing an examination of a credit union by the National Credit Union Administration (NCUA). He was also convicted along with two other individuals in a case involving a

77. U.S. Attorney’s Office for the Northern District of California, *Justice Department Convenes Summit On Digital Currency and the Blockchain*, U.S. DEP’T OF JUSTICE (Nov. 9, 2015), <https://www.justice.gov/usao-ndca/pr/justice-department-convenes-summit-digital-currency-and-blockchain>.

78. Jacob Donnelly, *DOJ Holds Digital Currency Summit With Government Agencies and Bitcoin Organizations*, BITCOIN MAGAZINE (Nov. 11, 2015).

79. *In re Tax Liabilities of John Does*, No. 3:16-cv-06658 (N.D. Cal., 2016).

80. *Id.*

multimillion-dollar money laundering business called Coin.mx. According to U.S. Attorney Preet Bharara,

“Anthony Murgio took a new age approach to an age-old crime of fraud. As he admitted in his guilty plea today, Murgio used Coin.mx, an internet-based Bitcoin exchange, to process over \$10 million in Bitcoin transactions in violation of federal anti-money laundering laws, and then obstructed a regulatory examination to hide his scheme.”

During the court proceedings overseen by U.S. District Judge Alison J. Nathan, Murgio plead guilty to processing over \$10 million in illegal Bitcoin transactions. He also plead guilty to attempted bribery. First, the accused did not follow federal AML and KYC regulations. Secondly, Coin.mx failed to acquire state or federal level licensing required by MSBs by the U.S. Treasury department. The founders of Coin.mx used a fake company referred to as “Collectables Club.” This made the business appear to be a members only club that bought and sold collectible memorabilia. Then, Murgio and his partners miscoded customers’ credit and debit transactions. This violated banking and credit card regulations. In 2014, Murgio acquired a credit union called HOPE FCU in New Jersey. Murgio admitted to paying over \$150,000 in bribes in order to acquire the credit union. Then, Murgio rerouted all of their customers’ transactions through HOPE FCU in order to reduce scrutiny from their customers’ banks. In October 2015, the NCUA forced the HOPE FCU into bankruptcy.⁸¹

D. Securities Exchange Commission

The Securities Exchange Commission (SEC) began investigating cryptocurrencies and blockchain technology as early as January 2014.⁸² First, the agency investigated two gambling sites, SatoshiDice and FeedZeBirds.⁸³ The SEC suspected that bitcoin-denominated securities were being offered on these sites. Specifically, the SEC stated that unregistered stock exchanges were illegal even if they were only issuing bitcoin-denominated securities. After investigating the two companies, the SEC charged the former owner of SatoshiDice and FeedZeBirds with selling unregistered securities. In an interesting twist, a few months later, in October of 2014, the former SEC Chair Arthur Levitt joined BitPay. Bitpay is the largest bitcoin payment processor and works with over 125,000 merchants worldwide.⁸⁴ Also that

81. U.S. Attorney’s Office for the Southern District of New York, *Operator of Unlawful Bitcoin Exchange Pleads Guilty in Multimillion-Dollar Money Laundering and Fraud Scheme*, U.S. DEP’T OF JUSTICE (Jan. 9, 2017), <https://www.justice.gov/usao-sdny/pr/operator-unlawful-bitcoin-exchange-pleads-guilty-multimillion-dollar-money-laundering>.

82. Carter Dougherty, *Gambling Website’s Bitcoin-Denominated Stocks Draws SEC Inquiry*, BLOOMBERG TECHNOLOGY (Mar. 19, 2014), <https://www.bloomberg.com/news/articles/2014-03-19/gambling-website-s-bitcoin-denominated-stock-draws-sec-inquiry>.

83. *Id.*

84. Michael J. Casey, *Ex-SEC Chairman Levitt to Advise Two Bitcoin Companies*, THE WALL STREET JOURNAL (Oct. 28, 2014), <https://www.wsj.com/articles/ex-sec-chairman-levitt-to-advise-two-bitcoin-companies-1414468861>.

year, the SEC released an advisory warning that “both fraudsters and promoters of high-risk investment schemes may target bitcoin users.”⁸⁵

The most recent SEC judgment was the rejection of the Winklevoss Twin’s Bitcoin Trust Exchange Traded Fund (ETF). On March 10, 2017, the SEC denied the Bats BZX Exchange from listing trust shares of the Winklevoss Bitcoin Trust.⁸⁶ According to the decision,

“The Commission believes that, in order to meet this standard, an exchange that lists and trades shares of commodity-trust exchange-traded products (“ETPs”) must, in addition to other applicable requirements, satisfy two requirements that are dispositive in this matter. First, the exchange must have surveillance-sharing agreements with significant markets for trading the underlying commodity or derivatives on that commodity. And second, those markets must be regulated.

