A Medium of Exchange for an Internet Age: How to Regulate Bitcoin for the Growth of E-Commerce

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INTRODUCTION

Bitcoin has taken the Internet economy by storm and continues to build a value base capable of competing on a global scale. Both governments and corporate organizations have noticed its growth and potential. As Bitcoin use continues to grow, economic and regulatory implications will intertwine, eventually determining the fate of this novel system of exchange. This Note describes the current economic landscape of Bitcoin and explains the regulatory steps needed to ensure Bitcoin sustains long-term e-commerce benefits and avoids being overtaken in the short-term by speculative investment.

Part I explains the concept of Bitcoin, including its origins and a broad view of the global Bitcoin system. Part II describes the economic implications of Bitcoin, explains its benefits, and weighs them against its disadvantages in hopes of shedding light on its future viability within e-commerce. The economic and technological viability of this novel commercial entity must be understood in order to determine what regulatory policies should follow. Part III of this Note examines the current regulatory landscape and applies it to Bitcoin, explaining how future regulation should be used to allow for its technological growth, while preventing short-term speculation from overshadowing its value as a medium of exchange. Part IV concludes that the Bitcoin system itself does not create criminal or financial risk and therefore only specific use demands regulation. This will ensure consumer safety and the improved longevity of this novel technology, one that possesses the potential to rival only the Internet in its infancy.

I. BITCOIN

Bitcoin is a decentralized, partially anonymous digital Internet currency that is backed by peer-to-peer networking and cryptography to maintain its integrity.[1] A

Bitcoin holds no intrinsic value yet continues to be traded worldwide for great worth.[2] The total value of Bitcoins in circulation today tops $4.5 billion, with each unit worth between $300 and $400.[3] This immense value is held in trust between users involved in each peer-to-peer Bitcoin transaction.[4] In 2008, Satoshi Nakamoto[5] created this private crypto-currency, to be exchanged over the Internet through the use of a peer-to-peer network.[6] Bitcoin's value is created through a supply- and-demand model, or, more simply, what users are willing to give in exchange for each unit.[7] The driving force behind the creation of Bitcoin was an attempt to remove third-party financial institutions in hopes of decreasing transaction costs and inflation risks.[8] Whether Bitcoin can successfully carry out all of its creator's original intentions remains to be seen.

A.   A Need for Bitcoin

The Bitcoin system was envisioned as a way to circumvent the issues created by third-party intermediaries when transacting online, including the inability to transact small value transactions.[9] It is meant to be "an electronic payment system based on cryptographic proof instead of trust, allowing two parties to transact directly with each other without the need for a trusted third-party."[10]

Internet transactions using the U.S. dollar can only be completed with the help of trusted third-party financial institutions, whether they take place through the use of a credit card or an online payment organization like PayPal.[11] This third-party

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[1] Reuben Grinberg, *Bitcoin: An Innovative Alternative Digital Currency*, 4 HASTINGS SCI. & TECH. L.J. 159, 161 (2012).

[2] Nikolei M. Kaplanov, *Nerdy Money: Bitcoin, the Private Digital Currency, and the Case Against Its Regulation*, 25 LOY. CONSUMER L. REV. 111, 113 (2012).

[3] *Bitcoin Charts*, BLOCKCHAIN (last visited Oct. 12, 2014), https://blockchain.info/charts.

[4] Kaplanov, *supra* note 2, at 113.

[5] "Satoshi Nakamoto" is a pseudonym used by the creator of Bitcoin, whose real identity is still unknown. *See* Kaplanov, *supra* note 2.

[6] *Id.*

[7] *Id.* at 115.

[8] Joshua J. Doguet, *The Nature of the Form: Legal and Regulatory Issues Surrounding the Bitcoin Digital Currency System*, 73 LA. L. REV. 1119, 1122 (2013).

[9] Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, BITCOIN (Oct. 31, 2008), https://bitcoin.org/bitcoin.pdf.

[10] *Id.*

[11] Tom Simonite, *What Bitcoin Is, and Why It Matters*, MIT TECHNOLOGY REVIEW (May 25, 2011), http://www.technologyreview.com/computing/37619.

system has flaws that will prevent future growth of e-commerce.[12] Disputes arising from third-party transactions usually lead to mediation or arbitration, increasing transaction costs and limiting the minimal practical size of transactions.[13] Moreover, a broader cost is seen in consumers' ability to reverse payments to service providers long after such service has been rendered.[14] This creates a need for a more direct way to contract, reducing the cost borne by sellers and buyers.[15]

A secondary cost of transacting with a government backed fiat currency,[16] such as the dollar, is the risk that inflation will decrease the value of held currency. The Federal Reserve is the United States' central bank and is in control of its money supply.[17] Among other objectives, the Federal Reserve works to decrease inflation, reduce unemployment, and redistribute wealth throughout the country.[18] However, conflicting goals can lead to economic instability. The government's monopoly over money can lead to the improper use of discretionary authority.[19] Since the Federal Reserve is under the democratic influence of the U.S. political system, its monetary decisions can be swayed by lobbyists, leading to a continuing increase in the supply.[20] Famous economist Milton Freidman stated a desire to see the Federal Reserve replaced by an automated system, one that would increase money supply steadily in hopes of putting a lid on inflation and placing spending and investment decisions on a surer footing.[21] As will be discussed below, the idea

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[12] Nakamoto, *supra* note 9.

[13] *Id.* (stating that high transaction costs cut off the possibility for small casual transactions, as well as a broader loss of ability to make non-reversible payments for non-reversible services).

[14] *Id.*

[15] Doguet, *supra* note 8, at 1122.

[16] *Definition of Fiat Money*, INVESTOPEDIA (last viewed Feb. 2, 2014), http://www.investopedia .com/terms/f/fiatmoney.asp (defining "fiat money" as currency that a government has declared to be legal tender, but is not backed by a physical commodity. The value of fiat money is derived from the relationship between supply and demand rather than the value of the material that the money is made of.).

[17] Michael D. Bordo, *A Brief History of Central Banks*, FED. RESERVE BANK OF CLEVELAND (Dec. 1, 2007), http://www.clevelandfed.org/research/commentary/2007/12.cfm.

[18] Doguet, *supra* note 8, at 1212 (History shows governments would rather finance their expenditures through printing more money, instead of using other avenues like raising taxes. Central banks often rely on economic indicators and principles to guide policy decisions; misinterpretations or rigid reliance on either of these can lead to negative consequences.).

[19] Grinberg, *supra* note 1, at 174.

[20] *Id.* at 175.

[21] J.P., *Virtual Currency: Bits and Bob*, THE ECONOMIST (June 13, 2011, 8:30 PM), http://www .economist.com/blogs/babbage/2011/06/virtual-currency (explaining that by creating greater consistency

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of an automated and steadily increasing monetary supply, one capable of protecting against the risk of inflation, is at the heart of the Bitcoin economy.

