

Congress of the United States

U.S. House of Representatives

Committee on Small Business

2361 Rayburn House Office Building

Washington, DC 20515-6515

To: Members, Committee on Small Business
From: Committee Staff
Date: March 31, 2014
Re: Hearing: "Bitcoin: Examining the Benefits and Risks for Small Business"

On Wednesday, April 2, 2014 at 1:00 p.m., the Committee on Small Business will meet in Room 2360 of the Rayburn House Office Building for the purpose of examining the benefits and detriments of virtual currency, including Bitcoin. Bitcoins are a form of virtual currency first introduced in 2008 that allows users to exchange value digitally through the Internet. Despite not being backed by a government, or holding any intrinsic value of their own, Bitcoins are growing as an alternative payment method. This hearing will explain what Bitcoins are and examine the benefits and risks associated with Bitcoin as an alternative payment system for small businesses.

I. Introduction

The emergence of alternative payment systems, including Bitcoin, raises significant issues for merchants, including small businesses that are considering whether to accept them as payment. While certain attributes of Bitcoin may be attractive, there are also significant risks that small businesses should be aware of before accepting it as a payment.

Currency is the coin and paper money designated as legal tender by a country.¹ The government backing of the currency allows that governmental entity to control the amount of currency in circulation, thus controlling the value of its currency. Virtual currency² on the other hand exists only as an encrypted series of letters and numbers (called a key) holding no intrinsic value and is not backed by a government.³ The price of virtual currency is based solely on market forces of supply and demand. While there are 163 different digital currencies,⁴ Bitcoin is the largest with a market capitalization of \$8 billion.⁵

¹ 31 C.F.R. § 1010.100(m).

² The Department of the Treasury, Financial Crimes Enforcement Network defines virtual currency as a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency such as legal tender status. UNITED STATES DEPARTMENT OF THE TREASURY, FINANCIAL CRIMES ENFORCEMENT NETWORK, APPLICATION OF FINCEN'S REGULATIONS TO PERSONS ADMINISTERING, EXCHANGING, OR USING VIRTUAL CURRENCIES 1 (2013) (FIN-2013-G001), available at http://fincen.gov/statutes_regs/guidance/pdf/FIN-2013-G001.pdf.

³ Chuck Soder, *What is Bitcoin? How does it Work?*, CRAIN'S CLEVELAND BUSINESS, Mar. 23, 2014 available at <http://www.craincleveland.com/article/20140323/SUB1/303239986#>.

⁴ <https://coinmarketcap.com/>.

⁵ *Id.*

a. *What is Bitcoin?*

In 2008, a computer programmer,⁶ identified only by the name Satoshi Nakamoto, released a White Paper⁷ setting out the framework for an open-source, peer-to-peer digital payments system. The Bitcoin White Paper concluded that by using various forms of cryptography, value could be transferred between users through a decentralized network of computer programmers, referred to as miners, who could publicly report that a transaction occurred in a ledger of all transactions, referred to as the block chain.⁸ Verification of a transaction by miners makes it possible to confirm that a Bitcoin could not be spent twice, without the need to rely on a financial institution to reconcile transactions.

Bitcoin operates through open-source software, distributed at no cost to the operator.⁹ Updates to the software can be made by anyone and only become operational when adopted by a majority of users. The software created a universe of 21 million Bitcoins to be distributed incrementally, until 2040.¹⁰ There are currently 12.1 million Bitcoins in circulation,¹¹ and new Bitcoins are distributed to miners as an incentive to log on and reconcile transactions.¹² The software also ensures that all computers on the network have a constantly updated record of all transactions.¹³

While a record of all Bitcoin transactions is viewable in the block chain, determining the identity of the person making the transaction can be difficult, as users of Bitcoin are identified only by their public key address and there is no name associated with the key.¹⁴ The identity of users could be discoverable by tracking the internet protocol (IP) address of the sender, or through sophisticated computer analysis of transaction information.

b. *How Does a Bitcoin Transaction Work?*

Each user of Bitcoin is assigned two keys, one public key (similar to an email address) and one private key (similar to a password). When a buyer chooses to purchase an item using Bitcoin, they create a message called a “transaction” which contains the seller’s public key and

⁶ Since the identity of the author is unknown, it is possible that the creator could be a group of computer programmers and not a single individual.

