



VIRTUAL CURRENCY: RISKS AND REGULATION

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EXECUTIVE SUMMARY

Only a few years ago, virtual currencies were little-known outside of the online video gaming community. Today, the total market value of the top one hundred convertible virtual currencies exceeds US\$9 billion, and governments in the United States and throughout the world are struggling to determine whether, and how, virtual currencies should be regulated. Virtual currencies offer consumers a new choice of payment method and are spurring significant investments in payments technology that have the potential to create further new options for consumers and investors in the future. However, current limited regulation and oversight applied to the virtual currency marketplace and transactions in virtual currency mean that consumers and investors that pay with or hold virtual currency are exposed to significant risks. This white paper will describe the types of virtual currencies gaining prominence in the marketplace today, the roles of the players in virtual currency systems and transactions, the consumer and systemic risks associated with virtual currency systems, and potential regulatory approaches to managing those risks.

Part I of this white paper defines “virtual currency” and describes the current regulatory environment for virtual currency in the United States. There are many new or emerging payment products and media of exchange that could constitute virtual currency, and given the rapidly changing nature of this issue, establishing firm definitions is a challenge and any analysis must necessarily set aside certain questions for later consideration. This white paper generally relies on the definitions established by the Financial Crimes Enforcement Network (“FinCEN”) to classify virtual currencies as convertible or non-convertible, and then as centrally administered or decentralized. FinCEN, as the first federal regulator to issue guidance on virtual currency, has focused on convertible decentralized virtual currencies, given the anti-money laundering and other law enforcement concerns raised by such currencies. As the public debate now shifts to the consumer-protection and systemic stability challenges associated with virtual currencies, it has once again been convertible decentralized virtual currencies that have been the focus of concern. Therefore, while recognizing the regulatory challenges posed by centrally administered and non-convertible virtual currencies, this white paper focuses on the regulation and potential regulation of convertible decentralized virtual currencies. Using Bitcoin as the paradigmatic example of such a currency, Part II describes the key players and their roles within the Bitcoin system, as well as the flow of a basic purchase transaction using Bitcoin.

Part III of this white paper discusses the application of certain functional and prudential payment systems regulations that may be applied to protect users of the Bitcoin system (and, by analogy, other convertible decentralized virtual currency systems). In particular, Part III concludes as follows:

- Credentials used to transact in Bitcoin are functionally similar to prepaid cards. In fact, such credentials arguably fall within the definition of such cards provided in Regulations E and II. However, Bitcoin transactions lack the consumer protections associated with debit card and payroll card transactions (and which are expected soon to extend to prepaid card transactions).

- Although the Consumer Financial Protection Bureau (the “CFPB”) has not issued guidance on this question, the CFPB may determine that cross-border transactions in Bitcoin fall within the scope of the Remittance Transfer Rule promulgated by the CFPB to implement Section 1073 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. Were the CFPB to make such a determination, entities facilitating such transfers would be obligated to comply with the Remittance Transfer Rule’s disclosure, reversibility, and error-resolution requirements. Application of the Remittance Transfer Rule, while challenging under the current structure of the Bitcoin system, would introduce protections for consumers engaged in cross-border Bitcoin transactions on par with protections afforded to consumers funding cross-border transactions in other currencies.
- Under the current federal regulatory regime, players in the Bitcoin system are not subject to safety and soundness oversight, and no entity in the Bitcoin system is yet large enough to be subject to oversight as a systemically important institution or utility, even were such regulations applicable.

Part IV of this white paper evaluates the potential avenues for regulation of virtual currency, investment programs involving virtual currency, and exchanges trading virtual currency under U.S. securities and commodities laws and state laws. Specifically, Part IV finds:

- Although possible, it may be difficult to establish that Bitcoin and other individual units of virtual currency constitute securities, subject to Securities and Exchange Commission (“SEC”) jurisdiction. However, the SEC has regulatory and enforcement authority with respect to Bitcoin investment programs even if Bitcoins themselves are not securities. In addition, Bitcoin-based derivative securities fall under the SEC’s jurisdiction.
- Unlike regulators in some other countries, the Commodity Futures Trading Commission (“CFTC”) has not yet determined if Bitcoins constitute commodities, although it is reportedly reviewing the applicability of its authority to virtual currency transactions and virtual currency exchanges.
- Existing regulations intended to protect consumers and market participants in the event of the failure of a securities or commodities exchange may be inapplicable to Bitcoin exchanges. In the absence of federal authority to regulate such exchanges, alternative means of protecting investors and accountholders – such as disclosure requirements and coordinated state-level registration of exchanges – should be explored.

If and how virtual currencies are further regulated in the United States to protect consumers, protect the safety and soundness of the financial system, and deter and detect illicit

activity remains to be seen. The purpose of this white paper is to promote consideration of how existing regulatory regimes in the U.S. may be applied to virtual currency, virtual currency system participants and products, and virtual currency transactions.

INTRODUCTION

As the use of virtual currencies for payment transactions and speculative investments in virtual currencies rapidly expand, regulators in the United States and abroad are grappling with how best to regulate such currencies to protect consumers and investors, maintain the stability of the financial system, and deter use of virtual currency systems in money laundering and terrorist financing. This white paper addresses the potential application of existing payments, securities, and commodities regulations to protect consumers, investors, and the financial system. Part I of this white paper summarizes current regulatory approaches to virtual currencies in the United States and abroad. Part II describes the virtual currency system (using Bitcoin as an example) and a typical virtual currency transaction. Part III discusses potential application of current payments-system regulations to virtual currencies to mitigate consumer risk. Finally, Part IV addresses current and potential approaches to regulating virtual currencies and virtual currency institutions under U.S. securities and commodities laws and state laws.

A major focus of public debate regarding regulation of virtual currency is the protection of consumers. Traditional payment systems afford consumers protection against a variety of risks. Virtual currencies have the potential to expand consumer choice and spur new technology development and investment. However, because virtual currencies are subject to limited regulation and, as further discussed below, due to structural aspects of the virtual currency ecosystem, many such consumer protections currently are absent in the virtual currency context. The significant consumer risks associated with the use and ownership of virtual currency is summarized in Table 1.

Table 1: Consumer Risks	
Loss or theft	Virtual currency can be lost through a security breach, user error, or a technological failure at a virtual currency wallet or exchange. Once lost, virtual currency typically cannot be regained.
Fraud or unauthorized use	Generally, virtual currency can be spent by anyone in possession of the associated ownership credentials. Transactions in most currencies are not reversible, even if the result of fraud or unauthorized use.

Transaction processing error	In the event that a payment is misdirected, an incorrect amount is transferred, or a transaction is not completed in a timely manner due to an error by a virtual currency wallet, exchange, or processor, in most currencies the transaction is not reversible, the error is not correctible, and the consumer has no recourse against the wallet, exchange, or processor.
Failure of a wallet or exchange	No insurance mechanism exists to make accountholders whole in the event that a virtual currency wallet or exchange operator fails and accounts become inaccessible.
Inadequate disclosures	Wallets and exchange operators have no obligation to provide disclosures to consumers related to service fees or charges associated with virtual currency transactions, the volatility and unregulated nature of the virtual currency ecosystem, or any of the other risks described in this table.

Although there currently are hundreds of virtual currencies in existence, the most significant virtual currencies circulating today are based on the open-source Bitcoin protocol. Bitcoin remains the single largest virtual currency by market value, accounting for approximately US\$6.3 billion of the roughly US\$10 billion total value of convertible virtual currency in circulation.¹ In addition, as a result of its size and influence on the development of other virtual currencies, it is Bitcoin that has been the primary focus of regulator and policymaker attention in the U.S. and abroad. Therefore, this white paper frequently addresses the risks and regulation of virtual currency systems and transactions through the lens of Bitcoin.