B. The Magic of Bitcoin

Established to more efficiently and securely exchange money electronically, Nakamoto released his software in 2009 for use across the Internet.[22] Bitcoin removes the centralized third-party from Internet transactions by posting all transactions onto a public ledger, allowing every Bitcoin user to follow the value being traded.[23] Each transaction is secured through encrypted keys that identify the parties and the Bitcoin value being traded.[24] The establishment of a public ledger paired with the encrypted key form of transaction has made Nakamoto's idea of a decentralized online currency viable.

Similar to MP3 music files held on an individual's computer, Bitcoins can be copied and transferred between parties as easily as sending an email.[25] After a Bitcoin is sent, the original copy is left on the sender's hard drive, and can theoretically be reused in a second transaction even though the Bitcoin's actual value has already been transferred.[26] Dissimilarly, in the case of credit transactions, third-parties are relied on to verify and approve the transaction to prevent available credit from being used multiple times.[27] This problem, known as "double spending," must be overcome so that the party receiving a Bitcoin payment can verify that the previous Bitcoin owner did not double spend.[28]

As a solution, Bitcoin replaces the central intermediary with a peer-to-peer network that is used to verify all transactions made within the system.[29] Every computer connected to the network has a copy of each Bitcoin transaction on a ledger, or what is known as the Blockchain.[30] As transactions occur and value

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in the value of money by having a steady inflation rate would allow investors to have control in their decision making leading to greater confidence and increased spending).

[22] Simonite, *supra* note 11.

[23] Jerry Brito & Andrea Castillo, *Bitcoin: A Primer for Policymakers*, MERCANTUS CENTER, GEORGE MASON UNIVERSITY (2013), http://mercatus.org/sites/default/files/Brito_BitcoinPrimer_v1.3.pdf.

[24] Kaplanov, *supra* note 2, at 117.

[25] *Id.* at 116.

[26] Brito & Castillo, *supra* note 23, at 5.

[27] J.P., *supra* note 21.

[28] Nakamoto, *supra* note 9, at 2.

[29] *Id.*

[30] Brito & Catillo, *supra* note 23, at 4.

changes hands, a value path is created which can be followed to verify each new transaction.[31] A Satoshi is the smallest unit of a Bitcoin, and the ledger records the path of every Satoshi from the original owner to its current owner.[32] At the moment a transaction occurs it is published to the Blockchain and time-stamped, therefore working as a public ledger for all transactions across the network.[33] If Bitcoins are used more than once by the same party, the transaction with the earlier time-stamp is the valid transaction, and all subsequent transactions made by that party, using the same Bitcoin or Satoshi, are considered invalid.[34]

A Bitcoin transaction is carried out between two unfamiliar parties by using a pair of mathematically linked keys that are randomly generated for each individual transaction.[35] When two parties agree to a transaction, a pair of keys is generated.[36] The first key is known as the recipient's Public Key, which is simply the name of the file that contains the transaction amount.[37] The Public Key is published system-wide, allowing the public to see that one party is sending value to another party, without revealing information about the parties' identities.[38] The transaction is confirmed by the sender using his Private Key, which is only located on the sender's hard drive, and, when linked to its matching Public Key, is the equivalent of the sender signing over the Bitcoin value to the receiver.[39] The combination of the Public and Private Key cryptography, used to confirm the party identities, and the peer-to-peer network, used to verify the validity of the Bitcoin transfer, works to successfully remove the need for a third-party institution when transacting online.[40]

As Bitcoin has become more popular, the number of transactions has increased and the calculations needed to verify each transaction has become more

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[31] *See* Nakamoto, *supra* note 9, at 2.

[32] Bitcoin Stack Exchange, *What is a 'Satochi'?* (Mar. 11, 2013), http://bitcoin.stackexchange .com/questions/114/what-is-a-satoshi (defining Satoshi as the smallest fraction of a Bitcoin that can currently be sent: 0.00000001 BTC. In the future the protocol may be updated to allow further subdivisions should they be needed.).

[33] *Id.*; *see also* Doguet, *supra* note 8, at 1125.

[34] *Id.*

[35] Simonite, *supra* note 11.

[36] *Id.*

[37] *Id.*

[38] Nakamoto, *supra* note 9, at 6.

[39] Doguet, *supra* note 8, at 1126.

[40] *See generally* Nakamoto, *supra* note 9.

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complex and numerous.[41] This burden is overcome by the combined computing power of users known as "miners."[42] Miners are Bitcoin users who allow the network to use their computers' processing power to perform the calculations needed to verify the individual ledger transactions, continuing to build the chain.[43] The system incentivizes this action by compensating miners with the new coins periodically being added to the Bitcoin economy.[44] As a miner's computer completes certain calculations on behalf of the network to verify the movement of Bitcoins, they are paid in new Bitcoin value continuously created by the system at a constant rate.[45] This process allows the system to stay current by ensuring transactions are verified continuously as they are posted.[46]

C. *Bitcoin Exchanges*

Initially, only miners who were willing to bear the speculative risk, and saw profit through an easy mining process and simpler Blockchain transactions, could acquire Bitcoins.[47] As more transactions occur over time the Blockchain grows, and as miners compete to process an increasingly sophisticated chain of transactions mining requires greater computing power.[48] The barriers of entry to the mining field are now so great that people have turned instead to online exchanges where they can transfer conventional money, such as the dollar, in exchange for Bitcoins.[49] On a basic level, a Bitcoin exchange is a way to coordinate a traditional Bitcoin peer-to-peer transaction, where one party buys the other party's dollars

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[41] J.P., *supra* note 21.

[42] Brito & Castillo, *supra* note 23, at 5 n.11 (stating that miners tended to be ordinary computer enthusiasts, but as mining became more difficult, due to increasing transaction amounts, the activity became somewhat professionalized).

[43] *Id.*

[44] *Id* at 4.

[45] Doguet, *supra* note 8, at 1127 (explaining Bitcoin users are encouraged to include in their payments a minimal, self-imposed transaction fee, which operates to prioritize it in the verification process by allocating the fee to the miner who verifies the transaction).

[46] Nakamoto, *supra* note 9, at 4.

[47] Morgan E. Peck, *Bitcoin: The Cryptoanarchists' Answer to Cash*, IEEE SPECTRUM (May 30, 2012), http://spectrum.ieee.org/computing/software/bitcoin-the-cryptoanarchists-answer-to-cash.

