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Bitcoin: Questions, Answers, and Analysis of Legal Issues

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Summary

Bitcoin first appeared in January 2009, the creation of a computer programmer using the pseudonym Satoshi Nakamoto. His invention is an open-source (its controlling computer code is open to public view), peer-to-peer (transactions do not require a third-party intermediary such as PayPal or Visa) digital currency (being electronic with no physical manifestation). The Bitcoin system is private, with no traditional financial institutions involved in transactions. Unlike earlier digital currencies that had some central controlling person or entity, the Bitcoin network is *completely decentralized*, with all parts of transactions performed by the users of the system.

With a Bitcoin transaction there is no third-party intermediary. The buyer and seller interact directly (peer to peer), but their identities are encrypted and no personal information is transferred from one to the other. However, unlike a fully anonymous transaction, there is a transaction record. A full transaction record of every Bitcoin and every Bitcoin user's encrypted identity is maintained on the public ledger. For this reason, Bitcoin transactions are thought to be pseudonymous, not anonymous. Although the scale of Bitcoin use has increased substantially, it still remains small in comparison to traditional electronic payments systems, such as credit cards, and the use of dollars as a circulating currency.

Congress is interested in Bitcoin because of concerns about its use in illegal money transfers, concerns about its effect on the ability of the Federal Reserve to meet its objectives (of stable prices, maximum employment, and financial stability), and concerns about the protection of consumers and investors who might use Bitcoin.

Bitcoin offers users the advantages of lower transaction costs, increased privacy, and long-term protection of loss of purchasing power from inflation. However, it also has a number of disadvantages that could hinder wider use. These include sizable volatility of the price of Bitcoins, uncertain security from theft and fraud, and a long-term deflationary bias that encourages the hoarding of Bitcoins.

In addition, Bitcoin raises a number of legal and regulatory concerns, including its potential for facilitating money laundering, its treatment under federal securities law, and its status in the regulation of foreign exchange trading.

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The digital currency called Bitcoin has been in existence since 2009 and for most of that time it remained little more than a technological curiosity of interest to a small segment of the population. However, over the last year and a half, Bitcoin use has grown substantially; attention by the press has surged, and recently Bitcoin caught the attention of Congress, being the subject of two Senate hearings.[1]

This report has three major sections. The first section answers some basic questions about Bitcoin and the operation of the Bitcoin network and its interaction with the current dollar-based monetary system. The second section summarizes likely reasons for and against widespread Bitcoin adoption. The third section discusses legal and regulatory matters that have been raised by Bitcoin and other digital currencies.

Some Basic Questions

What Is Bitcoin?

Bitcoin first appeared in January 2009, the creation of a computer programmer using the pseudonym Satoshi Nakamoto. His invention is an open source (its controlling computer code is open to public view), peer to peer (transactions do not require a third-party intermediary such as PayPal or Visa), digital currency (being electronic with no physical manifestation).[2]

Like the U.S. dollar, the Bitcoin has no intrinsic value in that it is not redeemable for some amount of another commodity, such as an ounce of gold. Unlike a dollar, a Bitcoin has no physical form, is not legal tender, and is not backed by any government or any other legal entity, and its supply is not determined by a central bank. The Bitcoin system is private, but with no traditional financial institutions involved in transactions. Unlike earlier digital currencies that had some central controlling person or entity, the Bitcoin network is *completely decentralized*, with all parts of transactions performed by the users of the system.

How Does the Bitcoin System Work?

Bitcoin is sometimes referred to as a *cryptocurrency* because it relies on the principles of cryptography (communication that is secure from view of third parties) to validate transactions and govern the production of the currency itself. Each Bitcoin and each user is encrypted with a unique identity, and each transaction is recorded on a decentralized public ledger (also called a *distributed ledger* or a *blockchain*) that is visible to all computers on the network but does not reveal any personal information about the involved parties. Cryptographic techniques enable

[1] On November 18, 2013, the Senate Committee on Homeland Security and Governmental Affairs held a hearing on *Beyond Silk Road: Potential Risks, Threats, and Promises*, available at http://www.hsgac.senate.gov/hearings/beyond-silk-road-potential-risks-threats-and-promises-of-virtual-currencies. On November 19, the Senate Committee on Banking, Housing, and Urban Affairs held a hearing on *The Current and Future Impact of Virtual Currencies*, available at http://www.banking.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing_ID=955322cc-d648-4a00-a41f-c23be8ff4cad.