¹ Value as of April 17, 2014. The virtual currency market is highly volatile. The aggregate market value of Bitcoin, for example, dropped by almost half from December 1, 2013 to April 17, 2014, even though the Bitcoin supply increased during the same period. Live market capitalization of 158 convertible virtual currencies can be viewed at <https://coinmarketcap.com>.

I. Defining Virtual Currency

a. Types of Virtual Currencies.²

As is frequently the case in emerging areas of law or policy, the terminology used to describe and classify virtual currency is somewhat fluid. This white paper will rely primarily on the nomenclature and definitions employed by FinCEN in its March 2013 virtual currency guidance (the “Virtual Currency Guidance”).³ The Virtual Currency Guidance describes a virtual currency as a medium of exchange that operates like a fiat currency in certain circumstances, but that lacks key definitional aspects of fiat currency. Specifically, a virtual currency is not legal tender in any jurisdiction.⁴ In addition, although this distinction is not drawn in the Virtual Currency Guidance, references to virtual currency typically encompass only currencies that are issued and circulate primarily in a digital format (as opposed to local currencies, like BerkShares,⁵ which are issued and circulate primarily as physical specie). While non-convertible virtual currencies exist, the riskier type of virtual currency (and the type that has received the most regulatory scrutiny) is convertible virtual currency, which may be exchanged for fiat currency.

FinCEN classifies virtual currencies based on how, and by whom, they are issued and redeemed.⁶ A *centrally administered* virtual currency features a centralized repository and a single administrator with authority to issue and redeem units of the currency. The largest centrally administered virtual currency currently is XRP, the native currency of the Ripple

² “Virtual currency,” broadly defined, encompasses a wide range of digital means of storing value and exchanging that value for real or virtual goods and services. In-game currencies such as Linden Dollars (used in online virtual world Second Life), rewards programs (such as American Express Membership Rewards Points or Delta’s Skymiles program) that allow use of points or frequent-flyer miles for purchases in a virtual marketplace, and closed-loop credits like Amazon Coins or Facebook’s now-shuttered Credits program all share attributes with the virtual currencies discussed here. As further described in this section, the scope of this white paper is limited to convertible virtual currencies, and the analysis is focused on decentralized virtual currencies. However, the risks described in this white paper are present in many other virtual media of exchange.

³ FinCEN, *Application of FinCEN’s Regulations to Persons Administering, Exchanging, or Using Virtual Currencies*, March 18, 2013 (available at http://fincen.gov/statutes_regs/guidance/pdf/FIN-2013-G001.pdf).

⁴ Note that it is for this reason that virtual currency transactions do not constitute “Payment Orders” under UCC-4A. UCC 4A-103 defines a “Payment Order” as an instruction to pay “money,” and “money” is defined in UCC 1-201(24) as “a medium of exchange currently authorized or adopted by a domestic or foreign government.”

⁵ BerkShares are a community currency issued by a nonprofit for use in the Berkshire region of Massachusetts. See www.berkshares.org.

⁶ FinCEN also considers e-currencies and e-precious metals (typically, certificates evidencing ownership of fiat currency or precious metals) to constitute virtual currency; however, the regulatory regime applicable to e-currencies and e-precious metals is well-established and is not further discussed in this white paper.

Network, which is issued by Ripple Labs Inc.⁷ A *decentralized virtual currency*, by contrast, has no centralized repository and no single administrator.⁸ Users may obtain the currency through their own computing or manufacturing effort (typically referred to as “mining”). Bitcoin is a decentralized virtual currency, as are the majority of the virtual currencies modeled on the Bitcoin protocol (such as Litecoin and Peercoin).

b. Current U.S. and International Regulation

The concept that became Bitcoin was first proposed in a paper published online in November 2008.⁹ Roughly four years later, FinCEN issued the Virtual Currency Guidance, which describes the circumstances in which persons engaged in virtual currency transactions are classified as money transmitters for purposes of the Bank Secrecy Act (“BSA”)’s implementing regulations. The Virtual Currency Guidance was followed by two FinCEN administrative rulings, both issued in January 2014 (the “Virtual Currency Rulings”), applying the Virtual Currency Guidance to specific Bitcoin miner and Bitcoin investor fact patterns.¹⁰ Collectively, the Virtual Currency Guidance and the Virtual Currency Rulings clarified that FinCEN categorizes many virtual currency exchanges, wallet operators, and miners operating in the United States as money transmitters and that such entities are required to comply with the BSA’s know-your-customer and anti-money laundering requirements.

Notwithstanding significant governmental and regulatory interest in virtual currencies throughout 2013, as of the date of this white paper, FinCEN is the only U.S. federal financial regulator to take an official position with respect to virtual currency regulation. Outside the context of financial regulations, the Internal Revenue Service (the “IRS”) issued guidance on March 25, 2014, stating that virtual currencies are treated as property for federal tax purposes.¹¹ In response, on April 8, 2014 Representative Steve Stockman (R-TX) announced that

⁷ XRP is the largest non-Bitcoin-based virtual currency, with a market capitalization of approximately \$48 million as of the date of this white paper. The Ripple Network, which is run by Ripple Labs Inc., is a distributed transaction ledger with an integrated currency exchange function, permitting buyers and sellers to transact in different units of exchange, including virtual currencies, fiat currencies, cellphone minutes, and other units of exchange. XRP acts as a “bridge” currency when there is not an established exchange rate for the buyer’s and seller’s currencies within the Ripple Network. See <https://ripple.com>.

⁸ Although the Virtual Currency Guidance does not address this, many virtual currencies have a semi-centralized model. For example, all or a portion of the currency may be initially issued by a central authority that has no ongoing role in managing the currency supply. Bitcoin, however, is fully decentralized.

⁹ Nakamoto, Satoshi. “Bitcoin: a Peer-to-Peer Electronic Cash System,” Nov. 1, 2008 (available at <https://bitcoin.org/bitcoin.pdf>). Attempts to verify the identity of Satoshi Nakamoto have thus far proved unsuccessful, and the name is widely believed to be a pseudonym.

¹⁰ FinCEN, *Application of FinCEN’s Regulations to Virtual Currency Mining Operations*, Jan. 30, 2013 (available at http://www.fincen.gov/news_room/rp/rulings/pdf/FIN-2014-R001.pdf) (the “Mining Ruling”); FinCEN, *Application of FinCEN’s Regulations to Virtual Currency Software Development and Certain Investment Activity*, Jan. 30, 2014 (available at http://www.fincen.gov/news_room/rp/rulings/pdf/FIN-2014-R002.pdf) (the “Investment Ruling”).

¹¹ IRS Virtual Currency Guidance, IR-2014-36 (available at <http://www.irs.gov/pub/irs-drop/n-14-21.pdf>).

he would introduce legislation to require virtual currencies to be taxed as currency.¹² In addition, the U.S. Senate Committee on Homeland Security and Governmental Affairs held hearings regarding virtual currency regulation in late 2013 and early 2014; however, it is unclear when or if Congress will take definitive action.

State financial regulators in New York, Texas, and Washington have also provided guidance regarding treatment of virtual currencies under state law. The New York Department of Financial Services (“NYDFS”) also held hearings on virtual currency issues in early 2014. On March 11, 2014, NYDFS announced that it is accepting license applications and proposals from virtual currency exchanges located in New York. However, NYDFS has not adopted regulations or issued official guidance on virtual currency exchanges, and it remains unclear what NYDFS considers to be the scope of its regulatory authority or what criteria it will use to review license applications.¹³ The Texas Banking Department issued a supervisory memorandum in early April providing that virtual currencies are not subject to state currency exchange licensing, but that the exchange of sovereign currency for virtual currency through a third party or an ATM will generally constitute money transmission and that such exchangers or ATM operators must comply with state registration requirements.¹⁴ Finally, the Washington Department of Financial Institutions (“WDFI”) has stated that virtual currencies are a means of transmitting money or its equivalent value, and that companies engaged in transmission of digital currency may contact WDFI for a determination of whether they are subject to licensure requirements.¹⁵

Outside of the U.S., regulatory attitudes toward virtual currency vary widely. In December 2013, the Chinese central bank prohibited merchants from accepting Bitcoins as payment and prohibited payment processors from converting Bitcoins into yuan.¹⁶ The Canadian agency responsible for combatting money laundering stated in late 2013 that virtual currency exchanges were not subject to existing anti-money laundering regulations, but in mid-February 2014, the Canadian government announced plans to expand the scope of such regulations to account for virtual currencies.¹⁷ Finland regulates virtual currencies as commodities, while Sweden taxes them as assets of the same class as fine art.¹⁸ Given the lack of international consensus regarding classification and treatment of virtual currencies, the

¹² See <http://stockman.house.gov/media-center/press-releases/stockman-plans-to-introduce-the-virtual-currency-tax-reform-act>.