Based on the record before it, the Commission believes that the significant markets for bitcoin are unregulated. Therefore, as the Exchange has not entered into, and would currently be unable to enter into, the type of surveillance-sharing agreement that has been in place with respect to all previously approved commodity-trust ETPs—agreements that help address concerns about the potential for fraudulent or manipulative acts and practices in this market—the Commission does not find the proposed rule change to be consistent with the Exchange Act.”⁸⁷

Later that month, the SEC rejected a second application to list a financial bitcoin product regarding the SolidX Bitcoin Trust and the Intercontinental Exchange’s applications. On March 29, 2017, the SEC found that bitcoin markets are unregulated, which does not allow for investment vehicles with underlying bitcoin assets to be listed on the CBOE or any other exchange.⁸⁸

E. Internal Revenue Service

According to the U.S. Internal Revenue Service (IRS), gains from virtual currency investments are subject to the capital gains tax. On March 25 of 2014, the IRS issued a guidance document, IR-2014-36 that states, “an individual who ‘mines’ virtual currency as a trade or business [is] subject to self-employment tax.”⁸⁹ However, the government states that, “virtual currency is not classified as currency that could generate foreign currency gain or loss for U.S. federal tax purposes.”⁹⁰ In this document, the IRS states that cryptocurrencies will be classified as property for federal

85. INVESTOR ALERT: BITCOIN AND OTHER VIRTUAL CURRENCY-RELATED INVESTMENTS, U.S. SEC. AND EXCHANGE COMM’N (May 7, 2014), available at https://www.sec.gov/oiea/investor-alerts-bulletins/investoralertsia_bitcoin.html.

86. *Order Disapproving a Proposed Rule Change*, U.S. SECURITIES AND EXCHANGE COMM’N (Mar. 10, 2017), <https://www.sec.gov/rules/sro/batsbzx/2017/34-80206.pdf>.

87. *Id.* at 2.

88. *Order Disapproving a Proposed Rule Change*, SEC. AND EXCH. COMM’N (Mar. 28, 2017), <https://www.sec.gov/rules/sro/nysearca/2017/34-80319.pdf>.

89. *IRS Virtual Currency Guidance, Notice 2014-21*, INTERNAL REVENUE SERV. (Mar. 2017), <https://www.irs.gov/pub/irs-drop/n-14-21.pdf>.

90. *Id.*

taxation purposes.⁹¹ This guidance established that general tax principles that apply to regular property transaction also apply to virtual currency transactions. Therefore, businesses that accept bitcoin and other cryptocurrencies for goods and services must pay income taxes on payments. When cryptocurrencies are used to make payments, IRS policies concerning information reporting on property transactions are applicable.⁹² Businesses that pay employee wages in bitcoin are taxable to the employee and must be reported by the employer on the Form W-2.⁹³ Furthermore, payroll and federal income taxes are applicable for wages paid in cryptocurrencies. Employers that hire freelancers or independent contractors, and self-employed workers are required to file a Form 1099 to declare their income in cryptocurrency. In order to determine what value should be paid on bitcoin income, the IRS states that taxpayers must estimate the fair market value of the bitcoin during the time of receiving the payment.

“For U.S. tax purposes, transactions using virtual currency must be reported in U.S. dollars. Therefore, taxpayers will be required to determine the fair market value of virtual currency in U.S. dollars as of the date of payment or receipt. If a virtual currency is listed on an exchange and the exchange rate is established by market supply and demand, the fair market value of the virtual currency is determined by converting the virtual currency into U.S. dollars (or into another real currency which in turn can be converted into U.S. dollars) at the exchange rate, in a reasonable manner that is consistently applied.”⁹⁴

In addition to the guidance provided by the IRS, the Department of Justice (DOJ) is also helping the IRS track down cryptocurrency users that do not pay income on cryptocurrency gains. The details of the DOJ’s proceedings concerning these possible tax evasions are outlined in the section on the DOJ found in part C of Chapter II.