⁷ SATOSHI NAKAMOTO, BITCOIN: A PEER-TO-PEER ELECTRONIC CASH SYSTEM (2008), available at <https://bitcoin.org/bitcoin.pdf> [hereinafter Bitcoin White Paper].

⁸ JERRY BRITO AND ANDREA CASTILLO, BITCOIN: A PRIMER FOR POLICYMAKERS 5 (2013), available at http://mercatus.org/sites/default/files/Brito_BitcoinPrimer_embargoed.pdf [hereinafter Bitcoin Primer].

⁹ *Hearing Regarding Virtual Currencies: New York State Department of Financial Services* (2014) (statement of Mark T. Williams, Department of Finance, Boston University, at 3), available at http://www.dfs.ny.gov/about/hearings/vc_01282014/williams.pdf [hereinafter Williams Testimony].

¹⁰ Bitcoin Primer, *supra* note 8 at 12.

¹¹ <http://blockchain.info/charts/total-bitcoins>.

¹² Bitcoin Primer, *supra* note 8 at 5. Miners are rewarded with new Bitcoin for being the first to add a new block of transaction to the block chain. Currently, a block of Bitcoins is equal to 25 coins. Williams Testimony, *supra* note 9, at 3.

¹³ Bitcoin Primer, *supra* note 8, at 5.

¹⁴ The identity of users could be discoverable by tracking the internet protocol (IP) address of the sender, or through sophisticated computer analysis of transaction information. *Id.*

the number of Bitcoin to be transferred.¹⁵ The buyer will then sign the transaction using their private key.¹⁶ Transactions are then grouped into “blocks” and broadcast on the network.¹⁷ Miners operating the Bitcoin software receive notice of the transaction block and work (using computers to solve complex math problems) towards adding the new block to the block chain.¹⁸ The seller (using the Bitcoin software) is able to check the buyer’s public key in the block chain to confirm that the transaction was signed by the buyer’s private key and that the transaction is authentic.¹⁹

Bitcoins can be stored in a digital wallet²⁰ on a personal computer, or a user could open an account with an online digital wallet company.²¹ Similarly, a small business accepting Bitcoin can do so directly, or they can outsource their Bitcoin payment system to a company like Bitpay or Coinbase. These fee-based²² services allow a business to set prices in dollars and will convert prices to Bitcoin, accept Bitcoin on the merchant’s behalf and credit the merchant’s bank account with dollars.²³

II. Benefits of Bitcoin

Acceptance of Bitcoin as an alternative payment system is growing rapidly.²⁴ Businesses choose to accept Bitcoin for many reasons: to be at the forefront of a new technology; attract new customers from the pool of people now using Bitcoin; lower transaction fees from credit and debit cards; and eliminate certain kinds of fraud.²⁵ Determining the precise number of businesses accepting Bitcoin is difficult, with estimates ranging from 3,700²⁶ to 12,000.²⁷ Despite its recent growth, Bitcoin is very small compared to payment processing company Visa, which is accepted at 36 million merchant locations worldwide.²⁸

¹⁵ Bitcoin Primer, *supra* note 8, at 5.

¹⁶ *Id.*

¹⁷ Sarah Meiklejohn et. al., *A Fist Full of Bitcoins: Characterizing Payments Among Men with No Name*, ;LOGIN;, Dec. 2013, 12, available at <http://cseweb.ucsd.edu/~smeiklejohn/files/login13.pdf> [hereinafter Meiklejohn Article].

¹⁸ *Id.* at 6.

¹⁹ *Id.* at 5.