¹³ N.Y. Dep’t of Fin. Servs., “Order Pursuant to New York Banking Law §§ 2-b, 24, 32, 102-a, and 4001-b and Fin. Servs. Law §§ 301(c) and 302(a)” (Mar. 11, 2014) (available at http://www.dfs.ny.gov/about/po_vc_03112014.pdf).

¹⁴ Texas Dep’t of Banking, “Regulatory Treatment of Virtual Currencies Under the Texas Money Services Act” (Apr. 3, 2014) (available at <http://www.dob.texas.gov/public/uploads/files/Laws-Regulations/New-Actions/sm1037.pdf>).

¹⁵ Washington Dep’t of Fin. Institutions, “Virtual Currency Regulation” (available at <http://www.dfi.wa.gov/cs/pdf/virtual-currency-regulation.pdf>).

¹⁶ Library of Congress, *Regulation of Bitcoin in Selected Jurisdictions* (2014) (available at <http://www.loc.gov/law/help/bitcoin-survey/index.php>).

¹⁷ *Id.*

¹⁸ *Id.*

regulatory approach ultimately adopted by the U.S. is likely to have a significant influence on the shape of the global virtual currency economy in years to come.

II. The Bitcoin System and Bitcoin Transactions.¹⁹

Bitcoin is the largest virtual currency, with a total market capitalization in excess of US\$6 billion. Bitcoin's open-source protocol is the basis for the majority of other major virtual currencies, and therefore, understanding the Bitcoin system and how a Bitcoin transaction is conducted is helpful to understanding the risks associated with virtual currency systems and transactions generally.

a. *Players in the Bitcoin System and their Roles.*

The Bitcoin system is a peer-to-peer network of servers (each, a "node"), each running an open-source protocol that both enables the generation of new Bitcoins and facilitates the creation of a public registry of past transactions in existing Bitcoins. The transfer of Bitcoins from buyer to seller is conducted through a Bitcoin wallet, which integrates with the network through a node, enabling the publication of the transfer transaction to the network. Bitcoin exchanges, meanwhile, facilitate the acquisition of Bitcoins in exchange for fiat currency. Bitcoin has no central administrator or repository, no entity is vested with the ability definitively to establish ownership of a given Bitcoin, and, as further described below, there is no institution that polices theft or fraud or makes holders whole in the event that Bitcoins are stolen or lost.

i. Bitcoin Miners

The Nodes that make up the Bitcoin network are established and maintained by individuals or groups that wish to generate ("mine") new Bitcoins. These individuals or groups are referred to as "miners." Miners obtain new Bitcoins by solving cryptographic problems. When a miner solves a problem (described as generating a "proof-of-work"), the miner is entitled to add a block of Bitcoin transactions to the blockchain, and is rewarded with newly generated Bitcoins. The blockchain is the public registry of all Bitcoin transactions, maintained as a distributed peer-to-peer network. The blockchain reflects ownership of all Bitcoins and the complete history of Bitcoin transactions. Each Bitcoin has a unique serial number, which permits tracking and recording of the transaction history of that Bitcoin in the blockchain.

The algorithm that generates Bitcoins through mining efforts has been designed to limit the total supply to 21 million Bitcoins, of which roughly 12.5 million have been mined.²⁰ The reward rate associated with mining declines over time to enforce increasing scarcity. Miners introduce Bitcoins into circulation by using them to purchase goods and services or by selling them to exchanges. Per the Mining Ruling, a miner does not become subject to the BSA simply

¹⁹ Primary sources for this section are the Nakamoto paper cited at fn. 7, above; CoinDesk's *A Beginner's Guide to Bitcoin* (available at <http://www.coindesk.com/information/>); and Blockchain.info, which hosts the publicly searchable blockchain database and technical information regarding Bitcoin mining.

²⁰ See <http://blockchain.info> for real-time statistics on the current total supply of Bitcoins.

by virtue of its mining activity or by using Bitcoins in purchase transactions or converting them to fiat currency for its own account.²¹

ii. Bitcoin Wallets

In order to use Bitcoins to make purchases, a user must have a Bitcoin wallet. A wallet is a piece of software that performs two principal functions: (a) assigning Bitcoin addresses to Bitcoin users and (b) facilitating Bitcoin transactions by (i) enabling users to send and receive Bitcoins and (ii) publishing the associated transaction to the network.²² The most basic wallets are simple, open-source software available for free. In the case of free, open-source wallets, there is no “wallet provider” other than the user himself (i.e., neither the software developer nor a third party provides additional, ongoing services to the user of the wallet software). More sophisticated wallets add integrated Bitcoin exchange or payments processing functionality, and typically charge user fees.

A Bitcoin address is a randomly generated string of letters and numbers that identifies a user for purposes of Bitcoin transactions. Bitcoin ownership and Bitcoin transactions are anonymous in the sense that there is no comprehensive registry associating Bitcoin addresses to their owners. However, the Bitcoin address that owns a given Bitcoin, as well as every Bitcoin address that has previously owned that Bitcoin, is publicly viewable in the blockchain.

Each Bitcoin address is secured by an associated private key, which is used to verify ownership of the Bitcoins associated with the public address. Like the Bitcoin address, the private key is generated by the wallet. A user must have a Bitcoin address and associated private key in order to conduct Bitcoin transactions. However, there is no mechanism in the Bitcoin system to associate a public address/private key combination with a particular person. In this regard, a Bitcoin is similar to cash or other bearer instruments – ownership is determined based on possession of the public address/private key combination.

In addition to providing and supporting the exchange of credentials needed to evidence ownership and transfer of Bitcoins, Bitcoin wallets publish transaction records to the Bitcoin network, thereby enabling miners to record those transactions in the blockchain and publicly register the changes in ownership of the Bitcoins transferred. A Bitcoin cannot be effectively transferred from one Bitcoin address to another without the use of a wallet.

iii. Bitcoin Exchanges

Bitcoin exchanges offer a range of functions. The most basic exchanges simply provide a platform for advertising Bitcoins up for sale, which brings buyers and sellers together for direct

²¹ However, a miner that mines at the behest of a third party may be subject to the BSA. See the Mining Ruling for analysis of additional scenarios and their regulatory treatment.