[48] *Id.*

[49] CRAIG K. ELWELL, M. MAUREEN MURPHY & MICHAEL V. SEITZINGER, CONGRESSIONAL RESEARCH SERVICE, BITCOIN: QUESTIONS, ANSWERS, AND ANALYSIS OF LEGAL ISSUES, 2 (Dec. 20, 2013), http://www.fas.org/sgp/crs/misc/R43339.pdf (lists examples of current online exchanges including Mt. Gox, Coinbase, and Kraken).

with Bitcoins.[50] Bitcoin exchanges work on a typical supply-and-demand model, though the prices are not usually negotiated.[51]

Bitcoin exchanges have become increasingly sophisticated and now require traders to first place money into an account controlled by the exchange, which can usually be accomplished with the help of a third-party such as PayPal.[52] The use of a third-party adds a transaction cost but provides efficiency and greater security.[53] Traders use third-party electronic payment systems to cash in and out of the exchange.[54] Exchanges provide a service by holding the trader's Bitcoin in a user account. This creates a credit risk similar to depositing money into a bank account, only without the government protection of the Federal Deposit Insurance Corporation (FDIC).[55] Users can then trade their coins in the future for cash or exchange them for goods on the open market.[56] While these exchanges provide a valuable service, allowing people to gain access to Bitcoin by avoiding the mining process, they create a medium for speculative investors to exploit Bitcoin's price volatility.[57]

II. Bitcoin Economics

Bitcoin shows great potential as a medium of exchange for e-commerce, but its weaknesses as a unit of account and store of value[58] hinder its ability to

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[50] Derek A. Dion, *I'll Gladly Trade You Two Bits on Tuesday for a Byte Today: Bitcoin, Regulating Fraud in the E-Conomy of Hacker-Cash*, 2013 U. Ill. J.L. Tech. & Pol'y 165, 168 (2013).

[51] *Id*.

[52] *Id.*

[53] *Id.* at 168 n.29 (explaining how the transaction costs of PayPal are 2.9 percent plus $0.30 per transaction).

[54] *Id.*

[55] FDIC, *FDIC Mission, Vision, and Values* (May 4, 2009), http://www.fdic.gov/about/mission/ (explaining the Federal Deposit Insurance Corporation (FDIC) is an independent agency created by the Congress to maintain stability and public confidence in the nation's financial system by: insuring deposits, examining and supervising financial institutions for safety and soundness and consumer protection, and managing receiverships).

[56] Mike Wheatley, *BIPS Bitcoin Exchange Cleaned Out in $990k Virtual Heist*, SiliconAngle (Nov. 26, 2013), http://siliconangle.com/blog/2013/11/26/bips-bitcoin-exchange-cleaned-out-in-990k-virtual-heist/.

[57] Nakamoto, *supra* note 9, at 1.

[58] A "unit of account" in economics is a nominal monetary unit of measure or currency used to value/cost goods, services, assets, liabilities, income, expenses; i.e. any economic item. A "store of value" is the function of an asset that can be saved, retrieved, and exchanged at a later time, and be predictably useful when retrieved. The most common store of value in modern times has been money,

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permanently replace the dollar. Decreased transaction costs, along with protection from inflationary risk and breach of privacy, give Bitcoin a viable future in e-commerce.[59] However, this future may be in jeopardy due to speculation in the exchange markets, exposing Bitcoin to deflationary tendencies and price volatility.[60] Recent criminal activity along with increasing consumer risks involving Bitcoin have governments considering a need for more regulation, which would increase transaction costs moving forward.[61] Bitcoin's future will depend on whether these pitfalls can be overcome to allow users to fully take advantage of its e-commerce benefits.

A. Benefits

The transaction costs of an ordinary Internet purchase include either transaction fees, like the ones involved in any electronic payment system, such as PayPal, or a variety of charges incurred when using a credit card.[62] With Bitcoin, these intermediaries can be eliminated and transaction costs will be derived only from the computing process needed to verify transactions and complete the Blockchain.[63] Merchants must pay credit card companies for authorization fees, transaction fees, and customer service fees, among other charges.[64] These merchants must also bear the risk of customer-initiated payment reversals that are based on false claims of product damage or non-delivery.[65] While consumers enjoy many benefits provided by credit card companies, such as the ability to chargeback,[66] they also pay for the right to receive these benefits through increased pricing.[67]

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currency, or a commodity like gold or financial capital. MANKIW N. GREGORY, PRINCIPLES OF MACROECONOMICS 338–39 (South-Western, Cengage Learning, 6th ed. 2009).

[59] ELWELL ET AL., *supra* note 49, at 6.

[60] *Id.* at 7.

[61] Brito & Catillo, *supra* note 23, at 19–21.

[62] *Id.* at 10.

[63] Dion, *supra* note 50, at 182 (noting that most computers have spare capacity to process the Blockchain transaction, making the transaction cost almost zero).

[64] Brito & Castillo, *supra* note 23, at 10–11.

[65] *Id.*

[66] Tradehill, Inc. v. Dwolla, Inc., 2012 WL 1622668, at *1 (N.D. Cal. May 9, 2012) (stating that a "chargeback" occurs when "a customer complains to his financial institution that he did not receive a product or service as promised from a merchant . . ." and the transfer of the customer's payment to the merchant is then "reversed and the customer's funds returned").

[67] *Id.*

Bitcoin affords merchants the security of a non-reversible payment system, removing the risk of chargebacks and mediation brought on by consumer disputes.[68] Unlike credit card transactions, which can always be disputed by consumers, once Bitcoins have been transferred the exchange cannot be reversed, adding finality to the transaction.[69] Merchants could theoretically allow customers to pay for perks provided by credit card companies by charging lower rates to those who forgo the use of credit cards in favor of Bitcoins.[70] Lower transaction costs would permit businesses to provide goods online that were traditionally unprofitable. "Micropayments," which were once thought to be impractical with a credit card, can now be made for products with prices less than a dollar.[71]

In the future, Bitcoin may allow for more efficient ways to transfer money. More specifically, it would provide instantaneous, low-cost remittance on a global scale.[72] Venture capitalists and current funds transfer companies like Western Union have recognized Bitcoin as an inexpensive way to transfer funds.[73] A more efficient system would help bring parties together in an increasingly global economy.

A peer-to-peer Bitcoin transaction ensures privacy and security that is unmatched in traditional e-commerce transactions. Two parties can first decide on a price for a good or service then transmit both the payment and delivery information privately through the Bitcoin network without providing information regarding their identities.[74] This protects the consumer from the risk of identity theft, which can occur by disseminating personal information online.[75] Bitcoin's security also prevents fraud through the computational ease of verifying transactions and the

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[68] Dion, *supra* note 50, at 167–69.

[69] *Id.*

[70] Brito & Castillo, *supra* note 23, at 15 (explaining a smart phone price listing at Amazon.com being over $300 more than on The Bitcoin Store because of the reduced costs due to the use of Bitcoin).