[2] General background discussions about Bitcoin can be found at Bitcoin, available at http://bitcoin.org/en/; Jerry Brito and Andrea Castillo, *Bitcoin: A Primer for Policymakers*, Mercatus Center, George Mason University, 2013, available at http://mercatus.org/publication/bitcoin-primer-policymakers; and Federal Reserve Bank of Chicago, *Chicago Fed Letter*, Bitcoin: A Primer, 2013, available at http://www.chicagofed.org/digital_assets/publications/chicago_fed_letter/2013/cfldecember2013_317.pdf; and the Bank of England, *The Economics of Digital Currencies*, Quarterly Bulletin, Q3 2014, available at http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q3digitalcurrenciesbitcoin2.pdf.

special users on the bitcoin network, known as *miners*, to gather together blocks of new transactions and compete to verify that the transactions are valid—that the buyer has the amount of Bitcoin being spent and has transferred that amount to the seller's account. For providing this service, miners that successfully verify a block of transactions are rewarded by the network's controlling computer algorithm with 25 newly created Bitcoins.[3]

This decentralized management of the public ledger is the distinguishing technological attribute of Bitcoin (and other decentralized cryptocurrencies) because it solves the so-called *double spending* problem (i.e., spending money you do not own by use of forgery or counterfeiting) and the attendant need for a trusted third party (such as a bank or credit card company) to verify the integrity of electronic transactions between a buyer and a seller. Public ledger technology could have implications not just for the traditional payments system but possibly also for a wide spectrum of transactions (e.g., stocks, bonds, and other financial assets) in which records are stored digitally.

How Are Bitcoins Obtained?

To interact on the Bitcoin network users first need to download the free and open-source software. Once connected to the network, there are three ways to obtain Bitcoins. First, a user can exchange conventional money (e.g., dollars, yen, and euros) for a fee on an online exchange (e.g., Okcoin, Coinbase, and Kraken). The exchange fee falls with the size of the transaction, ranging from 0.5% for small transactions down to 0.2% for large transactions.

The price of Bitcoin relative to other currencies is determined by supply and demand. In mid-January 2015, a single Bitcoin was valued at around $220. However, the price has been quite volatile, having been less than $20 in January 2013, above $1,100 in December 2013, and around $320 as recently as mid-December 2014 (representing more than a 30% fall in value in about one month).[4]

Second, a user can obtain Bitcoins in exchange for the sale of goods or services, as when a merchant accepts Bitcoin from a buyer for the sale of his product.

Third, as discussed earlier, a user can acquire new Bitcoins by serving as miner and applying his or her computer's processing power to successfully verify the validity of new network transactions. The probability of an individual discovering Bitcoins through mining is proportional to the amount of computer processing power that can be applied. This prospect is likely to be very small for the typical office or home computer. The difficulty of the verification problem increases so that Bitcoins will be discovered at a limited and predictable rate system-wide. But the increased difficulty of verification means that the computational cost of that service also rises.

Therefore, the supply of Bitcoins does not depend on the monetary policy of a virtual central bank. In this regard, despite being a currency with no intrinsic value, the Bitcoin system's operation is similar to the growth of money under a gold standard, although historically the amount of gold mined was more erratic than the growth of the supply of Bitcoins is purported to be. Depending on one's perspective, this attribute of the bitcoin network can be a virtue or a vice.

[3] To *mine* and validate a new block of transactions, miners compete to solve a difficult math problem. The miner that solves the problem first validates the transactions in the block and broadcasts his or her proof-of-work to the bitcoin network. Other miners in the network check the successful miner's results. If the miner's work is found to be correct, he or she is rewarded by the system with 25 new bitcoins.

[4] The current price of a Bitcoin can be obtained from Bitcoin-Charts available at http://bitcoincharts.com/.

Currently, about 13.7 million Bitcoins are in circulation. However, the total number of Bitcoins that can be generated is arbitrarily capped at 21 million coins, which is predicted to be reached in 2140. However, because a Bitcoin is divisible to *eight* decimal places, the maximum amount of spendable units is more than *2 quadrillion* (i.e., 2,000 trillion).[5]

Purchased or mined Bitcoins are thereafter stored in a digital wallet on the user's computer or at an online wallet service.

Are Bitcoin Transactions Anonymous?

Bitcoin transactions are not truly anonymous.[6] An example of an anonymous transaction is an exchange for cash between two strangers. In this case, no personal information need be revealed nor does there need to be a record of the transaction. At the other extreme a non-anonymous transaction is a typical online purchase using a credit card. This transaction requires validation by a third-party intermediary to whom the buyer's and seller's identities and pertinent financial information is known and who maintains a record of the transaction. A Bitcoin transaction falls between these two extremes.

With a Bitcoin transaction there is no third-party intermediary. The buyer and seller interact directly (peer to peer), but their identities are encrypted and no personal information is transferred from one to the other. However, unlike a fully anonymous transaction, there is a transaction record. A full transaction record of every Bitcoin and every Bitcoin user's encrypted identity is maintained on the public ledger. For this reason Bitcoin transactions are thought to be pseudonymous, not anonymous.