²² Notwithstanding the use of the term “wallet,” it is not necessary that users store their Bitcoins in their wallets. In fact, for security reasons, users are often advised to store a list of their Bitcoin serial numbers on paper, a USB key, or a non-internet-connected hard drive (all of which are referred to as “cold storage” or “cold wallets”) rather than in an online (or “hot”) wallet. The user must then load the Bitcoin into the wallet prior to using it for a transaction.

sales of Bitcoins between them. More sophisticated exchanges permit users to establish accounts, maintain Bitcoin and fiat currency balances in “accounts,” and place standing buy/sell orders, similar to the functioning of a traditional brokerage account (as more fully discussed in Part IV of this white paper). Bitcoins purchased by a user may be maintained in the name of the account holder or of the exchange. Many exchanges offer integrated wallet functionality to facilitate use of acquired Bitcoins for payment transactions or payments processing for merchants that do not wish to accept Bitcoins directly. Under the Virtual Currency Guidance, most exchanges are treated as money services businesses subject to the BSA, and the New York Department of Financial Services has expressed its intent to license exchanges located in New York.²³

iv. Bitcoin Processors

A merchant can accept Bitcoins for purchase transactions by transfer directly from the customer’s Bitcoin wallet to the merchant’s Bitcoin wallet. Alternatively, a merchant may use a payment processor that supports Bitcoin acceptance. When a merchant uses a Bitcoin processor, the buyer transfers ownership of the Bitcoins used in the purchase transaction to the merchant’s Bitcoin processor. The Bitcoin processor then settles to the merchant either in Bitcoins or in fiat currency, depending on any restrictions applicable in the merchant’s jurisdiction and merchant’s preference. Bitcoin processors settling in fiat currency may offer hourly or daily fixed exchange rates to reduce volatility.

b. *Bitcoin Payment Transactions.*

This section describes the steps involved in a simple consumer-to-merchant Bitcoin purchase transaction. However, at present, most Bitcoins are acquired for investment/speculation purposes and are not used in retail purchase transactions.

i. Initiating a Purchase of Goods or Services using Bitcoins

Using a Bitcoin wallet, a buyer transfers ownership of the Bitcoin from the buyer’s Bitcoin address to the seller’s Bitcoin address. The buyer attaches a digital signature, generated from the private key associated with the buyer’s Bitcoin address, to the transaction. The digital signature serves as verification that the buyer possesses the private key associated with the Bitcoin address from which the Bitcoin is being transferred.

ii. Confirming the Transaction

The wallet provider through which the transaction is conducted broadcasts the transaction details to all of the nodes in the Bitcoin network to which the wallet provider is connected. Miners gather up the new transactions broadcast to the network into a group called a “block.” Once a miner has generated a proof-of-work, the miner is entitled to add the block of transactions it has gathered to the public blockchain. Once the transfer of ownership from the buyer to the seller is added to the blockchain, it becomes public record and the transfer of Bitcoins from the buyer to the seller is deemed “confirmed.” Confirmation typically takes

²³ Section I.b, *supra*, and Part IV below.

approximately ten minutes. Transaction fees can be paid to miners to ensure that a transaction is quickly picked up and included in a published block of transaction records.

iii. Avoiding Double Spending of a Single Bitcoin

When a miner seeks to add a block to the blockchain, the Bitcoin protocol scans the records of historical transactions to verify that none of the Bitcoin transfers reflected in the block are duplicates of previously recorded transactions. If the Bitcoin protocol identifies a prior, conflicting transaction (e.g., where the same buyer has used the same Bitcoin for two different transactions), the new block containing the conflicting transaction will be rejected and cannot be added to the blockchain. Thus, nothing prevents a single Bitcoin from being used for multiple transactions before one of those transactions is confirmed through publication in the blockchain. For that reason, merchants typically will not finalize a Bitcoin transaction, and a Bitcoin transaction is reversible, until it has been confirmed.

III. Payments Regulation Issues

As noted above, to date, FinCEN is the only U.S. financial regulator that has taken definitive action with respect to virtual currency. This section considers the similarities between virtual currencies and other methods of payment, and the potential application of existing payments regulatory regimes in the virtual currency context. This white paper does not suggest in all cases that existing laws or regulations, as written, encompass virtual currencies, but rather that, given significant similarities, the application of these regulatory regimes to include virtual currencies could mitigate certain risks posed by an unregulated virtual currency economy. Bitcoin will again be used as the evaluated virtual currency for purposes of this Part.

a. *Functional Similarity between Prepaid Cards and Bitcoin Addresses/Keys*

Existing regulatory definitions of “reloadable general-use prepaid card” reflect certain functional similarities between prepaid cards and Bitcoin addresses and keys (“Bitcoin Credentials”) that may merit functionally similar regulation. The CFPB and the Federal Reserve Board (the “Board”) have defined “general-use prepaid card” to be a card, code or device that is (i) issued on a prepaid basis primarily for personal, family, or household purposes to a consumer in a specified amount, whether or not that amount may be increased or reloaded, in exchange for payment; and (ii) redeemable upon presentation at multiple, unaffiliated merchants for goods or services, or usable at automated teller machines.²⁴ A general-use prepaid card that can be reloaded is a “reloadable general-use prepaid card.”

When a consumer receives Bitcoin Credentials and purchases Bitcoins to associate with those Bitcoin Credentials, the Bitcoin Credentials appear to function similarly to a reloadable general-use prepaid card. The Bitcoin Credentials consist of codes that are associated with prepaid value (value denominated in Bitcoins²⁵) and the Bitcoin Credentials may be presented

²⁴ See 12 C.F.R. § 1005.20(a)(3) (“Regulation E”) and 12 C.F.R. § 205.235.1(i) (“Regulation II”).

²⁵ It is worth noting that neither the CFPB nor the Board has excluded products denominated in currencies other than fiat (or real) currencies from the definition of general-use prepaid card or reloadable general-use prepaid card for purposes of Regulation E or Regulation II. In contrast, FinCEN has interpreted its

for redemption at multiple, unaffiliated merchants in the purchase of goods or services. Further, the Bitcoin Credentials may be reloaded with additional Bitcoins.

While reloadable general-use prepaid cards currently are subject to limited federal consumer protections, the regulatory landscape for these products is changing rapidly. On May 24, 2012, the CFPB issued an advance notice of proposed rulemaking seeking comment and information from the public about reloadable general-use prepaid cards and suggesting that the CFPB was inclined to extend Regulation E protections to these products. Recently, the CFPB has indicated that proposed regulations on this topic will be issued in the first half of 2014.

Unlike debit cards and payroll cards (and likely soon, reloadable general-use prepaid cards), which are subject to consumer protections established pursuant to the Electronic Fund Transfer Act and Regulation E (including disclosure requirements, fraud protection and protection against transaction errors), consumers holding Bitcoin Credentials and engaging in Bitcoin transactions are afforded no similar protections at law.²⁶ Consumers are not entitled to initial or periodic disclosures in connection with the acquisition or holding of Bitcoin Credentials, and consumers engaging in Bitcoin transactions are not entitled to protection against erroneous or fraudulent transactions. Bitcoin transactions, once published to the blockchain, are irreversible and cannot be disputed for any reason, including with the consumer's Bitcoin wallet provider. Lost or stolen Bitcoin Credentials cannot be retrieved and the associated Bitcoins are effectively lost or stolen with the Bitcoin Credentials. The value loaded onto general-use reloadable prepaid cards generally is held by regulated and insured depository financial institutions, which frequently afford consumers protection (in the form of pass-through deposit insurance) if the institution fails and which frequently adopt (voluntarily, at present) consumer protections similar to those applicable to debit cards and payroll cards under Regulation E. By contrast, if a Bitcoin wallet provider or a Bitcoin exchange with wallet functionality fails, users that have not maintained backup records of their Bitcoin Credentials will permanently lose access to their Bitcoins.²⁷

b. Application of the Remittance Transfer Rule

Effective October 28, 2013, the CFPB requires any company that electronically transfers funds from a U.S. consumer to a recipient outside the U.S. (a "remittance transfer") to provide certain disclosures to the consumer regarding the transfer, facilitate the resolution of errors,

regulations applying BSA requirements to certain providers of prepaid access (the "Prepaid Access Rule") as applying only to prepaid products denominated in real (fiat) currency, and not to prepaid products denominated in virtual currency. See FinCEN, *Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies*, March 18, 2013 (available at http://fincen.gov/statutes_regs/guidance/html/FIN-2013-G001.html).

²⁶ The purchase of the Bitcoin itself, if effected with a debit card, payroll card, or credit card, would be subject to Regulation E or Regulation Z (as applicable) and other consumer-protection regulations. However, a subsequent consumer transaction effected with the purchased Bitcoin would not be.