F. Federal Trade Commission

The Federal Trade Commission has targeted one major case over the past few years. The case involved American-based Bitcoin miners. Specifically, Butterfly Labs was accused of deceiving thousands of consumers about the product offering of Butterfly Labs. The company falsely represented the availability of their proprietary mining machines, and the profitability of their mining machines.⁹⁵ Furthermore, the owners were unable to refund customers’ up-front payments despite being unable to deliver the customers’ mining equipment as ordered. During a two-year period,

91. *Id.*

92. *Id.*

93. *Id.*

94. *Id.*

95. *Operators of Bitcoin Mining Operation Butterfly Labs Agree To Settle FTC Charges They Deceived Consumers*, FED. TRADE COMM’N (Feb. 18, 2016), <https://www.ftc.gov/news-events/press-releases/2016/02/operators-bitcoin-mining-operation-butterfly-labs-agree-settle>.

Butterfly Labs received hundreds of orders and thousands of dollars from customers.⁹⁶ However, the company failed to deliver the mining equipment as promised. Once the mining equipment was developed, the company turned on the miners and mined cryptocurrencies with the machines before they sent them to customers.⁹⁷ This action led to more mining power entering the bitcoin network, which led to an increase in the difficulty of solving a mathematical nonce on the bitcoin network. Once the customers received their miners, the hardware was outdated and practically useless because the difficulty target set by the bitcoin software protocol had increased dramatically. At this point, the customers demanded refunds because promises of hardware profitability made by Butterfly Labs were not kept. Butterfly Labs refused to return customers' money and did not disclose that they mined with their customers' machines before sending them to customers.

The vice president, Sonny Vleisides, and the general manager, Darla Drake, were both issued monetary fines by the Federal Trade Commission.⁹⁸ According to the Director of the FTC's Bureau of Consumer Protection, Jessica Rich,

*"Even in the fast-moving world of virtual currencies like Bitcoin, companies can't deceive people about their products. . . . These settlements will prevent the defendants from misleading consumers."*⁹⁹

However, the defendant's claim that they are unable to afford to make payments on their settlement amounts due to lack of funds available. Vleisides and Butterfly Lab's settlement will be suspended after a payment of \$4,000 and \$15,000 respectively.¹⁰⁰ Drake's settlement will be suspended once she gives the cash value of all of the bitcoins mined using company machines to the FTC.¹⁰¹

IV. STATE LAWS PERTAINING TO CRYPTOCURRENCY AND THE BLOCKCHAIN TECHNOLOGY

Several states in the U.S. are currently working on legislation specifically for cryptocurrencies. The disparate decisionmaking bodies have created a patchwork regulatory landscape for cryptocurrencies and blockchain technology.

A. *New York*

In 2015, New York released the "BitLicense" that is required by any virtual currency company serving New York residents or business owners that commute into

96. *Complaint For Permanent Injunction and Other Equitable Relief*, FED. TRADE COMM'N (Sep. 15, 2014), <https://www.ftc.gov/system/files/documents/cases/140923utterflylabscompt.pdf>.

97. *Id.*

98. FED. TRADE COMM'N, *supra* note 95.

99. *Id.*

100. *Id.*

101. *Id.*

New York.¹⁰² The New York State Department of Financial Services (NYDFS) established the BitLicense in order to provide “guardrails that protect consumers and root out illicit activity – without stifling beneficial innovation.”¹⁰³ According to the legislation, anyone involved in any of the following activities in the state of New York is required to obtain a BitLicense:¹⁰⁴

Virtual currency transmission

Storing, holding, or maintaining custody or control of virtual currency on behalf of others

Buying and selling virtual currency as a customer business

Performing exchange services as a customer business

Controlling, administering, or issuing a virtual currency.