Because of the public ledger, researchers have found that, using sophisticated computer analysis, transactions involving large quantities of Bitcoin can be tracked and claim that if paired with current law enforcement tools it would be possible to gain a lot of information on the persons moving the Bitcoins.[7] Also, if Bitcoin exchanges (where large transactions are most likely to occur) are to be fully compliant with the bank secrecy regulations (i.e., anti-money laundering laws) required of other financial intermediaries, Bitcoin exchanges will be required to collect personal data on their customers, limiting further the system's ability to maintain the user's pseudonymity.

What Is the Scale of Bitcoin Use?

Despite significant growth since its inception, Bitcoin's scale of use remains that of a "niche" currency. As of mid-January 2015, the total number of Bitcoins in circulation globally was about 13.7 million, up about 1 million coins from a year earlier. With its recent market price of near $200, Bitcoin's current market capitalization (price × number of coins in circulation) is about $2.7 billion. However, large swings in the price of Bitcoin have caused that market capitalization to exhibit similarly large changes during the year. As recently as December 2013, with Bitcoin exchanging at near $1,100, the market capitalization was above $140 billion. Although numerous

[5] Because the supply of Bitcoins is fixed in the long run, sustaining the payment of Bitcoins to miners for providing verification services will be impossible. Without that subsidy, the Bitcoin network arguably could face rising transaction costs and a diminished attractiveness when compared with traditional centralized payment systems.

[6] Joshua Brustein, "Bitcoin May Not Be Anonymous After All," *Bloomberg Business Week*, August 27, 2013, available at http://www.businessweek.com/articles/2013-08-27/bitcoin-may-not-be-so-anonymous-after-all.

[7] Sarah Meiklejohn et al., "A Fist Full of Bitcoins: Characterizing Payments Among Men with No Name," University of California, San Diego, December 2013, available at http://cseweb.ucsd.edu/~smeiklejohn/.

vendors accept Bitcoin, the volume of transactions remains modest. During 2014, the value of Bitcoin's global daily transaction volume fluctuated in a range of between $40 million and $60 million, representing between 50,000 and 90,000 daily transactions.[8]

For comparison, in June 2014, the U.S. money supply (the sum of currency, demand deposits, saving deposits including money market saving accounts) was about $11.3 trillion (about 1,000 times larger).[9] The credit card company Visa reports that for 2013 its total dollar volume was $6.9 trillion, with an average number of daily individual transactions of near 24 million.[10] In 2013, *daily* transactions in dollars on global foreign exchange markets averaged over $4 trillion.[11]

Would Bitcoins Affect the Fed's Conduct of Monetary Policy?

The Federal Reserve conducts monetary policy to affect the flow of money and credit to the economy to achieve stable prices, maximum employment, and financial market stability. At Bitcoin's current scale of use, it is likely too small to significantly affect the Fed's ability to conduct monetary policy and achieve those three goals. However, if the scale of use were to grow substantially larger, there could be reason for some concern. *Conceptually*, Bitcoin could have an impact on the conduct of monetary policy to the extent that it would (1) substantially affect the quantity of money or (2) influence the velocity (rate of circulation) of money through the economy by reducing the demand for dollars.

Regarding the money supply, if Bitcoin transactions occur on a *pre-paid* basis whereby Bitcoins enter into circulation when dollars are exchanged and then are withdrawn from circulation when exchanged back to dollars, the net effect on the money supply would be small.

Regarding the velocity of money, if the increase in the use of Bitcoin leads to a decrease in need for holding dollars, it would increase the dollar's velocity of circulation and tend to increase the money supply associated with any given amount of base money (currency in circulation plus bank reserves held with the Fed). In this case, for the Fed to maintain the same degree of monetary accommodation, it would need to undertake a compensating tightening of monetary policy. At a minimum, a substantial use of Bitcoins could make the measurement of velocity more uncertain, and judging the appropriate stance of monetary policy uncertain.[12]

In addition, a substantial decrease in the use of dollars would also tend to reduce the size of the Fed's balance sheet and introduce another factor into its consideration of how to affect short-term interest rates (the instrument for implementing monetary policy). However, the Fed's ability to conduct monetary policy rests on its ability to increase or decrease the reserves of the banking

[8] Bitcoin data from Bitcoin Charts available at http://bitcoincharts.com/.

[9] Board of Governors of the Federal Reserve System, *Money Stock Measures* (*H.6*), available at http://www.federalreserve.gov/releases/h6/current/default.htm.

[10] Visa, Inc., Fact Sheet, available at http://corporate.visa.com/_media/visa-fact-sheet.pdf.

[11] Bank for International Settlements, "Foreign Exchange Turnover in April 2013: Preliminary Global Results," Triennial Central Bank Survey, September 2013, at https://www.bis.org/publ/rpfx13fx.pdf.