[71] Grinberg, *supra* note 1, at 170.

[72] Brito & Castillo, *supra* note 23, at 13–14 (explaining that in 2012 immigrants to developed countries sent at least $401 billion in remittance back to relatives living in developing countries).

[73] *Id.* at 14; *see Buy Bitcoins Online in US Dollars with Western Union*, LOCALBITCOINS.COM (last visited Oct. 4, 2014), https://localbitcoins.com/buy-bitcoins-online/usd/western-union/ (listing prices for Bitcoin in U.S. dollars to be purchased through Western Union).

[74] Danton Bryans, *Bitcoin and Money Laundering: Mining for an Effective Solution*, 89 IND. L.J. 441, 447 (2014).

[75] *How to Keep Your Personal Information Secure, Consumer Information*, FEDERAL TRADE COMMISSION (July 2012), http://www.consumer.ftc.gov/articles/0272-how-keep-your-personal-information-secure#online.

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impossibility of the generation of fake transactions or double spending.[76] Unlike the use of credit cards, payment security is built into a Bitcoin transaction.

Theoretically, Bitcoin also provides protection from inflation. This occurs when prices have increased due to a fall in the value of a currency, meaning each unit is exchangeable for a reduced amount of goods and services.[77] Inflation can be heightened through improper use of discretionary authority by the Federal Reserve, specifically when, in response to political influences, the money supply is increased to stimulate a short-term economic boost.[78] The resulting effect is an increase in the dollar amount without an accompanying increase of value in the economy, meaning every dollar represents less real value. Bitcoin overcomes this problem because it has no central authority to control its supply.[79] The rate of introduction is linked to the growing demand of Bitcoin through the mining process and is capped at a maximum fixed amount.[80] As Bitcoin transactions occur at a greater rate, the demand for the currency as well as miners to process the transactions will rise simultaneously, increasing the amount of Bitcoin in the economy.[81] The resulting effect immunizes Bitcoin against inflation as long as its use continues to grow.

Additionally, the Bitcoin network may be used to simplify complex asset transfers. Tying Bitcoin to real world assets allows for the exchange of physical property, such as a house or car.[82] Moreover, people may one day be able to execute contracts through code instead of using lawyer-drafted documents. More traditional contracts could be replaced by coding for the agreed upon action, which would self-execute at a predetermined time or following the occurrence of a triggering event, thereby reducing legal fees and adding transparency to the process.[83] Today, firms around the globe are already working toward allowing such

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[76] Simonite, *supra* note 11; *see also* Nakamoto, *supra* note 9 (explaining that if an attacker assembled more CPU power than all other miners, then he would still have to choose between using it to defraud people by stealing back a payment, or just using his accumulated power to generate new coins).

[77] ELWELL ET AL., *supra* note 49, at 6.

[78] *See supra* Part I-A.

[79] ELWELL ET AL., *supra* note 49.

[80] *Id.*

[81] *Id.*

[82] Tiffany Wan & Max Hoblitzell, *Bitcoin Promise Goes Far Beyond Payments*, HBR BLOG NETWORK (Apr. 24, 2014, 9:00 AM), http://blogs.hbr.org/2014/04/bitcoins-promise-goes-far-beyond-payments/ (explaining that in order to purchase a car from an individual seller, one must use a third-party in order to successfully transfer the title).

[83] *Id.*

asset transfers and contracting capabilities through the use of Bitcoin's cryptographic network.[84]

B.   Pitfalls

Bitcoin's potential pitfalls are more gradually overshadowing its benefits. Since its inception, Bitcoin has been linked to criminal activity due to the ease of moving money anonymously within the system.[85] The remaining pitfalls rest within Bitcoin exchanges, including money laundering and investment speculation, which, among other causes, has made the price of Bitcoin increasingly volatile.[86]

Due to its pseudonymous characteristics, criminals have been able to launder money and accept payments for illicit goods and services using Bitcoin while avoiding government detection. For example, the Silk Road was a black market website with a volume of trade surpassing $1 billion, allowing people to use Bitcoins to buy or sell a number of illegal goods and services.[87] Until the end of 2013, the site's illicit sales revenue totaled around $1.2 billion dollars, and Silk Road users had nearly 13,000 drug listings for substances ranging from methamphetamine to LSD as well as other illicit goods and services.[88] The FBI was able to shut down the Silk Road despite Bitcoin's lack of regulation, and it will need to use the Silk Road's demise as a roadmap for cracking down on other "Dark Net Marketplaces."[89]

Bitcoin supply is capped in the long-term, and by the year 2040 there will be 21 million Bitcoins in existence.[90] If Bitcoin use was to increase and its demand outgrew the supply, Bitcoin would continue to rise in value.[91] The predetermined

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[84] *Id.* (explaining that a company named Ethereum is developing a network to serve as the registry and escrow to execute contract conditions automatically through rules checked by the network and that companies like Colored Coin are working on ways to use small portions of Bitcoin to denote physical property).

[85] Denis T. Rice, *The Past and Future of Bitcoins in Worldwide Commerce*, 2013 BUS. L. TODAY 1, 5.

[86] ELWELL ET AL., *supra* note 49, at 7.

[87] Alyssa Newcomb, *Silk Road Website Dealt Drugs, Guns, Assassins for Bitcoins, FBI Says*, WORLD NEWS (Oct. 2, 2013), http://abcnews.go.com/US/silk-road-website-dealt-drugs-guns-assassins-bitcoins/story?id=20446005.

[88] *Id.*

[89] *Id.*

[90] James Surowiecki, *Cryptocurrency*, MIT TECHNOLOGY REVIEW (Aug. 23, 2011), http://www.technologyreview.com/review/425142/cryptocurrency/.

[91] Grinberg, *supra* note 1, at 175.

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supply of Bitcoin currency leads to falling prices of goods in relation to Bitcoins.[92] As the rate of transactions stays level, real-world constraints on production and consumption will cause the finite level of Bitcoin to be spread over an increasing number of transactions.[93] This trend is known as deflation, and incentivizes hoarding as Bitcoin owners see value rising against the price of goods.[94] Widespread hoarding will lead to a downturn in the Bitcoin economy.[95] As such, Bitcoin looks to be a prime candidate for an eventual deflationary spiral, especially considering how increasing speculation adds to deflationary risks.

The price of Bitcoin has been wildly volatile in the past few years.[96] This volatility resembles traditional speculative bubbles in the sense that media coverage of its initial success brought in a wave of investors.[97] These new investors jumped at the opportunity and created a risk of overvaluation.[98] Price volatility lends itself to speculative behavior, as people can buy low and sell high, realizing large gains in the short-term. Speculation increases demand, and when demand rises the value of Bitcoin will follow in step.[99] Rationally, as its value increases, investors will hoard in hopes of selling for future profit.[100] This artificial rise in value will eventually create a bubble, one that will burst at the point when lower, more accurate value is realized, quickly leading to a decline in the price of Bitcoin. This presents a need for regulation to prevent such overvaluation.