²⁷ As discussed above, in some cases, there will be no wallet provider associated with a Bitcoin wallet. Where there is no wallet provider, there is no entity that can be subject to regulation other than the user. Regulating the user would not likely be viewed as furthering the consumer-protection policy that motivates much of the existing payments regulatory framework.

and permit a sender to cancel the remittance transfer during the thirty-minute period after the transfer was requested. These requirements are described in the Remittance Transfer Rule.²⁸ While the disclosure requirements may not be particularly challenging for wallet providers, implementing the Remittance Transfer Rule's error-resolution and transaction-reversal requirement in the Bitcoin context would be very difficult unless structural changes were made to the Bitcoin protocol itself, as well as to the industry's business practices.

The Remittance Transfer Rule defines the term "remittance transfer" broadly to include the vast majority of electronic funds transfers sent by U.S. consumers to consumers and businesses in foreign countries.²⁹ The commentary to the Remittance Transfer Rule includes examples of remittance transfers, such as international wire transfers, international ACH transfers, and the addition of funds to a prepaid card by a participant in a prepaid card program that is directly engaged with the sender to add these funds, where the prepaid card is sent or was previously sent by a participant in the program to a person in a foreign country. The CFPB has not taken a position on whether the Remittance Transfer Rule applies to cross-border virtual currency transactions. However, the CFPB clearly contemplated transactions involving "virtual wallets" in its remittance transfer rulemakings.³⁰ Given FinCEN's classification of most wallet providers and exchanges as money transmitters, the CFPB may determine that virtual currency wallets and exchanges must comply with the Remittance Transfer Rule when facilitating a transfer of Bitcoins from a consumer in the U.S. to a recipient outside the U.S.

c. Safety and Soundness Oversight of Bitcoin Wallets and Exchanges

Virtual currency systems, including the Bitcoin system, present most of the risk characteristics to participants and users discussed by the Board in its Policy on Payment System Risk, including legal risk, operational risk, liquidity risk and credit risk. The Mt. Gox collapse demonstrated well how these risks, left unchecked, can rapidly undermine confidence in a

²⁸ 12 C.F.R. § 1005.30 *et seq.*

²⁹ "Remittance transfer" is defined generally to mean "the electronic transfer of funds requested by a sender to a designated recipient that is sent by a remittance transfer provider." 12 C.F.R. § 1005.30(e). "Sender" is defined to mean "a consumer in a State who primarily for personal, family, or household purposes requests a remittance transfer provider to send a remittance transfer to a designated recipient." *Id.* § 1005.30(g). "Designated recipient" is defined to mean "any person specified by the sender as the authorized recipient of a remittance transfer to be received at a location in a foreign country." *Id.* § 1005.30(c).

³⁰ For example, in its discussion of the types of international transfers that would be subject to the rule, the CFPB stated that "[f]unds can also be transferred among consumers' 'virtual wallets,' through accounts identified by individuals' email addresses or mobile phone numbers. Electronic Fund Transfers (Regulation E) 77 Fed. Reg. 6194, 6196. (Feb. 7, 2012). In addition, in its discussion of a sender's right to cancel a remittance transfer to the extent that funds have not already been deposited into an "account" of the designated recipient, the CFPB noted that "such accounts need not be accounts held by a financial institution so long as the recipient may access the transferred funds without any restrictions regarding the use of such funds. For example, some Internet-based providers may track consumer funds in a virtual account or wallet and permit the holder of the account or wallet to make purchases or withdraw funds once funds are credited to the account or wallet." *Id.* at 6263.

payment or exchange system.³¹ However, whether virtual currency systems or exchanges may be subject to the Board’s present authority to oversee the management of payment systems risks is questionable. Prior to subjecting a virtual currency market participant, such as an exchange or wallet provider, to payment systems risk or other prudential oversight by the Board, the entity would likely need to be designated for such supervision by the Financial Stability Oversight Council (“FSOC”).

Title VIII of the Dodd-Frank Act vested in FSOC authority to designate a financial market utility (“FMU”) or the payment, clearing, and settlement activities (“PCS Activities”) of a financial institution³² as systemically important or likely to become systemically important and therefore subject to enhanced federal prudential oversight and Board risk standards. An FMU or PCS Activities may be subject to designation by FSOC if FSOC determines that a system failure of the FMU or of the financial institution’s PCS Activities would threaten the overall stability of the financial system.

Given the limited size of the virtual currency economy, no virtual currency exchange or wallet currently is likely to satisfy the requirements that must be met to be eligible for designation as a systemically important FMU or as engaging in systemically important PCS Activities. Consequently, no regulation of the safety and soundness of any virtual currency-focused market utility or participant, regardless of size, exists. Virtual currency markets currently operate entirely outside of the regulated banking system, and so are not subject to prudential regulation by financial institution regulators.³³ However, as virtual currency transaction volume increases, the impact on the overall U.S. economy of the failure of a major exchange or wallet operator will become more significant.

Risky behavior and insufficient controls already have resulted in major disruptions to the virtual currency economy, and millions of dollars in losses to consumers that likely would have been avoided were certain virtual currency actors subject to safety and soundness oversight. For example, Mt. Gox – formerly the largest Bitcoin exchange by volume – failed in early 2014, resulting in the loss of approximately 7% of all Bitcoins in circulation. The market value of Bitcoins lost in the Mt. Gox failure was estimated to be between \$450 million USD and \$500 million USD as of the date of the exchange’s Japanese bankruptcy filing.³⁴ Although the cause of

³¹ See, e.g., Abrams, R., et al., “Loss of Faith was Death Knell for Mt. Gox,” *The New York Times* (Feb. 28, 2014).

³² For purposes of Title VIII, a “financial institution” includes “any company engaged in activities that are financial in nature or incidental to a financial activity” as described in Section 4 of the Bank Holding Company Act of 1956. Dodd-Frank § 803(5)(A)(x). The Bank Holding Company Act vests the Board with authority to designate activities that are “financial in nature or incidental to such financial activity,” and the Board has undertaken this authority through Regulation Y. Regulation Y defines such activities broadly – perhaps broadly enough to include certain virtual currency industry participants.

³³ See, e.g., Testimony of Federal Reserve Chair Janet Yellen to the Senate Banking Committee on February 27, 2014, stating that “the Federal Reserve simply does not have the authority to supervise or regulate Bitcoin in any way.” It should be noted that Bitcoins are also exchanged for fiat currency in loosely organized face-to-face meetups and open-outcry exchanges. With respect to such exchanges, it is unlikely that there is any entity to regulate.

³⁴ Takemoto, Y. et al, “Mt. Gox Files for Bankruptcy; Hit with Lawsuit,” *Reuters* (Feb. 28, 2014)

the Mt. Gox failure is not yet entirely clear, it appears to be due in part to repeated, undetected (or at the least, undisclosed) security breaches and the failure of internal accounting controls, both issues that would be within the scope of regulatory examination authority or oversight were Mt. Gox a regulated financial institution or designated as systemically important. A crisis strategy plan allegedly prepared by Mt. Gox staff and widely circulated on the internet included as a possible response an appeal by Mt. Gox for donations of Bitcoin to be used to repay those whose holdings were wiped out.³⁵ In the absence of a regulatory regime to make accountholders whole, voluntary measures are the only option in the case of failure of or theft from a Bitcoin exchange or wallet.³⁶

IV. Securities and Commodities Regulation Issues

a. Regulation of Virtual Currencies under the Securities and/or Commodities Laws

U.S. securities and commodities regulators have not yet determined which, if any, federal financial regulatory scheme should apply to virtual currencies, such as Bitcoin. There are several aspects of virtual currency trading and different types of entities involved in the creation and trading of virtual currencies that could be subject to appropriate regulation, particularly with a view to protecting investors in such products. In order to determine which regulatory scheme best fits the virtual currency trading model, however, one needs to determine whether a virtual currency itself is a security, a commodity, a currency, or none of the above. Once that determination is made, the resulting regulatory scheme can be applied, perhaps with some appropriate modifications, to the persons creating, effecting trades for their own and others' accounts, operating exchanges, and clearing and settling trades in those virtual currencies.

i. Regulation of Virtual Currency Under the Federal Securities Laws

The U.S. Securities and Exchange Commission ("SEC") has made no official pronouncement as to what virtual currency (as a product) is from a securities law perspective and has adopted no rules relating to the trading of virtual currency. Nevertheless, the SEC is currently addressing that issue in connection with its enforcement program and in connection with the proposed creation of listed securities based on Bitcoin.