[12] Various categories of velocity are not directly observed; rather they are calculated from observed measures of the money supply, inflation, and output. Thus, each measure of the money supply (M1, M2, etc.) has a corresponding velocity. To the extent that actual transactions would occur with Bitcoin instead of a traditional measure of the money supply, the pattern of velocity could mislead policymakers regarding the effectiveness of monetary policy. On the other hand, policymakers could incorporate Bitcoin and other electronic currency in a measure of the money supply. See "What Does Money Velocity Tell Us About Low Inflation in the U.S.?" Yi Wen and Maria Arias, FRBSL, September 1, 2014, available at https://www.stlouisfed.org/On-The-Economy/2014/September/What-Does-Money-Velocity-Tell-Us-about-Low-Inflation-in-the-US.

system through open market operations. So long as there is a sizable demand by banks for liquid dollar-denominated reserves, the Fed would likely continue to be able to influence interest rates and conduct monetary policy.[13] [14]

Again, any sizable effect on the U.S. monetary system is predicated on Bitcoin's scale of use becoming substantially greater than it is at present. An important force that is likely to hinder such growth in Bitcoin use is the strong preference for dollar use generated by what economists call *network externalities* (i.e., the value of a product or service is dependent on the number of others using it). Network externalities create a self-generating demand for a dominant currency. The more often a currency is used as a medium of exchange, the more liquid it becomes and the lower are the costs of transacting in it, leading, in turn, to its becoming even more attractive to new users. Network externalities create a tendency toward having one dominant currency and confer a substantial *incumbency advantage* to the dollar in both domestic and international use. The legal tender status of the dollar, discussed below, reinforces this advantage.[15]

The U.S. economy reaps considerable benefit from having a single well-defined and stable monetary unit to work as a medium of exchange, a store of value, and unit of account to facilitate its vast number of daily economic transactions. If greater use of Bitcoin (and other cryptocurrencies) leads to multiple monetary units and fragmentation of the economy's currency system, these benefits could be threatened. However, Bitcoin does not currently pose a significant challenge to the dollar as the principal circulating currency. As already discussed, Bitcoin is currently a minor medium of exchange. Its substantial price volatility makes it a poor store of value (discussed more fully below), and there is little evidence that it is being used as a unit of account (e.g., companies pricing products exclusively in Bitcoin).

Arguments For and Against Wider Use of Bitcoin

Why Would One Want to Use Bitcoins?

Bitcoin purportedly offers three potential benefits to users: lower transaction costs, increased privacy, and no erosion of purchasing power due to inflation.

Lower Transaction Costs for Electronic Economic Exchanges

Because there is no third-party intermediary, Bitcoin transactions are purported to be substantially less expensive for users than those using traditional payments systems such as Paypal and credit cards, which charge merchants significant fees for their role as a trusted third-party intermediary to validate electronic transactions. In addition, Bitcoin sales are *nonreversible*, which removes the possibility for misuse of consumer charge-backs, which merchants find costly. Merchants would presumably pass at least some of these savings on to the customer. There is considerable

[13] See also European Central Bank, Virtual Currency Schemes, October 2012, pp. 33-39, available at http://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf.

[14] In a letter to the Senate Committee on Homeland Security and Governmental Affairs, then Fed chairman Bernanke noted that virtual currencies have the potential to be beneficial, but also carry risks, and while not a direct regulatory responsibility, are monitored by the Fed. He did not express any concern about virtual currencies hindering the Fed's ability to conduct monetary policy. Available at http://online.wsj.com/public/resources/documents/VCurrenty111813.pdf.

[15] Hal R. Varian, *Economics of Information Technology*, University of California, Berkeley, March 23, 2003, available at http://www.sims.berkeley.edu/~hal.

anecdotal evidence to support this assumption, but no comprehensive data exist on the size of Bitcoin's transaction cost advantage.

Some of the transaction cost advantage could be offset by the slow speed at which Bitcoin transactions currently occur, which, depending on the size of the transaction, can take a minimum of 10 minutes or as long as an hour.[16]

In addition, Bitcoin's advantage in transaction cost could be offset by the substantial volatility of Bitcoin's price. A rising dollar price of Bitcoin is likely to deter potential buyers who would expect to see their purchasing power be greater in the future. A falling Bitcoin price is likely to deter potential sellers who would expect to see their potential sales receipts be greater in the future.

In the long run, the Bitcoin system will stop creating new coins, eliminating the subsidy to miners to verify transactions. Without that subsidy, the cost of verifying a transaction is likely to increase.

Increased Privacy

Those who seek a heightened degree of privacy may find more comfort using Bitcoins for their (legal) commercial and financial transactions. The risk of identity theft may also be less, and some may find the removal of government from a monetary system attractive. However, as discussed above, Bitcoin transactions do not have the anonymity afforded by cash transactions, as there is a permanent and complete historical record of Bitcoin amounts and encrypted identities for all transactions on the Bitcoin system that are potentially traceable.