Out of 22 applications over the past two years, only three firms are legally authorized to engage in virtual currency business activity pursuant to New York’s BitLicense, including Coinbase, Ripple, and Circle.¹⁰⁵ Coinbase is a virtual currency exchange headquartered in San Francisco, California. The company allows users to buy and sell virtual currencies against fiat currencies including euros and US dollars. Coinbase has served over five million unique customers across the world.¹⁰⁶ In the U.S., Coinbase is licensed to engage in money transmission in thirty-eight jurisdictions, including New York.¹⁰⁷ Although, the Winklevoss’ cryptocurrency exchange, Gemini, has not received the BitLicense, the NYDFS has granted the firm a banking charter.¹⁰⁸ The only other virtual currency exchange to receive a banking charter from the NYDFS is the itBit Trust Company.¹⁰⁹

B. California

Early on in California, regulators began to take action concerning cryptocurrencies. A democrat from Sacramento, California Assemblyman Roger Dickinson, sponsored a proposed legislation bill that would legalize all

102. N.Y. COMP. CODE RULES & REGS. tit. 13, ch. 1, pt. 200 (2015), available at <http://www.dfs.ny.gov/legal/regulations/adoptions/dfsp200t.pdf>.

103. Matt Anderson, *Superintendent Lawsky’s Remarks At the BITS Emerging Payments Forum*, N.Y. DEPT. OF FIN. SERV. (Jun. 3, 2015), available at https://www.davispolk.com/files/speech-june-3-2015_nydfs_announces_final_bitlicense_framework_regulating_digital_currency_firms.pdf.

104. N.Y. COMP. CODE, *supra* note 102.

105. Matt Anderson, *NYDFS Grants Charter To ‘Gemini’ Bitcoin Exchange Founded by Cameron and Tyler Winklevoss*, N.Y. DEPT. OF FIN. SERV. (Oct. 3, 2015), <http://www.dfs.ny.gov/about/press/pr1510051.htm>.

106. *Coinbase Second Comment Letter, Reg. of Virtual Currency Business Act*, UNIF. LAW COMM’N (May 4, 2016), available at http://www.uniformlaws.org/shared/docs/regulation%20of%20virtual%20currencies/2017may2_RVCBA_Coinbase_Comments.pdf.

107. *What Countries & U.S. States Are Supported For GDAX and the USD Wallet?*, COINBASE (Nov. 22, 2016), <https://support.coinbase.com/customer/portal/articles/1826671-what-countries-us-states-are-supported-for-coinbase-exchange->.

108. Anderson, *supra* note 105.

109. Matt Anderson, *NYDFS Grants First Charter to a New York Virtual Currency Company*, N.Y. DEPT. OF FIN. SERV. (May 7, 2015), <http://www.dfs.ny.gov/about/press/pr1505071.htm>.

cryptocurrencies. Assembly Bill 129 was sent forth in June of 2014.¹¹⁰ However, the bill was not met with an enthusiastic response. Instead, the California Legislature is working on a new set of rules specifically designed for virtual currencies and inspired by the New York BitLicense. The *Virtual Currency Act* was a bill proposed to the California Legislature on February 17, 2017.¹¹¹ The predecessor to this proposal, the Assembly Bill (A.B.) 1123, was released by the Legislature in August of 2016. This bill, submitted by Democrat Matthew DeBabneh,¹¹² is designed to set forth a licensing scheme for virtual currency companies in California. Similarl to the New York BitLicense, already established banks would not be required to apply for the California Virtual Currency License if they wish to engage in cryptocurrency business activities. However, the bill would be required for any new businesses that do not have a bank charter. As stated in A.B. 1123,¹¹³

“The bill would prohibit a person from engaging in any virtual currency business, as defined, in this state unless the person is licensed by the Commissioner of Business Oversight or is exempt from the licensure requirement, as provided. The bill would require applicants for licensure, including an applicant for licensure and approval to acquire control of a licensee, to pay the commissioner a specified nonrefundable application fee and complete an application form required to include, among other things, information about the applicant, prior virtual currency services provided by the applicant, a sample form of receipt for transactions involving the business of virtual currency, and specified financial statements. The bill would make these licenses subject to annual renewal and would require a renewal fee paid to the commissioner in a specified amount. The bill would require licensees to annually pay the commissioner a specified amount for each licensee branch office. The bill would require applicants and licensees to pay the commissioner a specified hourly amount for the commissioner’s examination costs, as provided. The bill would also require the commissioner to levy an assessment each fiscal year, on a pro rata basis, on licensees in an amount sufficient to meet the commissioner’s expenses in administering these provisions and to provide a reasonable reserve for contingencies. . . .”

Regulation of this nature enacted in California would impact the cryptocurrency economy because several of the largest cryptocurrency companies are headquartered in California including Coinbase, Kraken, Airbitz, Blockstream, BTCJam, ChangeTip, and Pantera Capital.