²⁰ A digital wallet is computer software (installed on a computer) that enable you to control your Bitcoins.

<https://bitcoin.org/en/choose-your-wallet>.

²¹ Meiklejohn Article, *supra* note 17, at 10-11.

²² Roman Dillet, *Coinbase Removes 1% Merchant Fee for First \$1 million in Orders*, TECHCRUNCH, Aug. 27, 2013, available at <http://techcrunch.com/2013/08/27/coinbase-removes-1-merchant-fee-for-first-1-million-in-orders/>.

²³ <https://bitpay.com/faq>.

²⁴ Natasha Doff, *Bitcoin Buys Burgers to Beer as Shoppers go Virtual*, BLOOMBERG, Dec. 30, 2013, available at <http://www.resourceinvestor.com/2013/12/30/bitcoin-buys-burgers-to-beers-as-stores-embrace-cu>.

²⁵ Saabira Chaudhuri, *Richard Branson Now Takes Bitcoin for Space Travel*, WALL ST. J., Nov. 22, 2013, available at <http://blogs.wsj.com/moneybeat/2013/11/22/richard-branson-now-takes-bitcoins-for-space-travel/>.

²⁶ <http://coinmap.org/>.

²⁷ *The Present and Future Impact of Virtual Currency: Hearing Before the Subcomm. on National Security and International Trade and Finance of the Senate Comm. on Banking*, 113th Cong. (2013) (statement of Tony Gallippi, Co-Founder, Bitpay, at 2), available at

http://www.banking.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=955322cc-d648-4a00-a41f-c23be8ff4cad&Witness_ID=1d1a636a-0650-4937-a9e3-aa741f365a19.

²⁸ *Id.* at 4.

a. Transaction Fees

A benefit of Bitcoin is that, since transactions do not need to go through a financial institution, many of the transaction fees can be eliminated, since miners are compensated by the rewards-based system for adding new blocks of transactions to the block chain. Typical credit and debit transactions involve entities that include the customer's bank, the credit card network and the merchant's bank, all of which receive some type of payment for their role in the transaction.²⁹ While Bitcoin does not offer many of the protections associated with these cards, merchants (accepting Bitcoins directly) will not pay any transaction fees (if they do not utilize a third-party Bitcoin service like Bitpay),³⁰ and thus may choose to offer Bitcoin to their customers as a payment option.

b. Chargeback-Fraud

One of the protections that credit³¹ and debit cards³² may offer to consumers is the protection from liability for unauthorized or fraudulent charges.³³ If a consumer reports an unauthorized or fraudulent charge, the payment processing company may rescind the payment from the merchant. While this is an important protection for consumers, it can be abused when an unscrupulous consumer makes a legitimate purchase and then falsely claims that the charge is fraudulent.³⁴ For merchants, a transaction that is subject to charge-back results in a double loss because not only do they lose the payment from the credit transaction, but also the goods purchased. Since Bitcoins operate like cash, merchants are protected from having payments rescinded after the goods are delivered.³⁵

III. Risks

Since Bitcoin is a relatively new form of payment, there are numerous risks that a small business should consider before implementing a Bitcoin payment system. These risks include volatility of the price, security and policy uncertainty.

a. Volatility

As mentioned previously, Bitcoins have no intrinsic value and their price is solely reliant on market principles of supply and demand. For instance, in December 2013, the price of a

²⁹ Congress recently addressed the issue of debit card transaction fees, providing the Board of Governors of the Federal Reserve with authority to set reasonable fees that an issuer may charge with respect to an electronic debit transaction. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 1075, 124 Stat. 1376, 2068 (codified at 15 U.S.C. § 1693o-2).

³⁰ As previously cited, Bitcoin transaction services charge less than banks. See note 22, *supra* regarding transaction fees for Bitcoin merchant services.

³¹ <http://www.consumer.ftc.gov/articles/0219-disputing-credit-card-charges>.

³² <http://www.consumer.ftc.gov/articles/0218-electronic-banking#lost>.