³⁵ The events immediately preceding the Mt. Gox collapse are described in a variety of media reports, including "Bitcoin Mass Hysteria: The Disaster that Brought Down Mt. Gox," by Forbes.com's John Kelleher (Feb. 28, 2014), available at <http://www.forbes.com/sites/investopedia/2014/02/28/bitcoin-mass-hysteria-the-disaster-that-brought-down-mt-gox/>. Kelleher's account contains a quotation from the CEO of Mt. Gox attesting to the general accuracy of the crisis strategy draft, as well as a link to the leaked document.

³⁶ It is unlikely that exchanges that accept and maintain fiat currency accounts would be deemed to be taking deposits for purposes of U.S. banking laws, as (i) most exchanges that engage in such activity use a bank custodian model and (ii) most virtual currency exchanges are either located outside the U.S. and/or have established banking relationships with non-U.S. depository institutions.

A. Regulation of Virtual Currency as a Security

Section 3(a)(10) of the Securities Exchange Act of 1934 (the “Exchange Act”) defines a security as including, among other things, notes, investment contracts, and certificates of deposit for securities, but it explicitly excludes “currency” from the definition of a security. If a Bitcoin is not a “currency” as that term is intended to be used in connection with this provision,³⁷ it is possible that a Bitcoin could be a security as an “investment contract” under the factors set forth by the Supreme Court in SEC v. Howey Co.³⁸ and its progeny.³⁹ Basically, to be an “investment contract” under the Howey Test, there must be (i) an investment of money, (ii) in a common enterprise, (iii) with an expectation of profit, (iv) from the essential managerial efforts of others. An argument can be made that a purchase or sale of a unit of virtual currency constitutes the purchase or sale of a security under the Howey Test due to the structure of the virtual currency market. However, some of the factors in the Howey Test may be difficult to establish for Bitcoin, since, for example, there is no identifiable promoter or issuer of Bitcoin,⁴⁰ and because Bitcoin may be used to purchase goods and services such that a particular purchase of a Bitcoin may not be made with an expectation of profit.

In 2013 the SEC brought a fraud action against Bitcoin Savings & Trust (BTCST) and its president arising out of an alleged Ponzi scheme in which investors gave Bitcoins to BTCST to trade on their behalf, in exchange for a purported 7% weekly return.⁴¹ The defendants argued that, because they dealt with Bitcoins only, and investors provided them with their Bitcoins, there was never an investment of *money* in BTCST, so there was no investment contract present under the Howey Test. On the other hand, the SEC argued that investments of Bitcoins into BTCST were “both investment contracts and notes, and thus, are securities.” The judge in that case agreed with the SEC, finding that “Bitcoin is a currency or form of money, and investors wishing to invest in BTCST provided an investment of money” under the Howey Test. Notably, however, the court in this case did not find that a Bitcoin itself is a security.

Even though it is possible that a Bitcoin could be found to be a security, that conclusion may not be a practical one if Bitcoin and other virtual currencies are going to become more broadly used as a means of payment for goods and services. Indeed, some international regulators have found that virtual currencies constitute either commodities or a form of currency, and FinCEN has determined that sellers/transferors/converters of virtual currency must register as money services businesses, but no U.S. or international regulator has

³⁷ As already noted, some countries have rejected the notion that Bitcoin is a currency, on the basis that there is no “issuer” backing the product.

³⁸ 328 U.S. 293 (1946).

³⁹ These factors are referred to herein as the “Howey Test”.

⁴⁰ For instance, a team of core developers, led by developers allegedly appointed by Satoshi Nakamoto, has a leadership role in proposing changes to the Bitcoin protocol. However, that team has no authority to force the Bitcoin community to accept such changes. Bitcoin transactions occur over a peer-to-peer network, but the actual identities of the persons or entities who operate the nodes that constitute the network may not be readily identifiable.

⁴¹ See Magistrate’s August 6, 2013 memorandum decision in SEC v. Trendon T. Shavers and Bitcoin Savings and Trust, Case 4:13-cv-00416-RC-ALM (E.D. Tex.).

determined that a unit of virtual currency is a security. Nevertheless, the SEC does not need to find that a unit of virtual currency itself is a security to exert some authority in the virtual currency arena. In fact, as discussed in the following section, under the anti-fraud provisions of the federal securities laws, the SEC currently has jurisdiction over investment programs involving Bitcoin and other virtual currencies.

B. Regulation of Investment Programs in Virtual Currency

Even if a unit of virtual currency itself is not a security, an investment in a virtual currency or in a program involving virtual currency may constitute a security as an “investment contract” under the Howey Test. In this regard, while various depository institution products, such as certificates of deposit, generally are not securities, investment programs involving such products can involve the purchase or sale of a security.⁴² The same principle would apply to virtual currency.

The SEC currently has the ability to bring enforcement actions against persons for violating the securities laws in connection with investments in virtual currencies, and, in fact, already has done so. As noted above, the SEC brought an enforcement action against a purported Bitcoin trading operation and its founder for defrauding investors in a Ponzi scheme involving purported investments in Bitcoins. In that action, the court found that internet-traded Bitcoins are a form of currency and their investment with the trading entity was subject to federal securities laws. Apparently, the SEC views virtual currency trading schemes as the next generation of “prime bank” schemes, and has even issued an Investor Alert warning investors about Ponzi schemes involving virtual currency.⁴³

If a virtual currency investment program is deemed a security, then persons who facilitate such investments could be required to register as securities broker-dealers under the Exchange Act.⁴⁴ As registered broker-dealers (and/or registered associated persons of registered broker-dealers), these securities intermediaries would be subject to all applicable Exchange Act rules and regulations and the rules of any self-regulatory organizations of which they are members, including sales practice and other conduct rules, net capital requirements, segregation of customer funds and securities from proprietary funds and securities, various disclosure rules, and many, many more. If these persons are exempt from federal broker-dealer registration, they may be subject to applicable state registration.⁴⁵

⁴² See Gary Plastic Packaging Corp. v. Merrill Lynch, Pierce, Fenner & Smith, Inc., 756 F.2d 230 (2d Cir. 1985) (Brokerage firm’s investment program in which firm would screen and offer negotiable, insured and liquid CDs for customers, monitor the creditworthiness of the issuing banks, and maintain a secondary market for the CDs constituted a security).

⁴³ See SEC Office of Investor Education and Advocacy, “Investor Alert: Ponzi Schemes Using Virtual Currencies” (SEC Pub. No. 153 (7/13)).

⁴⁴ See Exchange Act §15(a). This also could affect some entities operating as virtual currency exchanges, but which actually may be operating more like securities brokers than exchanges.

⁴⁵ For example, a broker whose business is exclusively intrastate is exempted from federal registration, but may be subject to registration in the state in which it is located.

C. Regulation of Virtual Currency-based Derivative Securities

Several entities are either offering, or seeking to offer, investment products based on virtual currencies to investors in the U.S. If these derivative products are recognized as securities, they would be regulated as such, and their sponsors/advisors/sellers also would be regulated under applicable existing securities laws and rules.

For example, the Bitcoin Investment Trust (“BIT”), launched in 2013, is a private, open-ended trust that is invested exclusively in Bitcoins and derives its value solely from the price of Bitcoins.⁴⁶ According to its marketing materials, investors in BIT gain exposure to Bitcoin price movements without the challenges of buying, storing and safekeeping Bitcoins. BIT is sponsored by Alternative Currency Asset Management, a wholly-owned subsidiary of SecondMarket Holdings, Inc. and an affiliate of SecondMarket, Inc.⁴⁷ Just like any other interests in a private fund, shares in BIT are considered securities, and are regulated as such.