C. *Washington State*

In December of 2014, the Department of Financial Institutions (DFI) in Washington State formed the “Emerging Payments Task Force” during the annual Conference of State Bank Supervisors (CSBS). By September of 2015, the CSBS

110. S. 129, 113th Cong. (2014).

111. S. 1123, 115th Cong. (2017).

112. *Id.*

113. *Id.*

released a model regulatory framework for virtual currencies.¹¹⁴ The guideline states that,

*“After engagement with industry participants, state and federal regulators, and other stakeholders, CSBS concluded that activities involving third party control of virtual currency, including for the purposes of transmitting, exchanging, holding, or otherwise controlling virtual currency, should be subject to state licensure and supervision.”*¹¹⁵

According to a the government of Washington State, virtual currencies, “also known as digital currency or crypto-currency, is a medium of exchange not authorized or adopted by a government.”¹¹⁶ Despite not being an official medium of exchange, in Washington State, virtual currencies such as Bitcoin were added to the definition of “Money Transmission” in December of 2014. All currencies and virtual currencies in the state of Washington are subject to the Uniform Money Services Act (UMSA), chapter 19.230 RCW.¹¹⁷ Similar to California and New York laws, governments, banks, and credit unions are not subject to the act.

D. Florida

In May 2017, Florida House Bill 1379 was passed, which defined virtual currency as a “means a medium of exchange in electronic or digital format that is not a coin or currency of the United States or any other country.” Furthermore, the act prohibits its use in laundering criminal proceeds.¹¹⁸ The bill adds the term “virtual currency” to the definition of “monetary instruments” under Florida’s Money Laundering Act. The State Governor is currently deciding on the legislation. Now in the state of Florida, criminals that use bitcoin will be charged with money laundering in addition to the underlying criminal activity. According to Democratic House Representative, Jose Felix Diaz, “Cyber criminals have taken advantage of our antiquated laws for too long”.¹¹⁹ Diaz, the sponsor of the bill, also stated that “Bitcoin bypasses the traditional banking system, and our state’s laws simply had not caught up to the upsurge in criminality in the world of cybercurrency”.¹²⁰

Florida has a long running history with rulings regarding bitcoin and cryptocurrencies. The case of State of Florida v. Michell Espinoza lasted three years. After being arrested for selling bitcoins to an undercover agent in Miami in 2013, Espinoza was accused of money laundering \$31,000 worth of bitcoin. A similar case

114. *State Regulatory Requirements For Virtual Currency Activities*, CONFERENCE OF STATE BANKS SUPERVISORS (2015), <https://www.csbs.org/regulatory/ep/Pages/framework.aspx>.

115. *Id.*

116. *Virtual Currency Regulation*, WASH. STATE DEPT. OF FIN. INST. (2014), <http://www.dfi.wa.gov/documents/money-transmitters/virtual-currency-regulation.pdf>.

117. REVISED CODE OF WASH. Ch. 19.230 (2014).

118. H.R. 1379, 115th Cong. (2017).

119. David Ovalle, *Florida Criminals Who Use Bitcoins Could Now Face Money-Laundering Charges*, MIAMI HERALD (May 6, 2017), <http://www.miamiherald.com/news/local/crime/article149028844.html>.

120. *Id.*

was made by the Miami Police Department against another bitcoin seller a few days after the original arrest of Espinoza. In an undercover sting operation, police officers contacted Pascal Reid, a seller that advertised on the peer-to-peer bitcoin exchange LocalBitcoins.com. Localbitcoins.com is a Finish-based exchange that is regulated and fully cooperates with law enforcement agencies. Espinoza and Reid pleaded guilty to “acting as an unlicensed money broker.” However, at the hearing in May of 2016, Miami-Dade Circuit Judge, Teresa Mary Pooler, dismissed all charges against Espinoza. In the proceedings, the judge stated, “This court is unwilling to punish a man for selling his property to another, when his actions fall under a statute that is so vaguely written that even legal professionals have difficulty finding a singular meaning.”¹²¹ Reid agreed to a plea deal of probation and no jail time. Part of the deal was teaching the Miami PD about bitcoin and cryptocurrencies.