³³ Terms and conditions of credit and debit cards may differ depending on the issuer.

³⁴ Bitcoin Primer, *supra* note 8, at 10.

³⁵ If a consumer purchases an item with cash, the consumer can return it and get a refund. However, the merchant then has possession of the goods. In a chargeback, the merchant does not have the good or the payment.

Bitcoin spiked to \$1,155 and fell to \$533, all in the same month.³⁶ This can be a problem for small businesses which are unable to absorb such changes in price, since the daily price of a Bitcoin can move by 20 to 30 percent.³⁷ A small business should consider these shifts in price when choosing to accept Bitcoins.³⁸ Small businesses also must consider how to exchange Bitcoin into dollars to pay employees, vendors and other overhead expenses associated with operating a business.³⁹

b. Security

Bitcoins can be stolen; not through physical removal like hard currency, but rather seized by computer hackers.⁴⁰ Hacking of Bitcoins has been successful with Bitcoin trading firm Mt. Gox recently losing 850,000 Bitcoins worth \$450 million as a result of a security breach.⁴¹

Another concern about Bitcoins is their potential use for criminal activity and how the stigma associated with this could affect a business choosing to accept them. According to the International Centre for Missing and Exploited Children, digital currency is used for criminal activity because of its anonymity, the fact that no single country can oversee its use, and most countries have not yet applied existing legal protections to its use.⁴² Law enforcement officials shut down a Bitcoin online marketplace called Silk Road that was used to trade guns, sell drugs, and facilitate money laundering.⁴³ While law enforcement is tracking the use of Bitcoin, other government regulators and agencies are considering their treatment of Bitcoin.

³⁶ Bitcoins can be bought and sold on exchanges for a fee. The equivalent dollar value of a Bitcoin is based on supply and demand at any given time. <http://winkdex.com/#/>.

³⁷ Williams Testimony, *supra* note 9, at 6. Thus, a merchant that sells a good with a Bitcoin with a hypothetical value of ten dollars might find by the time the merchant had the Bitcoin deposited as dollars in the merchant's bank, the value of the Bitcoin could have dropped from ten dollars to eight dollars.

³⁸ Bitcoin Primer, *supra* note 8, at 21.

³⁹ Small businesses may outsource their Bitcoin acceptance service to a digital wallet service that will accept payment in Bitcoin on behalf of a business and will credit the merchant's account in the currency of their choice. Meiklejohn Article, *supra* note 18, at 12. This relieves the business owner from needing to worry about volatility in price and the risk of exchange fees. On the other hand, this imposes a transaction fee not different in kind from that imposed by interchange networks on credit and debit card transactions.

⁴⁰ Bitcoin Primer, *supra* note 8, at 22.

⁴¹ Rachel Abrams, *Mt. Gox Says It Found Missing Bitcoin Worth About \$116 million*, NY TIMES, Mar. 21, 2014, available at http://dealbook.nytimes.com/2014/03/21/mt-gox-says-it-has-found-200000-bitcoins-worth-about-114-million/?_php=true&_type=blogs&_r=0.

⁴² *Beyond Silk Road: Potential Risks, Threats and Promises of Virtual Currencies: Hearing Before the S. Comm. on Homeland Security and Governmental Affairs*, 113th Cong. (2013) (statement of Ernie Allen, President and CEO, The International Centre for Missing and Exploited Children, at 3), available at <http://www.hsgac.senate.gov/hearings/beyond-silk-road-potential-risks-threats-and-promises-of-virtual-currencies>.