Similarly, the SEC is currently considering the registration statement for the Winklevoss Bitcoin Trust (a proposed Bitcoin-based exchange-traded fund (“ETF”), the shares of which would, if approved, trade on a national securities exchange.⁴⁸ Among the complex issues to be considered by the SEC in connection with the proposed ETF are whether the proposed ETF shares should be treated as securities and whether the trading of Bitcoin-based instruments on a securities exchange poses additional risk to the national clearance and settlement system. As with interests in private funds investing in Bitcoins, if these virtual currency-based derivative products are found to be securities, they should be treated as such from a regulatory standpoint, no matter how U.S. regulators ultimately decide to categorize the underlying virtual currency.

ii. Regulation of Virtual Currencies as Commodities

Section 1a(9) of the Commodity Exchange Act broadly defines a “commodity” as including, among other things, all “goods and articles, ... and all services, rights, and interests ... in which contracts for future delivery are presently or in the future dealt in.” Units of virtual currency arguably meet this definition.

Some regulators and participants in the virtual currency arena treat virtual currencies, including Bitcoins, as commodities. For example, Finnish regulators concluded that units of virtual currency are commodities, not currencies or payment instruments under Finnish law,

⁴⁶ See <http://www.bitcointrust.co/>.

⁴⁷ In fact, in early March of 2014, SecondMarket’s board of trustees approved a proposal to spin off BIT and commit \$20 million in cash to launch a New York-based regulated Bitcoin exchange. See Brokaw, A., “SecondMarket Moves Forward with Bitcoin Exchange, Securing Board Approval,” Minyanville.com (Mar. 5, 2014). Media reports further indicate that SecondMarket wants this new company to act like a self-regulatory organization (similar to the Financial Industry Regulatory Authority, Inc. (“FINRA”), the only registered national securities association). See Wile, R., “The First Fully American Bitcoin Exchange Network is Now in the Works,” Business Insider.com (Feb. 25, 2014).

⁴⁸ The original registration statement was filed in July 2013, and has been amended twice, first in October 2013 and more recently on February 19, 2014.

because there is no responsible issuer for the instrument.⁴⁹ Similarly, in its registration statement for its proposed Bitcoin-based ETF (not yet approved by the SEC and discussed above), the Winklevoss Bitcoin Trust takes the position that the Bitcoins underlying the ETF are commodities. Furthermore, Russia's apparently unregulated ICBIT exchange trades Bitcoin futures contracts in the same way that it trades other commodity futures. Its trades are U.S. dollar-denominated, and traders apparently can exchange Bitcoins into dollars or other commodities, like gold, through the exchange. U.S. regulators, including the Commodity Futures Trading Commission ("CFTC"), however, have not yet determined whether units of virtual currency can be considered commodities.

If units of virtual currency are deemed to be a commodity, the purchase or sale of futures and options on units of virtual currency in the U.S. would most likely need to be conducted on a registered futures exchange, and entities trading them in the U.S. likely also would need to register in some capacity with the CFTC and/or the National Futures Association.⁵⁰ Such registration would subject participants in the market for these products to the myriad laws and regulations applicable to commodities pool operators, commodities trading advisers, introducing brokers, and the like, and investors in those products would have some regulatory protections. In fact, in the wake of the Mt. Gox bankruptcy, the CFTC is looking into whether it should regulate Bitcoin exchanges in the U.S. as commodities exchanges.⁵¹

If, on the other hand, it is determined by the CFTC that units of virtual currency are not a commodity, but instead constitute a currency or something else, transactions involving futures and options on units of virtual currency would not be subject to CFTC jurisdiction. In that event, unless another regulatory scheme applied (e.g., the federal securities laws or applicable state regulation), virtual currency exchanges could continue to operate in a largely unregulated manner, as some foreign exchange trading platforms do today.

b. Possible Regulation of Virtual Currency Exchanges

i. Registration of Virtual Currency Exchanges

As noted, virtual currency exchanges exist in numerous countries around the world, and they are largely unregulated. In the U.S., existing virtual currency trading platforms, if they are regulated at all, may be subject (often voluntarily) to a variety of different regulations. For instance, CampBx, an Atlanta-based Bitcoin trading platform, purports to maintain compliance with the State of Georgia – Department of Banking and Finance and Department of Treasury regulations. Similarly, CoinX, an Atlanta-based digital currency exchange through which customers can buy, sell and trade Bitcoins (and which supports conversions of Bitcoins into U.S. dollars), is registered with FinCEN, claims to comply with BSA requirements, and holds money transmitter licenses in multiple states. SecondMarket has asserted that its planned New York-

⁴⁹ Norway also has deemed virtual currency a non-currency.

⁵⁰ Even if Bitcoin is deemed a commodity, however, the CFTC would have jurisdiction only over the trading of Bitcoin derivatives, and not transactions in Bitcoins themselves.

⁵¹ See, "US watchdog CFTC considering Bitcoin regulation," Reuters (Mar. 12, 2014), *available at* <http://gadgets.ndtv.com/internet/news/us-watchdog-cftc-considering-bitcoin-regulation-494570>.

based virtual currency exchange, referenced above, will be regulated, most likely by the New York State Department of Financial Services, which, as noted above, recently announced that it will accept proposals from firms seeking to set up virtual currency exchanges and will work with the firms to ensure that they adhere to cybersecurity and anti-money laundering rules.⁵² Likewise, Coinsetter, a New York-based trading platform for Bitcoins that currently appears to be unregulated, likely would become subject to any regulatory scheme New York adopts.⁵³

In light of the increased interest in and use of virtual currency for both payment transactions and for investment purposes, the volatility in the market for virtual currency (particularly Bitcoin), and recent events that demonstrate the need to protect market participants against unauthorized access to electronic systems and accounts, subjecting virtual currency exchanges to some form of registration requirement is advisable. In whatever form it takes, a virtual currency exchange registration system should be designed to bring more stability and more customer protections to virtual currency-related transactions than exists today.

As noted above, if the product being traded is determined to be a security or a commodity future or option, the existing registration regimes under the Securities Exchange Act or the Commodities Exchange Act would apply to virtual currency exchanges trading those products. The costs and other burdens relating to registration as a securities or commodities exchange under existing laws and rules, however, may negatively affect the willingness of virtual currency platform operators to continue to trade in virtual currency products and the willingness of miners to create new virtual currency units. For this reason, even if the virtual currency products traded are deemed to be securities or commodities, it may nevertheless be advisable to create a new registration regime for virtual currency exchanges, under the jurisdiction of the SEC or CFTC, as applicable, that is less burdensome than full registration but that still provides important investor protections.⁵⁴

⁵² See, e.g., Zeitlin, B., “New York State Opens Up to Bitcoin Exchanges,” *Buzzfeed Business* (Mar. 11, 2014).

⁵³ Interestingly, many virtual currency exchanges do not appear to limit their activities to those typically performed by exchanges. Instead, they may not only provide a platform for trading virtual currency, but also may provide custodial services to traders and customers, act as transfer agent in recording the transfer of ownership of virtual currency (such as recording a transfer of a particular Bitcoin through the blockchain), and clear and settle virtual currency trades effected through their systems. As a result, current regulatory regimes for securities and commodities exchanges, in which different types of registered entities perform these various functions, may not fit well to the business of virtual currency exchanges. On the other hand, it may be advisable to limit the types of activities and functions such exchanges can perform. For instance, one existing unregistered virtual currency exchange advertises that it will be offering customers the ability to earn interest on the Bitcoins those customers deposit with the exchange at an attractive rate. In this regard, the exchange could be seen as offering a security (an investment contract) to its customers. This type of activity could be more appropriately regulated through a broker-type registration regime (whether securities or commodities), which is more heavily focused on customer protection than are regulations relating to traditional exchanges.