Recently, investment speculation has involved the pooling of Bitcoins into tradable funds, which are bundled and sold as securities reflecting a fraction of the overall value of the fund.[101] The creation of pooled funds holding large amounts of Bitcoin out of circulation will decrease the supply of available Bitcoins, adding to

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[92] *Id.*

[93] *Id.*

[94] *Id.*

[95] Dan Kervick, *Bitcoins Deflationary Weirdness*, NEW ECONOMIC PERSPECTIVE (Apr. 24, 2013), http://neweconomicperspectives.org/2013/04/talking-bitcoin.html.

[96] ELWELL ET AL., *supra* note 49.

[97] Brito & Castillo, *supra* note 23, at 20.

[98] *Id.*

[99] Surowiecki, *supra* note 90.

[100] *Id.*

[101] SEC Filing, Companies Discussing the Potential Risks of Using and Investing in Bitcoin, 2014 WL 3707909 (June 3, 2014) (explaining that Bitcoin's volatile market is a prime target for fraudsters and promoters of high-risk investment opportunities).

the threat of overvaluation.[102] As Bitcoins are held in trusts in large amounts allowing consumers to invest more easily, those pooled Bitcoins are removed from the marketplace, decreasing the supply and increasing the price to those who want to purchase Bitcoin directly.[103] This action will hurt Bitcoin by increasing price volatility and preventing full liquidity in the marketplace.

There have been significant economic losses as hackers have stolen Bitcoins in large quantities from exchanges. Mt. Gox, the largest Bitcoin exchange in the world, went bankrupt in 2014. After a meteoric rise to the top of the Bitcoin trading world, it had over $400 million worth of Bitcoin stolen.[104] Users leave their Bitcoin wallets on the exchange servers hoping that security will be better than on their personal hard drives, but such a large accumulation of wealth makes these servers prime targets for hackers looking to score big on a one-time heist.[105] The large amount of money kept in exchange pools, as well as the lack of exchange regulation, allowed inexperienced companies to amass wealth that they are unprepared to control, without any government oversight.[106] While heists such as these are not a result of inherent weaknesses in the Bitcoin network, concerns over its risks have come to the fore.[107]

C. Bitcoin's Viability

1. Preventing Deflation

The disadvantages of the Bitcoin economy seem ominous to the future of this e-currency, but they are not altogether damning to its viability. The deflationary tendencies some believe to be inherent in the system cannot be accurately predicted given the infancy of the Bitcoin economy. Both deflation and inflation can be counteracted through the use of an elastic currency, or, more specifically, a currency that automatically increases and decreases in volume with the demands of business.[108] Bitcoin has been programmed with a solution to an elasticity problem,

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[102] *Id.*

[103] *Id.*

[104] Robert McMillan, *The Inside Story of Mt. Gox, Bitcoin's $460 Million Disaster*, WIRED (Mar. 3, 2014), http://www.wired.com/2014/03/bitcoin-exchange/.

[105] *Id.*

[106] *Id.*

[107] Brito & Castillo, *supra* note 23, at 19.

[108] ELWELL ET AL., *supra* note 49, at 8 (explaining the importance of the elasticity of a currency and the important role of a central bank in implementing monetary policy to counteract changes in the demand for currency. Focusing on the inelasticity of the dollar from 1880 to 1914, when the U.S.

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allowing the Bitcoin to be divided into units as small as a hundredth of a millionth Bitcoin.[109] A Satoshi, Bitcoin's smallest unit, will allow the actual "supply" of Bitcoin to stay proportional to its changing demand.[110] Bitcoin supply can theoretically reach two thousand times that of the current supply of U.S. dollars in circulation, allowing plenty of room for growth.[111] Due to its nature as a digital currency, Bitcoin trades at a scale equal to its demand across the Bitcoin system, which helps fight deflation in a way similar to a central bank's use of a fully elastic currency.[112]

When used as a medium of exchange, Bitcoin's volatility and deflationary risk is a non-issue.[113] In the short-term, a seller can price its goods in dollar terms and accept the equivalent number of Bitcoins.[114] Customers transacting with Bitcoin only care about the decreased transaction cost today, not what the price of Bitcoin will be tomorrow.[115] Its value as a medium of exchange is extremely appealing to users and might be the basis of innovation in the near future, despite its current price volatility.

2. *Preventing Criminal Activity*

Bitcoin transactions are not fully anonymous, which allows current regulation and future action of government agencies to marshal illicit trade connected to Bitcoin.[116] Bitcoin transactions are considered pseudonymous.[117] Each one is time-stamped and the dual key cryptography links each party to a publicly listed key.[118] If a person's identity can be linked to one public key in a long line of transactions, then federal officials can link that person to every Bitcoin transaction they have

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operated under a gold standard, inelasticity of the dollar causes elevated real estate rates, periodic banking panics, and increased instability of output.).

[109] Brtito & Castillo, *supra* note 23, at 7.

[110] Bitcoin Stack Exchange, *supra* note 32.

[111] George Ettinger, *Indefinitely-Divided We Stand*, LET'S TALK BITCOIN (Oct. 26, 2013), http://letstalkbitcoin.com/infinitely-divided-we-stand/#.Uv5t-PldX00.

[112] *Id.*

[113] *Id.*

[114] *Id.*

[115] Brito & Castillo, *supra* note 23, at 18.

[116] *Id.* at 7.

[117] *Id.*

[118] *Id.*

made.[119] Bitcoin transactions are very similar to cash transactions in that they can be carried out without disclosing the identities of either party, but different in that every Bitcoin transaction is linked together on the public ledger.[120] Just as federal officials were able to follow the trail and bring down the initial conspirators behind Silk Road, they will also be able to police future black market operations.

3. Potential for Regulation

Despite the threats to Bitcoin's viability, its distinct system traits can work against these dangers to help keep the network strong. Bitcoin's nearly infinite money supply will decrease hoarding tendencies in the future, overcoming its deflationary bias.[121] The public ledger allows government officials to fight the illicit trade market by connecting users to their illegal online activity.[122] Due to these inherent characteristics, there is no present need to regulate Bitcoin or its network. The only true risk to Bitcoin's users and its immediate future is that of investment speculation created by exchanges and Bitcoin's use as an investment product. These actions represent external interference and uncontrollable risk to those dealing in Bitcoin. Without regulation of Bitcoin exchanges and its use as an investment product, we may never see Bitcoin's full potential as a medium of exchange for e-commerce and a technological platform for innovation.