No Erosion of Purchasing Power by Inflation

Inflation is defined as a broad increase in the prices of goods and services. This is equivalent to saying that there is a fall in the value of the circulating currency. That fall in value means that each unit of the currency is exchangeable for a reduced amount of goods and services. Inflation is commonly thought to be a monetary phenomenon in which the supply of the currency outpaces the demand for the currency causing its unit value (in terms of what it can buy) to fall.

Most often governments (or their central bank) regulate the supply of money and credit and most often some degree of mismanagement of this government function is at the root of a persistent high inflation problem. In the case of Bitcoin, however, there is no government or central bank regulating the supply of Bitcoins. The supply of Bitcoins is programmed to grow at a steady rate regulated by the degree of mining activity (a process likely linked to a growing demand for Bitcoin) and then is capped at a fixed amount.

Inflation could occur if the demand for Bitcoin decreases relative to the fixed supply. Inflation could also occur if the Bitcoin network develops fractional reserve banking (i.e., banks that hold only a fraction of their deposits in reserve and lend out the rest), which would also be a vehicle that effectively increases the supply of circulating Bitcoins.[17] If these digital banks move to a situation where held reserves stabilize, this source of inflation would diminish.

[16] See Data on transaction times at Blockchain, available at http://blockchain.info/charts/avg-confirmation-time.

[17] Fractional reserves can occur when intermediaries issue obligations and rely on the unlikelihood of simultaneous redemption in order to fund additional activity. Put more simply, the firm keeps only a fraction of its assets in reserve to honor all of its other obligations, and uses the rest to pursue more earnings. In the case of Bitcoin, bank deposits and similar, fractional reserve policies by intermediaries can increase the effective supply of money-like instruments, and therefore contribute to inflation.

What Factors Might Deter Widespread Bitcoin Use?

There are a number of factors that could discourage widespread use of Bitcoin.

Not Legal Tender

The dollar is legal tender and by law can be used to extinguish public or private debts. A creditor is required to accept legal tender for the settlement of a debt. At a minimum, the payment of taxes forces U.S. individuals to hold dollars. Arguably, for many, such a government endorsement is comforting and creates a strong underlying demand for the dollar. By contrast, a currency like Bitcoin that is linked to a complex computer program that many do not understand and that operates without accountability to any controlling entity could be an unattractive vehicle for holding wealth for many people.

Does Not Enjoy the Dollar's Network Externalities

As noted above, the attractiveness of using a dollar is dependent on the number of people already using it. Thus widespread use of the dollar encourages its continued use and is an impediment (although not an insurmountable barrier) to the use of other currencies, including Bitcoins.

Price Volatility Discourages Its Use as Medium of Exchange

Bitcoin's price has been volatile since its creation in 2009, subject to sharp appreciations and precipitous depreciations in value. During March 2013 and April 2013, Bitcoin's dollar exchange rate rose from about $50 to $350 and then fell back to near $70. Bitcoin's price moved up even more sharply during the fall of 2013, rising from near $50 in September to more than $1,100 by early December. During 2014, Bitcoin's price showed large day-to-day variations but generally trended down. By mid-January 2015, a Bitcoin was priced near $200. This is a price pattern more typical of a commodity than of a currency to be used as a medium of exchange or a store of value. The volatile price behavior suggests the market for Bitcoin is currently being driven by speculative investors, not by a growing demand for Bitcoin due to increased transactions by traditional merchants and consumers.

One problem with having the Bitcoin network dominated by speculators is that it gives users an incentive to hoard Bitcoins rather than spend them—just the opposite of what would need to happen to make a currency a successful medium of exchange such as the dollar.[18]

Speculation could be more likely to dominate the market for Bitcoins because its value cannot be anchored to some underlying 'fundamental' such as an amount of some physical commodity such as gold, the value of an earnings stream that undergirds the price of a company's stock, or the perceived basic soundness and stability of an economy and its governing institutions (as is, arguably, true for the dollar).

The System's Long-Term Deflationary Bias Will Discourage Its Use as Currency

Because the supply is capped in the long run, widespread use of Bitcoin would mean that the demand for Bitcoin would likely outstrip supply, causing Bitcoin's price to steadily increase. The

[18] Felix Salmon, "The Bitcoin Bubble and the Future of Currency," *Medium*, April 2013, available at https://medium.com/money-banking/2b5ef79482cb.

corollary of that increase is that the Bitcoin price of goods and services would steadily fall causing deflation. Faced with deflation, there is a strong incentive to hoard Bitcoins and not spend them, causing the current level of transactions to fall.[19]

If generalized to an economy-wide phenomenon deflation could cause slower than normal economic growth and higher than normal unemployment.