E. Hawaii

Hawaii’s Division of Financial Institutions (DFI) stated in September of 2016, that digital currency exchanges and custodians, or wallet providers, must hold cash reserves that equal the value of the cryptocurrency in U.S. dollars that the business holds for clients.¹²² Coinbase, the largest cryptocurrency exchange in the world, is complying with the DFI’s policy by withdrawing services to Hawaiian customers. In a press release, Coinbase stated that,

*“This policy is obviously untenable. No digital currency business – and frankly, no commercially viable business anywhere – has the capital to supplement every customer bitcoin with redundant dollar collateral.”*¹²³

Coinbase’s claims that the DFI’s regulation is impossible to comply with, although, Coinbase stated they are happy to serve Hawaiian customers again if a revision of the policy is made. This unexpected news came after a particularly friendly cryptocurrency bill was proposed in Hawaii in January of 2017. House Bill 1481 was filed in order to develop a digital currency working group.¹²⁴ The goal of the group would be to explore the uses of blockchain technology by governments and businesses. According to the proponents of the bill, Democratic Reps Chris Lee and Mark Nakashima, the technology may help bolster Hawaii’s tourism and technology adoption. Democratic Reps Chris Lee and Mark Nakashimaa stated that:

121. Florida v. Espinoza, MIAMI HERALD, available at http://www.miamiherald.com/news/local/crime/article91785802.ece/BINARY/Read%20the%20ruling%20%28.PDF%29#storylink=related_inline (last visited Nov. 18, 2017).

122. Juan Suarez, *How Bad Policy Harms Coinbase Customers in Hawaii*, THE COINBASE BLOG (Feb. 22, 2017), <https://blog.coinbase.com/how-bad-policy-harms-coinbase-customers-in-hawaii-ac9970d49b34>.

123. *Id.*

124. LEGISCAN, HAWAII HOUSE BILL 1481, available at <https://legiscan.com/HI/bill/HB1481/2017> (last visited Nov. 18, 2017).

*“The legislative finds that leading industries and governments are quickly adopting innovative technology to defend against cyberattacks and revolutionize products and services for the twenty-first century.”*¹²⁵

Also, the bill stated that this technology can support tourism in Hawaii:

*“Digital currencies such as bitcoin have broad benefits for Hawaii. A large portion of Hawaii’s tourism market comes from Asia where the use of bitcoin as a virtual currency is expanding. Hawaii has the unique opportunity to explore the use of blockchain technology to make it easier for visitors to consume local goods and services and to drive the tourism economy.”*¹²⁶

Overall, Hawaii appears to be moving in two divergent paths, one that forces cryptocurrency businesses to leave that State, and the other that supports the prosperity of cryptocurrency related businesses.

F. Arizona

Similar to Hawaii’s cryptocurrency bill, the State of Arizona also passed a bill that supports businesses using blockchain technology. In March of 2017, the State Governor signed Bill 2417 into law.¹²⁷ The bill declares that blockchains can be used to record data and that blockchains are “considered to be in an electronic format and to be an electronic record.” In addition, the legislation defined smart contracts and also supported their public use. According to Bill 2417,

“1. “Blockchain Technology” means distributed ledger technology that uses a distributed, decentralized, shared and replicated ledger, which may be public or private, permissioned or permissionless, or driven by tokenized crypto economics or tokenless. The data on the ledger is protected with cryptography, is immutable and auditable and provides and uncensored truth.

2. “Smart contract” means an event-driven program, with state, that runs on a distributed, decentralized, shared and replicated ledger and that can take custody over and instruct transfer of assets on that ledger.”

The bill outlined that businesses and governments that can use this technology, including the State of Nevada. The Nevada House of representatives unanimously supported the bill from legislators while only one senator voted against the legislation. In addition to Bill 2417, Arizona legislatures are also working on another blockchain-related piece of legislation. Specifically, House Bill 2216 states that blockchains should not be used as registries for gun ownership.¹²⁸

125. HAWAII.GOV, HAWAII HOUSE BILL 1481, available at <http://www.capitol.hawaii.gov/session2017/bills/HB1481.HTM> (last visited Nov. 18, 2017).

126. *Id.*

127. LEGISCAN, ARIZONA HOUSE BILL 2417, available at <https://legiscan.com/AZ/text/HB2417/2017> (last visited Oct. 14, 2017).

128. LEGISCAN, ARIZONA HOUSE BILL 2216, available at <https://legiscan.com/AZ/bill/HB2216/2017> (last visited Oct. 14, 2017).