III. REGULATORY LANDSCAPE

The creation of Bitcoin has undoubtedly brought about a revolutionary way of transacting online. The most critical issue moving forward is that of regulation. If the government does not take the proper steps to bring Bitcoin under a regulatory scheme, it will be overcome by speculation, leading to an unstable investment bubble.

The current regulatory landscape is equipped to handle most of Bitcoin's needs. The U.S. Congress has been given full discretion to regulate digital currency as enumerated in the U.S. Constitution, which grants the authority "to coin Money" and to "regulate the Value thereof."[123] Congress can regulate any form of currency not issued under its own authority because any such currency will directly interact

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[119] Brito & Castillo, *supra* note 23, at 8.

[120] *Id.*

[121] *Id.* at 7.

[122] *Id.* at 8.

[123] U.S. CONST. art. I, § 8, cl. 5.

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and affect the value of the dollar.[124] While Congress can regulate Bitcoin, it cannot do so under the Stamp Act of 1862, which states, "Whoever makes, issues, circulates or pays out any note . . . intended to circulate as money or to be received or used in lieu of lawful money of the United States, shall be fined under this title or imprisoned not more than six months or both."[125] As the FBI stated following conviction of the "Liberty Dollar" creator, it is illegal for someone to create a private coin or currency system to compete with the official currency of the United States.[126] Bitcoin is not in competition with the dollar due to its limited circulation and lack of physical resemblance to any form of U.S. currency, therefore it does not violate the Stamp Act and remains legal under current U.S. law.[127] However, Bitcoin, as it was originally defined and intended to be used—as a medium of exchange to more efficiently and effectively transact online – does not fall under current U.S. statutory framework.

A. *The Issue*

There has been great interest in Bitcoin's use as an investment product, which has created new challenges for regulators. This interest in Bitcoin as an investment product was first seen at the exchanges where investors could buy and sell Bitcoin similar to the way equities are sold on Wall Street, relying on both market volatility and Bitcoin's continuous rise in value over the last few years in order to turn a profit.[128] As stated previously, and witnessed across Bitcoin exchange platforms, this investment speculation increases volatility in the market, which hampers Bitcoin innovation.[129]

A secondary, and potentially more effective, strategy for investment involves the bundling of Bitcoin into an exchange-traded fund (ETF) or another new investment product that allows people to invest in Bitcoin without actually

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[124] Veazie Bank v. Fenno, 75 U.S. 533, 549 (1869).

[125] 18 U.S.C. § 336 (2012); *see* United States v. Van Auken, 96 U.S. 366 (1877) (holding that the primary motivation behind the Stamp Act was to prevent the establishment of an alternative form of currency that would be in competition with the national currency).

[126] Grinberg, *supra* note 1, at 191 (explaining the Liberty Dollar saga, and how Bernard von NotHaus started printing and distributing metallic and paper currency called Liberty Dollars backed by gold, and even though it was a completely different color and texture than the U.S. dollars and coins there was enough likeness to be a violation of the Stamp Act).

[127] *Id.*

[128] *Bitcoin: 'Highest risk, highest return,'* MARKET WATCH (Apr. 9, 2014 12:01 AM), http://www .marketwatch.com/story/bitcoin-highest-risk-highest-return-2014-04-09.

[129] *Id.*

purchasing them from an exchange.[130] An ETF is an investment fund that bundles similar assets for investment and is traded on stock exchanges, much like stocks.[131] ETFs allow for investment on a specific group of stocks representing an index of a particular segment of the market.[132] Such options give investors alternatives to how they incorporate Bitcoin into their personal investment strategy.[133] Recently, entrepreneurs have filed with the Securities and Exchange Commission (SEC) to create a public ETF for Bitcoin.[134] The SEC filing explains that Bitcoin value is based on supply and demand in the Bitcoin exchange market, and that Bitcoins have little real world use in retail and commercial markets compared to their large use by speculators.[135] However, the ETF filing is a mistake, and the analysis driving the decision ignores Bitcoin's promise as a medium of exchange for Internet transactions, disregarding a potential decrease in transaction costs through the removal of third-party intermediaries and the risk of payment reversals.[136] Due to market volatility and exchange security, investment in Bitcoin is a high-risk proposition, leaving users susceptible to fraudulent or risky investment schemes.[137]

The rise of these high-risk investment products represents a challenge for regulators. Considering the short-term investment potential Bitcoin provides and the potential long-term damage from overvaluation, a delicate balance must be struck between financial exploitation of this emerging digital currency and possible future growth of e-commerce.[138] Consumer confidence gives Bitcoin its value and the possible damage caused by overvaluation or continuing failure of exchanges might diminish this confidence.[139] In order to allow for Bitcoin growth and innovation, regulators must keep consumer confidence high by continuously monitoring the financial industry for fraudulent investment schemes as well as

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[130] John Kelleher, *Why the Winklevoss Twin's New Bitcoin ETF Matters*, INVESTOPEDIA http://www.investopedia.com/articles/investing/041114/why-winklevoss-twins-new-bitcoin-etf-matters .asp (explaining that an ETF is an investment fund which tracks an index, specific assets, or basket of assets).

[131] *Exchange-Traded Fund—ETF* (last viewed Nov. 28, 2014), http://www.investopedia.com/ terms/e/etf.asp.

[132] *Id.*

[133] Kelleher, *supra* note 130.

[134] ELWELL ET AL., *supra* note 49, at 15.

[135] Rice, *supra* note 85, at 3.

[136] *See supra* Part II-A.

[137] *See* SEC Filing, *supra* note 101.

[138] Wan & Hoblitzell, *supra* note 82.

[139] McMillan, *supra* note 104.

bringing exchanges under their regulatory system, working to improve industry standards and discourage speculation.

B.   Current Regulatory Action

Bitcoin investments will fall under the SEC's current regulatory umbrella if the investment in question meets the definition of "security," more specifically an "investment contract." If an investment scheme meets the elements of an investment contract, then it must be registered with the SEC, allowing for oversight and increased consumer protection.[140] A consumer wronged by a fraudulent investment scheme involving Bitcoin will have grounds for recovery by proving the transaction satisfies the elements of an investment contract, and therefore requires registration. These regulatory tools afford protection for investors who enter this emerging market of investment products.

The Securities Act of 1933 defines "security" as "any note, stock, treasury stock, securities future, securities-based swap, and bond or investment contract."[141] More generally, a security is any note, evidence of indebtedness, investment contract, or instrument "commonly known as a security."[142] As laid out in *Sanders v. John Nuveen & Co.*, this definition embodies a flexible rather than a static principle, and is capable of adaptation to meet a variety of profit-generating schemes.[143] Similarly, an investment contract is (1) an investment of money (2) in a common enterprise (3) with expectation of profits (4) from the efforts of a promoter or third-party.[144]

The Economic Reality Test allows the definition of security to be adapted to each individual case.[145] In determining whether the use of Bitcoin falls within the statutory definition of security, the SEC looks to substance rather than form of the transaction and will "place emphasis on economic reality."[146] This test is to be applied in light of "the substance—the economic realities of the transaction—rather

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[140] 15 U.S.C. § 77b (2012).