This possible outcome highlights the likely importance of the economy's principal currency being *elastic*, its supply increasing and decreasing to meet the changing needs of the economy, and of the important role of the central bank in implementing such a monetary policy. The perils of an inelastic currency were evident, for a period from about 1880 to 1914, when the United States monetary system operated under a gold standard. At this time, the deflationary bias of an inelastic supply of gold led to elevated real interest rates, caused periodic banking panics, and produced increased instability of output. The Federal Reserve was created in 1913 to provide an elastic currency. In particular, the generally good economic performance of the post-war era speaks to the benefits of having a central bank to administer an elastic currency, not only to meet the changing transaction needs of the economy, but also to proactively use monetary policy to stabilize output and inflation.

Bitcoin's Network Security Is Uncertain

Although counterfeiting purportedly is not possible, Bitcoin exchanges and wallet services have at times struggled with security. Cash and traditional electronic payment systems also have periodic security problems, but a high incidence of security problems on a system trying to establish itself and gain customer confidence could be more damaging. Some notable examples of security breaches on the Bitcoin network have included the following:

- In January 2015, Bitstamp, a large European Bitcoin exchange, suspended services after a security breach involving the loss of 19,000 Bitcoin, valued at about $5 million.[20]
- Hackers mounted a massive series of distributed denial-of-service attacks against the most popular Bitcoin exchange, Mt. Gox, in 2013. About 850,000 Bitcoin valued at over $400 million were stolen. Mt. Gox subsequently declared bankruptcy.[21]
- In late August 2012, an operation titled Bitcoin Savings and Trust was shut down by the owner, allegedly leaving around $5.6 million in bitcoin-based debts.[22]
- In September 2012, Bitfloor, a Bitcoin exchange, reported being hacked, with 24,000 Bitcoins (roughly equivalent to $250,000) stolen. As a result, Bitfloor temporarily suspended operations.[23]

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[19] Dan Kervick, "Bitcoin's Deflationary Weirdness," *New Economic Perspectives*, April 2013, available at http://neweconomicperspectives.org/2013/04/talking-bitcoin.html.

[20] Mariella Moon , "Bitcoin Exchange Loses $5 Million in Security Breach," *Engadget*, available at http://www.engadget.com/2015/01/06/bitstamp-bitcoin-exchange-hack/.

[21] Mitt Clinch, "Bitcoin Hacked: Price Stumbles After Buying Frenzy," *CNBC*, April 4, 2013, available at http://www.cnbc.com/id/100615508.

[22] Adrianne Jeffries, "Suspected Multi-Million Dollar Bitcoin Pyramid Scheme Shuts Down, Investors Revolt," *The Verge*, August 27, 2012, available at http://www.theverge.com/2012/8/27/3271637/bitcoin-savings-trust-pyramid-scheme-shuts-down.

[23] Vitalik Burterin, "Bitfloor Hacked, $250,000 Missing," *Bitcoin Magazine*, September 4, 2012, available at

- On April 3, 2013, Instawallet, a web-based wallet provider, was hacked, resulting in the theft of over 35,000 Bitcoins. With a price of $129.90 per Bitcoin at the time, or nearly $4.6 million in total, Instawallet suspended operations.[24]
- On August 11 2013, the Bitcoin Foundation announced that a bug in the software within the Android operating system had been exploited to steal from users' wallets.[25]
- October 23 and 26, 2013, a Bitcoin bank operated from Australia but stored on servers in the United States was hacked, with a loss of 4,100 Bitcoins, or over 1 million Australian dollars.[26]

Legal and Regulatory Issues

Legal Considerations Generally

In order to provide some information on recent efforts by federal, state, and international authorities to study, monitor, or regulate digital currencies, this section of the report (1) identifies the clause in the U.S. Constitution giving power to Congress over money; (2) describes some of the recent federal, state, and international activities and studies dealing with digital money; and (3) identifies some of the federal laws that might be implicated or that have been used with respect to digital money.

In providing this information, we have identified some federal statutes and regulatory regimes that may have some applicability to digital currency, although none contains explicit language to that effect or explicitly mentions currency not issued by a government authority. Some federal statutes, because of their broad coverage, are likely to be held by courts to apply in connection with digital currency. For example, courts are likely to hold that the federal criminal mail and wire fraud statutes apply to fraudulent schemes designed to result in monetary losses in connection with buying, selling, or trading digital currencies.[27] Federal statutes providing consumer protection with respect to consumer financial transactions, however, such as the Truth

http://bitcoinmagazine.com/2139/bitfloor-hacked-250000-missing/.

[24] Joe Weisenthal, "Bitcoin Service Instawallet: We've Been Hacked and are Suspending Service Indefinitely," *Business Insider*, April 3, 2013, available at http://www.businessinsider.com/instawallet-suspended-2013-4.