⁴³ *Beyond Silk Road: Potential Risks, Threats and Promises of Virtual Currencies: Hearing Before the S. Comm. on Homeland Security and Governmental Affairs*, 113th Cong. (2013) (statement of Mythili Raman, Acting Assistant Attorney General, Criminal Division, United States Department of Justice) 5, available at <http://www.hsgac.senate.gov/hearings/beyond-silk-road-potential-risks-threats-and-promises-of-virtual-currencies>.

c. Policy Uncertainty

Banking regulators in the United States have been following developments in virtual currency since its inception.⁴⁴ Thus far, the only agency to issue regulatory guidance is the Financial Crimes Enforcement Network (FinCEN), a bureau within the Department of the Treasury responsible for combatting money laundering and protecting national security.⁴⁵ In 2011, FinCEN issued a final rule to amend definitions to ensure coverage of persons engaged in virtual currency transactions.⁴⁶ In March of 2013, FinCEN issued guidance requiring administrators and exchangers of virtual currency to register with FinCEN.⁴⁷

In addition to the regulatory scheme employed by FinCEN, multiple federal agencies are reviewing whether Bitcoin falls within their regulatory purview including the Securities and Exchange Commission, the Commodity Futures Trading Commission, the Board of Governors of the Federal Reserve System, Consumer Financial Protection Bureau and the Federal Trade Commission.⁴⁸ Other federal agencies are looking at whether the acceptance of Bitcoin is permissible for entities such as political campaigns,⁴⁹ and the tax implications of Bitcoin.⁵⁰

State banking regulators also have taken notice of Bitcoin. The New York Department of Financial Services recently revealed that it plans to adopt enhanced consumer disclosure rules and capital requirements for Bitcoin companies operating in New York, as well as requiring companies that use new currencies to obtain a “BitLicense.”⁵¹ Other states have issued consumer alerts, warning residents about risks associated with Bitcoin including volatility, lack of deposit insurance, lack of protection for digital wallets, connection to criminal activity, and tax implications.⁵²

⁴⁴ Carter Dougherty and Silla Brush, *Bitcoin Derivatives Sprout as Regulators Play Catch-Up*, BUSINESSWEEK, Feb. 28, 2013, available at <http://www.businessweek.com/news/2014-02-27/bitcoin-derivatives-sprout-as-regulators-play-catch-up>.

⁴⁵ http://www.fincen.gov/about_fincen/wwd/.

⁴⁶ Bank Secrecy Act Regulations – Definitions and Other Regulations Relating to Prepaid Access, Final Rule, 76 Fed. Reg. 45,403 (July 29, 2011).

⁴⁷ http://www.fincen.gov/statutes_regs/guidance/pdf/FIN-2013-G001.pdf.

⁴⁸ Ryan Tracy and Scott Patterson, *Bitcoin Oversight Falls Outside Central Bank's Purview*, WALL ST. J. Feb. 27, 2014 available at <http://online.wsj.com/news/articles/SB10001424052702304071004579409552545220612>.

⁴⁹ Matea Gold, *FEC Deadlocks, for now, on whether Political Committees can Accept Bitcoin*, WASH. POST, Nov. 21, 2013, available at <http://www.washingtonpost.com/blogs/post-politics/wp/2013/11/21/fec-deadlocks-for-now-on-whether-political-committees-can-accept-bitcoin/>.

⁵⁰ Lauren French, *Say Goodbye to Tax Free Bitcoin in the U.S.*, POLITICO, Mar. 25 2014, available at <http://www.politico.com/story/2014/03/tax-free-bitcoins-united-states-105015.html>.

⁵¹ *New York Regulator Moving Ahead on Bitcoin Regulation*, REUTERS, Feb. 11, 2014, available at <http://www.cnbc.com/id/101408527>.

⁵² <http://www.dfi.wa.gov/consumers/alerts/bitcoin.htm>.

IV. Conclusion

Bitcoins are a new payment technology that provides both benefits and risks to small businesses. While use and acceptance of Bitcoins are growing at a rapid pace, small businesses interested in either using or accepting Bitcoins should carefully weigh the benefits and risks prior to implementing a Bitcoin payment system, while ensuring that they remain compliant with laws and regulations. A thoughtful approach will allow small businesses to take advantage of the benefits while minimizing the associated risks. Further, small businesses should consistently reevaluate these benefits and risks as Bitcoin develops.