[141] *Id.*

[142] Sanders v. John Nuveen & Co., 463 F.2d 1075, 1076 (7th Cir. 1972); *see* 15 U.S.C. § 77b(a)(1) (2012).

[143] *Sanders*, 463 F.2d at 1075–76.

[144] S.E.C v. W.J. Howey Co., 328 U.S. 293, 298–99 (1946).

[145] *Id.* (establishing the Economic Reality Test used by courts to determine if an economic transaction falls under the definition of "security").

[146] Tcherepnin v. Knight, 389 U.S. 332, 336 (1967).

than the names that may have been employed by the parties."[147] Most jurisdictions require at least an element of vertical commonality, meaning the investor and the promoter must be involved in the same common enterprise, without the need of other investors in the same enterprise.[148]

Based on an application of this test, in most instances, an investment product established around Bitcoin will likely fall under the definition of security as an investment contract, and therefore requires registration with the SEC. The test allows the SEC to address a wide range of financial transactions, which is ideal for an emerging form of investment similar to those seen in the Bitcoin economy. For example, recently, the SEC wielded its power under the Securities Act of 1933. In *SEC v. Shavers*, it was claimed that Shavers and his company defrauded investors in a Ponzi scheme centered around Bitcoin.[149] The court in *Shavers* implicitly applied the Economic Reality Test.[150] It showed how Shavers sold Bitcoin to a particular group of people promising a guaranteed rate of return.[151] The court adapted the definition of "security" to these facts and concluded that the investment instrument Shavers was selling fell under the definition of an investment contract.[152] The contracts in question were based around the investors' reliance on the promoter's expertise in the area, making it a common venture.[153] There was a one percent per day interest guaranteed to the investor supported by Shaver's expertise, showing that there was an expectation of profit by those who gave money for the Bitcoin investments.[154] This case stands for the proposition that for Bitcoins to fall under the category of "security," one must analyze the individual facts surrounding their use, including interest owed to Bitcoin ownership or returns based on assets invested in with this virtual currency.

An important aspect of *Shavers* is the understanding that Bitcoin is now seen as a form of money. It was clear to the court that individuals can purchase goods or services with Bitcoin or exchange it for conventional currency, and as the defendant noted, it can be used to pay for individual living expenses much like

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[147] United Housing Foundation, Inc. v. Forman, 421 U.S. 837, 851–52 (1975).

[148] Brodt v. Bache & Co., 595 F.2d 459 (9th Cir. 1978).

[149] S.E.C. v. Shavers, No. 4:12-CV-4156, 2013 WL 4028182 (E.D. Tex. 2013).

[150] *Id.*

[151] *Shavers*, 2013 WL 4028182, at *4.

[152] *Id.*

[153] Long v. Shultz Cattle Co., 881 F.2d 129, 141 (1989).

[154] *Shavers*, 2013 WL 4028182, at *4.

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other forms of money.[155] This reasoning allows any investment purchased with Bitcoin to fall under the definition of investment contract because it will still be seen as an investment with money.

The court in *Shavers* did not attempt to bring Bitcoin itself under the regulatory scheme of the SEC or any other agency, but rather distinguished the difference between Bitcoin as a digital currency and its use as a medium for investment. Under the Economic Reality Test, the SEC can sift through the technological haze surrounding this novel currency and look to the economic impact of its use in determining if regulatory action is required. The SEC should not over extend its mandate by regulating the Bitcoin system, and it should only take action when the economic reality of a transaction calls for protections under securities law.[156]

Currently the only direct regulation of Bitcoin exchanges has been mandated by the Bank Securities Act, which requires non-bank entities that provide alternative payment or exchange mechanisms, distinct from traditional banks or financial institutions, to register as a Money Service Business (MSB).[157] In an attempt to accommodate e-commerce, the definition of money was broadened to include "a medium of exchange, whether or not redeemable in money."[158] Some organizations, including Bitcoin exchanges, fall under the definition of MSB, and must register as such.

There is a misconception that Bitcoin needs to be broadly categorized under a singular regulatory category such as "foreign currency," "commodity," or even a security.[159] Bitcoin is a novel technology that can only be categorized in light of how it is being put to use, as was properly displayed in the court's reasoning in *Shavers*. Bitcoin itself, as a peer-to-peer crypto-currency, does not fall within the regulatory scheme set out in the Securities and Exchange Act, nor should it.[160] The

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[155] *Id*.

[156] *See United Housing Foundation, Inc.*, 421 U.S. at 851.

[157] Bryans, *supra* note 74, at 463 (citing the Uniform Money Services Act).

[158] *Id.*

[159] Kaplonov, *supra* note 2, at 163 (stating that "[w]hile bitcoin is not technically foreign currency, it functions in the same manner, and a court is likely to view their exchange as such" and "the delivery of bitcoins between users is nearly instantaneous and well outside of the requirements for future delivery").

[160] Dion, *supra* note 50, at 176 (citing 15 U.S.C. § 78b (2012)) (explaining that Congress was concerned prices of securities "exchanges and markets are susceptible to manipulation and control, and the dissemination of such prices gives rise to excessive speculation, resulting in sudden and unreasonable fluctuations in the prices of securities").

peer-to-peer transactions do not create financial risk, but rather the use of it as an investment, or medium to purchase investments, creates the risk and external volatility that the Securities and Exchange Act was built to control.

C. Moving Forward

Considering the intention of the Securities and Exchange Act and the economic reality of Bitcoin's volatility, the government should look to tighten the regulation of exchanges and investment organizations that deal in Bitcoin. The government should focus on both investments purchased with Bitcoin and specific investments in Bitcoin. The goal should be to decrease speculation and stabilize Bitcoin value in hopes of allowing the future growth and innovation of Bitcoin's peer-to-peer system.