[25] Richard Chirgwen, "Android Bug Batters Bitcoin Wallets," *The Register*, August 12, 2013, available at http://www.theregister.co.uk/2013/08/12/android_bug_batters_bitcoin_wallets/.

[26] Ben Grubb, "Australian Bitcoin Bank Hacked: $1 Million + Stolen," *Brisbane Times*, November 8, 2013, available at http://www.brisbanetimes.com.au/it-pro/security-it/australian-bitcoin-bank-hacked-1m-stolen-20131108-hv2iv.html.

[27] These include 18 U.S.C. §§1341 (mail fraud) and 1343 (wire fraud). The wire fraud statute, for example, applies to "[w]hoever, having devised or intending to devise any scheme or artifice to defraud, or for obtaining money or property by means of false or fraudulent pretenses, representations, or promises, transmits or causes to be transmitted by means of wire, radio, or television communication in interstate or foreign commerce, any writings, signs, signals, pictures, or sounds for the purpose of executing such scheme or artifice." Regulation Z, 12 C.F.R. 226, implementing the Truth in Lending Act (TILA) is premised on credit transactions, interest, and fees in terms of U.S. money. At present it is a matter of pure speculation as to whether the Consumer Financial Protection Board (CFPB), the agency charged with implementing TILA, could reasonably interpret the statute, given its language, structure, and legislative history, as a basis for issuing regulations to cover transactions in digital money.

in Lending Act[28] and the Truth in Savings Act,[29] include no language specifically referencing digital currency transactions.[30]

Power of Congress under Article I of the U.S. Constitution

One of the direct powers of Congress under the U.S. Constitution, the grant of authority "to coin Money" and "regulate the Value thereof,"[31] appears to provide sufficient authority for extensive oversight and control of digital money. The Supreme Court has interpreted this clause broadly. The clause has been upheld to authorize legislation chartering the First Bank of the United States and giving it power to issue circulating notes.[32] Legislation requiring U.S. Treasury notes to be treated as legal tender for antecedent debts[33] and legislation that abrogated gold clauses in private contracts[34] have also been upheld on the basis of this clause of the Constitution. The breadth of the power can be discerned from a statement of the Court in the Legal Tender Cases when the Court opined that "[e]very contract for the payment of money simply is necessarily subject to the constitutional power of the government over the currency, whatever that power may be, and the obligation of the parties is therefore assumed with reference to that power."[35]

Recent Activity

This section provides a brief survey of some of the concerns and activities of federal, state, and international governmental entities with respect to the emergence of digital currencies.

Recent Legislative Activity: Congress

In Congress, interest in virtual currencies is at the exploratory stage. The Senate Finance Committee directed the Government Accountability Office (GAO) to review any tax requirements and compliance risks implicated and to assess the Internal Revenue Service (IRS) efforts at informing the public in view of the offshore and Internet sources of these currencies. On May 13, 2013, GAO released a survey[36] describing the types of virtual currencies, the inadequacy of available data on them, and the extent of IRS efforts. It noted that IRS guidance on virtual currencies[37] concentrates on currencies used in virtual communities, such as Linden Dollars in Second Life, and overlooks currencies, such as Bitcoin, that can be used in the real economy.

[28] 15 U.S.C. §§1601 et seq.

[29] 12 U.S.C. §§4301-4313. (This applies to deposits held at depository institutions, i.e., banks, thrifts, savings associations, and credit unions.)

[30] A list of the regulations implementing federal laws providing consumer protection for financial transactions can be found on the Consumer Financial Protection Bureau's (CFPB's) website at http://www.consumerfinance.gov/regulations/#ecfr.

[31] U.S. Const., Art. I, §8, cl. 5.

[32] McCulloch v. Maryland, 17 U.S. (4 Wheat.) 316 (1819); Veazie Bank v. Fenno, 75 U.S. (8 Wall.) 533 (1869).

[33] Legal Tender Cases (Knox v. Lee), 79 U.S. (12 Wall.) 457(1871); Juilliard v. Greenman, 110 U.S. 421 (1884).

[34] Norman v. Baltimore & Ohio R.R., 294 U.S. 240 (1935).

[35] Legal Tender Cases (Knox v. Lee), 79 U.S. (12 Wall.) 457, 549 (1871).

[36] U.S. Government Accountability Office, *Virtual Economies and Currencies: Additional IRS Guidance Could Reduce Tax Compliance Risks*, GAO-14-496, May 2013.

[37] Internal Revenue Service, "Tax Consequences of Virtual World Transactions," at http://www.irs.gov/Businesses/Small-Businesses-&-Self-Employed/Tax-Consequences-of-Virtual-World-Transactions.

GAO also noted that the tax code lacked clarity about how virtual currency is to be treated for reporting purposes. Is it property, barter, foreign currency, or a financial instrument?