⁵⁴ As an example, the SEC has devised a registration regime for alternative trading systems (ATSs) that serves as an alternative to registration as a national securities exchange. See Regulation ATS, 17 C.F.R. §§ 242.300-303.

On the other hand, if the product being traded is neither a commodity future nor a security, neither of these existing federal regulatory regimes would apply. In that case, a new, uniform or coordinated registration regime, perhaps borrowing from the existing regulatory regimes in a way that would not unnecessarily stifle innovation with respect to virtual currencies or their legitimate uses, would need to be devised and implemented. As noted above, financial regulators in Texas, New York, and Washington have all stated that entities that facilitate certain transactions in virtual currency may be subject to state licensing or registration requirements. Instead of having individual states create separate and potentially divergent regulatory regimes for virtual currency exchanges, however, the development of a single, uniform national standard that can be adopted and implemented by the various states would be more practical, considering the increasing popularity of transactions involving virtual currency, and would preclude forum-shopping.⁵⁵ Furthermore, regulating virtual currency exchanges also could promote more efficient clearing of virtual currency transactions (although in light of current events, we recognize that it may also result in an increase in risk to the clearance and settlement system if these instruments are brought within it).

Uniform registration of virtual currency exchanges, with all it would entail, could significantly reduce investor risk. States could, for example, impose (i) rules for trading on virtual currency exchanges, (ii) conduct rules on market participants (including the preclusion of so-called “bad actors” from the industry) and mandatory risk disclosures (discussed below), (iii) limitations on the amount of leverage that can be used in connection with virtual currency transactions, and (iv) capital requirements on virtual currency brokers and dealers, as well as other important investor protections. Importantly, registration could impose requirements for the protection of customer assets and financial information, and requirements regarding appropriate responses to actual and attempted systems and data breaches.⁵⁶ Regulators also should consider whether operators of these exchanges should be required to acquire fidelity bonds (particularly if they are custodian to their customers’ assets) or otherwise develop some type of insurance fund to protect customers in case of the exchange’s failure.

If state-level regulation ultimately becomes the primary tool for protecting investors and virtual currency accountholders, facilitating information-sharing by state regulators and access to information by consumers and investors should also be a key consideration. A large number of U.S. states currently participate in the Nationwide Mortgage Licensing System (“NMLS”), a web-based utility operated by the Conference of State Bank Supervisors’ State Regulatory Registry, through which participating states and the federal government administer certain individual and corporate mortgage lending licenses. The functionality available within NMLS has recently been expanded to permit states to utilize the system to administer licensing of payday lenders, money transmitters, check cashers, and other types of consumer financial service providers.⁵⁷ NMLS provides access to both consumers and regulators, enabling

⁵⁵ For instance, in the absence of a uniform standard, virtual currency exchanges may choose to locate in jurisdictions imposing the least restrictive registration regime.

⁵⁶ As an example, see the SEC’s proposed Regulation Systems Compliance and Integrity (“Regulation SCI”), set forth in SEC Release No. 34-69077 (Mar. 8, 2014), 78 FR 18084 (Mar. 25, 2013).

⁵⁷ The State Regulatory Registry’s 2012 Annual Report provides additional information regarding NMLS and the expansion of the system to incorporate non-mortgage license types. See http://www.csbs.org/srr/Documents/SRR_2012_AR.pdf.

regulators easily to verify an entity's status in other states and consumers to see that the entity with which they are doing business is properly registered. The existing NMLS infrastructure could be expanded to include licensure of virtual currency market participants, thereby providing a useful tool for regulators and consumers alike.

ii. Customer Protection in the Event of Failure of Virtual Currency Exchanges

As noted above, virtual currency exchanges often do not limit their activities to traditional exchange functions. For example, users that regularly purchase virtual currency or that speculate in virtual currency often keep fiat currency in an account held by a virtual currency exchange. The exchange may also offer wallet functionality and store private keys. Finally, in some investment-oriented exchanges, the exchange remains the record owner of the purchased virtual currency. As a result, the failure of an exchange or the bad acts of an exchange's employees (or even third parties) can result in the loss of fiat currency held by the exchange and the loss of access to virtual currency purchased through the exchange. This possibility has been borne out by recent events.

In the case of an exchange failure or other event resulting in customer losses, no mechanism currently exists to make the exchange's customers whole, other than litigation. Unlike bank deposit insurance provided by the FDIC in case of a bank failure or insurance provided by the Securities Investor Protection Corporation ("SIPC") to brokerage customers in case of the collapse of a brokerage firm, there is no insurance fund that can be used to help protect Bitcoin exchange customers from any sort of loss.⁵⁸ Although the virtual currency community has occasionally made efforts to make users whole in the event that an exchange fails, such efforts are irregular and voluntary.

While virtual currency market participants may eventually develop an insurer similar to the FDIC or SIPC, or may even be able to obtain insurance coverage from private insurers in a more de-centralized fashion, in the absence of a meaningful insurance fund, regulators should ensure that consumers and others engaging in transactions on virtual currency exchanges receive adequate warnings of the risks involved in that activity (e.g., that trading in virtual currency products on an exchange is unregulated and risky, and may result in the loss of the consumer's investment), similar to disclosures required for penny stocks⁵⁹ or even the Surgeon General's warning regarding use of tobacco products. As became evident after the demise of Mt. Gox, many virtual currency market participants were not aware that the virtual currency

⁵⁸ SIPC, a non-profit corporation in which most registered brokers must be members, is funded by assessments based on the net operating revenue of its members. SIPC maintains a fund to provide compensation (up to certain limits) to investors whose cash and securities are lost when a broker fails and has authority to manage the transfer of accounts of a failing broker to another institution. SIPC only handles liquidations, however, and does not regulate, investigate or discipline its member broker-dealers. The success of SIPC is grounded in its underlying statutory mandate and ability to borrow against the U.S. Treasury in the event that the fund is exhausted. In addition, SIPC is subject to SEC oversight. Absent that regulatory support, the strength of any SIPC-type organization for virtual currency market participants is likely to be limited. In any event, the development of such an insurer for virtual currency transactions is no small undertaking and, even if Congress and federal regulators decide to move in that direction, its creation and implementation would take a considerable amount of time.

⁵⁹ See, e.g., Schedule 15G under the Exchange Act.

market was largely unregulated, and may have assumed that Mt. Gox was subject to the type of insurance requirements or safety and soundness oversight applied to traditional financial system participants. A mandatory risk disclosure requirement would enable consumers to determine for themselves whether participating in the virtual currency market is appropriate given their personal circumstances.

CONCLUSION

The growth of virtual currency systems is expanding consumers' choice of payment methods and fostering national and international investment in the development of new payment systems technologies. However, holding or engaging in transactions in convertible virtual currencies, such as Bitcoin, involves a variety of significant risks. Virtual currency valuations historically have been highly volatile, providers of virtual currency services (such as wallets and exchanges) are not required to make disclosures about the risks to holding or transacting in virtual currencies, and the virtual currency marketplace is not currently subject to any of the consumer or investor protections that apply to similar transactions or investments involving other payment or asset types.

This white paper has described certain of the risks faced by consumers and others that hold or transact in convertible virtual currencies, and has evaluated certain ways in which U.S. regulatory authorities may consider regulating virtual currency transactions, products and marketplace participants based on their functional similarity to other transactions, products and marketplace participants that are regulated. The failure of Mt. Gox earlier this year, and the value that may have been irretrievably lost in connection with that failure, serves as a perfect backdrop for this white paper. The aggregate number and value of virtual currency transactions and holdings in the U.S. is small relative to most other regulated payments transactions and trading markets. However, the emerging nature of the virtual currency marketplace creates an opportunity to develop and implement a regulatory framework to mitigate risk to consumers and others without unduly burdening innovation and while the structure of the marketplace remains malleable.

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