MSBs, the only current regulations covering Bitcoin exchanges are mainly regulated by state authority, further complicating true uniform regulation.[161] Adding to this complexity is the reality that most state regulation has not been updated to bring digital currency under its reach, which must be accomplished before real Bitcoin regulation can happen at a state level.[162] Considering the speed with which Bitcoin use has grown, regulation at the state level is not fast enough to protect consumers from current risks. Recently, government agencies have called for Congress to take action in the regulation of virtual currencies.[163]

Congress must take action to regulate exchanges and prevent pooling of Bitcoins for investment purposes. Allowing growth in the area of Bitcoin investment will only add to its price volatility, eventually leading to a market failure.[164] Failure by some of the world's largest Bitcoin exchanges has shed light on this regulation gap. The current needs for Bitcoin exchange regulation include oversight, transparency, and uniformity, as well as more direct consumer protections like cyber-security, anti-fraud, and privacy and information security.[165] On Wall Street this type of regulation is handled by a Self-Regulatory Organizations (SRO), which are mandated by the SEC to oversee exchanges and

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[161] Jessica Meek, *Bitcoin regulation challenges and complexities*, RISK (Feb. 13, 2014), http://www.risk.net/operational-risk-and-regulation/feature/2328022/bitcoin-regulation-challenges-and-complexities.

[162] *Id.*

[163] Jonathan Stempel, *Beware Bitcoin: U.S. brokerage regulator*, THOMAS REUTERS (Mar. 11, 2014), http://www.reuters.com/article/2014/03/11/us-bitcoin-finra-idUSBREA2A1OJ20140311.

[164] *See supra* Part II-B.

[165] William Jackson, *NY Seeks Bitcoin Exchange Regulations*, INFORMATIONWEEK (July 22, 2014, 11:25 AM), http://www.informationweek.com/government/cybersecurity/ny-seeks-bitcoin-exchange-regulations/d/d-id/1297469.

improve consumer protection.[166] An SRO is a non-governmental organization tasked to create and enforce industry standards with a priority to protect investors through the establishment of rules that promote ethics and equality.[167] A current example of a preexisting SRO is the Financial Industry Regulatory Authority, which regulates member brokerage firms and exchange markets including the New York Stock Exchange.[168] The best route to achieve uniform rules and transparency among Bitcoin exchanges is through the creation of an industry SRO. A Bitcoin SRO must be separate from others in the financial industry so as to more accurately address the needs of Bitcoin.

An SRO tasked to regulate Bitcoin exchanges should be concerned first with consumer protection, and secondly with aiding growth and innovation of Bitcoin in e-commerce. In line with current SRO regulations, exchanges should be forced to register in order to gain a license to trade Bitcoin, which will allow for oversight and reporting.[169] Oversight would include the power to discipline and sanction individual exchanges, allowing for a right of appeal to the SEC.[170] A Bitcoin SRO would monitor individual transactions with the aid of the public ledger to ensure true ownership of the Bitcoins being sold and to prevent fraudulent investments, such as Ponzi schemes.[171] This new SRO must set security standards for the industry, most importantly those around cyber-security and information security. The largest issue Bitcoin exchanges have faced is that of theft due to the high amount of Bitcoins, private keys, or the ownership key stored on their servers.[172] By developing industry standards to protect consumer information, as well as prevent outside access to consumer Bitcoins entrusted to exchanges, the SRO can minimize security concerns, thereby improving consumer trust.[173]

The second goal of a Bitcoin SRO would be to aid the growth and innovation of Bitcoin and e-commerce in general. Regulation of Bitcoin should not center on

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[166] *See* 15 U.S.C. § 78s (2012).

[167] *Id.*

[168] *Financial Industry Regulatory Authority*, *available at* http://www.finra.org/AboutFINRA/ (last visited Oct. 19, 2014).

[169] Thomas Lee Hazen, *Treatise on the Law of Securities Regulation*, Law Sec. Reg. § 14.3 (updated July 2014).

[170] *Id.*

[171] Charles Arthur, *Bitcoin: Man charges over alleged multi-million-dollar Ponzi fraud*, THE GUARDIAN (July 24, 2013), http://www.theguardian.com/technology/2013/jul/24/bitcoin-alleged-ponzi-fraud.

[172] McMillan, *supra* note 104.

[173] *Id.*

its use as a digital currency, since its potential for innovation stretches far beyond this idea of a private currency.[174] From removing the transactional need for third-party validation to its use in the areas of micropayments and remittance, Bitcoin's true potential is yet to be seen.[175] Regulation of Bitcoin must encourage and foster innovation by decreasing volatility and overvaluation due to speculation.[176] An SRO could institute industry standards that call for a progressive exchange fee schedule, which increases per trade over a certain time period by a single user. For example, after a *user* exchanges cash for Bitcoin and then begins a series of exchanges hoping to profit from Bitcoins price volatility, the *user* would be paying an increasing exchange fee each time he or she trades. This would deter a speculative mentality in hopes of decreasing volatility.

Industry standards should be set up to incentivize the use of Bitcoin as a medium of exchange for e-commerce in order to increase its use in the retail and commercial marketplace. Increased use by consumers will force more companies to accept Bitcoin, increasing demand and value.[177] Incentivizing Bitcoin use in the marketplace and against speculative investment can be accomplished through industry standards set up by a Bitcoin SRO.

The final issue that must be tackled moving forward is the danger of pooled Bitcoin investments and ETFs. While the SEC is set up to enforce standards for securities, and more specifically investment contracts, it cannot account for the risk to consumers and the possible damage to Bitcoin's future posed by entrepreneurs attempting to register index based funds with the SEC.[178] The current risks making Bitcoin an unsure investment could one day be overcome through increased consumer use in the marketplace and price stability. Government regulators should be cautious when approving ETFs based in Bitcoin and other similarly pooled funds.

IV. CONCLUSION

Bitcoin should not be categorized generally under a pre-existing regulatory category, such as commodity or foreign currency because it is a novel technology

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[174] Nicholas Godlove, J.D., *Regulatory Overview of Virtual Currency*, 10 OKLA. J. L. & TECH. 71 (2014) (arguing that Bitcoin's future is linked to its characteristics as a private currency, which adds to future problems it may face).

[175] Wan & Hoblitzell, *supra* note 82.

[176] ELWELL ET AL., *supra* note 49, at 6.

[177] Kaplanov, *supra* note 2, at 115.

[178] SEC Filing, *supra* note 101.

only in its infancy. The government should look to the Economic Reality test in deciding how and when to take regulatory action. *Shavers* was a first opportunity for the courts to analyze Bitcoin and its financial use. This decision illustrates the importance of separating the financial effect of Bitcoin's use from the underlying technology used in the transactions when deciding how it should be regulated.

Criminal and financial risks associated with Bitcoin are not derived from the peer-to-peer exchange network or the creation of new value through mining, so regulators do not need to focus on the system itself in regulating this novel technology. Similar to the early days of the Internet, the government needs only to decrease the illegitimate use of the technology without hindering its commercial and technological benefits. The government's regulatory policy as it pertains to the use of Bitcoin should be strongly against speculative investment in Bitcoin or investments made with Bitcoins and in favor of greater use as a medium of exchange. Only time will tell if Bitcoin will continue to hold value in the long-term, and the path to future regulation will go a long way toward deciding its fate.