Several other states including Maine, New Hampshire, Vermont, North Dakota, Illinois, and Nevada are all working on legislation. In anticipation of more federal and state level regulations, several cryptocurrency companies have left the U.S. including Ethereum, ShapeShift, and BitMex. Most States have their own money services business license requirements and each of the States requirements are different. Although there is some overlap, having every state audit a business every year creates a significant amount of waste, confusion, and inefficiencies. Therefore, new solutions such as the FED's initiative to provide licensing that acts as a preemption on the state money transmitter license requirements should be considered. During a recent release by the Office of the Comptroller of Currency (OCC), has announced plans to issue a special charter for financial technology (FinTech) companies that offer services similar to tradition bank.¹²⁹ In March of 2017, the OCC announced that FinTech companies can apply to be special national bank charters (SPNBs).¹³⁰ This will help ensure that cryptocurrency firms receive government oversight and work under the consumer protection framework. A federal level license system should help financial technology firms to operate in the different states without each firm having to apply for permission to operate in each state.

G. *Uniform Regulation of Virtual-Currency*

The Uniform Regulation of Virtual-Currency Businesses Act (URVCBA), completed by the Uniform Law Commission in 2017, provides a statutory framework for the regulation of companies engaging in “virtual-currency business activity”.¹³¹ According to the law, a virtual-currency business activity means, “exchanging, transferring, or storing virtual currency; holding electronic precious metals or certificates of electronic precious metals; or exchanging digital representations of value within online games for virtual currency or legal tender.” The URVCBA's unique, three-tiered structure clarifies whether an individual or company engaging in virtual currency business activity is (1) exempt from the act; (2) must register; or (3) must obtain a license. The URVCBA also contains numerous consumer protections.

The model law is incredibly well-drafted and provides clear guidance to virtual-currency businesses as to how they should operate. States should consider adoption of the URVCBA instead of relying on antiquated money transmitter laws. The URVCBA provides specific legal guidance that is easily understandable by market participants, regulators and the courts.

129. *OCC Summary of Comments and Explanatory Statement: Special Purpose National Bank Charters For Financial Technology Companies*, OFFICE OF THE COMPTROLLER OF CURRENCY (Mar. 2017), <https://www.occ.gov/topics/responsible-innovation/summary-explanatory-statement-fintech-charters.pdf>.

130. *Evaluating Charter Applications From Financial Technology Companies*, OFFICE OF THE COMPTROLLER OF THE CURRENCY (Mar. 2017), <https://www.occ.treas.gov/publications/publications-by-type/licensing-manuals/file-pub-lm-fintech-licensing-manual-supplement.pdf>.

131. National Conference of Commissioners On Uniform State Laws, *Uniform Regulation of Virtual-Currency Act*, UNIF. LAW COMM'N (2017), http://www.uniformlaws.org/shared/docs/regulation%20of%20virtual%20currencies/URVCBA_Final_2017oct9.pdf.

V. CONCLUSION

Bitcoin's rise as an alternative payment method and investment vehicle has led to a growing cryptocurrency ecosystem. The wild-wild west days of cryptocurrency innovation appears to be over. Federal and State agencies are closely monitoring cryptocurrency businesses such as Bitcoin-based banks and exchanges, and taking action when necessary against crimes related to money laundering and fraudulent activity. In response, several leading cryptocurrency firms have left the U.S. Individual States require additional legal hurdles and licensing before being able to operate legally within each State. Some firms, such as Ethereum and Shapeshift, have left the U.S. entirely due to friendlier legal environments in countries such as Switzerland. The difficult challenge for lawmakers is to design laws that stimulate innovation while protecting consumer welfare and satisfaction. Congress should act to preempt state laws if a cryptocurrency company obtains a federal license. The goal of fostering innovation while protecting customers can be accomplished if Congress acts to allow cryptocurrency and blockchain companies to obtain a reasonably attainable federal license. Within the government, the distributed ledger technology can help each department communicate digitally while providing an auditable trail. Election committees, social security issuance, passport and government identification card issuance, deed registration, marriage registration, and tax collection can benefit from the distributed ledger technology. The government must determine if intervention is necessary, and if so, how to intervene. As policymakers struggle to catch-up, the effort to develop an appropriate regulatory regime for virtual currency will be a major topic of research and discussion over the coming years.