The Senate Homeland Security and Governmental Affairs Committee has begun to look into how federal agencies are confronting the rise of virtual currencies. On August 12, 2013, the committee's chairman and ranking Member sent letters[38] to several federal agencies, including the Departments of Justice (DOJ), the Treasury, and Homeland Security; the Securities and Exchange Commission (SEC); the Commodity Futures Trading Commission (CFTC); and the Federal Reserve, seeking information on their virtual currency policies, initiatives, activities, guidelines, or plans regarding virtual or digital currency. The committee envisions a government-wide approach to the threats and promises of digital currency. The committee requested that the GAO examine possible policy issues related to the emergency of digital currency.

In response to the Senate Homeland Security and Governmental Affairs Committee request, GAO issued a GAO report in May 2014, *Virtual Currencies: Emerging Regulatory, Law Enforcement, and Consumer Protection Challenges*.[39] The GAO report details the responsibilities of and efforts undertaken by various federal financial services regulators and law enforcement agencies to address the implications of virtual currency.[40] The report includes a chart that lists interagency working groups along with their participating agencies, missions, and how they are addressing virtual currencies. GAO's evaluation of the current responsibilities of the various federal agencies, the work of the interagency working groups, and the kinds of actions undertaken to date led it to focus on the lack of efforts to tackle consumer protection issues related to virtual currencies. The report noted that the federal agency charged with implementing the federal laws that cover financial services provided to consumers, the Consumer Financial Protection Bureau (CFPB),[41] was not heavily involved in the interagency task forces. The report, therefore, recommended more attention to consumer protection and increased CFPB participation in interagency task forces:

> recent events suggest that consumer protection is an emerging risk, as evidenced by the loss or theft of bitcoins from exchanges and virtual wallet providers and consumer warnings issued by nonfederal and non-U.S. entities. However, federal interagency working groups addressing virtual currencies have thus far not emphasized consumer-protection issues, and participation by the federal government's lead consumer financial protection agency, CFPB, has been limited.[42]

The CFPB responded by indicating that, as of the date of the GAO inquiry, all of CFPB's efforts to deal with virtual currency had been informal exchanges with federal, state, and international regulators. It assured GAO that, in the future, it would "identify interagency working groups addressing virtual currencies where the CFPB's participation would enhance its own work ... and ... contribute valuable consumer protection expertise to those efforts."[43] Subsequently, on August

[38] See http://www.hsgac.senate.gov/reports/letters.

[39] See http://www.gao.gov/products/GAO-14-496.

[40] Agencies included are the Board of Governors of the Federal Reserve System, the CFPB, the Commodity Futures Trading Commission, the Department of Homeland Security (including the U.S. Immigration and Customs Enforcement and the U.S. Secret Service), the Department of Justice (including the Federal Bureau of Investigation), the Department of the Treasury (including the Financial Crimes Enforcement Network and the Office of the Comptroller of the Currency), the Federal Deposit Insurance Corporation, the National Credit Union Administration, and the Securities and Exchange Commission.

[41] 12 U.S.C. §5491(a).

[42] GAO-14-496, at 39-40.

[43] Ibid., at 49, Letter to Lawrence Evans, Jr., director Financial Markets and Community Investment, U.S. Government

11, 2014, the CFPB issued a consumer advisory identifying characteristics of Bitcoin and describing pitfalls and issues of virtual currency, in general, and Bitcoin, in particular.[44]

Federal Regulatory Activity

Federal regulators are increasingly scrutinizing how virtual currency and Bitcoin relate to their mandates. Law enforcement agencies have had to confront criminal hacking of Bitcoin wallets and kidnappers requiring ransom payment in Bitcoins.[45] Moreover, the Department of the Treasury stated that terrorists are embracing Bitcoin.[46]

In a June 26, 2015, speech at a conference on digital currencies, a Department of Justice official provided a brief sketch of some federal Bitcoin prosecutions and called upon the financial services industry to be alert to possible abuses involving digital currencies.[47] Some federal agencies, including the CFPB, are contemplating further action. After issuing a consumer advisory on the pitfalls associated with Bitcoin, the CFPB began accepting consumer complaints on virtual currency and Bitcoin issues.[48]

Other federal regulatory activity includes guidance[49] issued by Treasury's Financial Crimes Enforcement Network (FINCEN) and a Winkelvoss Bitcoin Trust registration statement[50] filed with the SEC. In addition, the SEC published advisories for investors in 2013[51] and 2014[52] on the threat of virtual currency scams on the Internet; filed a criminal fraud complaint[53] charging a Bitcoin exchange with engaging in a Ponzi scheme; and successfully convinced a federal district court that Bitcoins are money. The court reasoned that because Bitcoins are used as money to

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Accountability Office, from William Wade-Grey, acting assistant director, Card and Payment Markets, CFPB (May 6, 2014).

[44] CFPB, "CFPB Warns Consumers About Bitcoin," August 11, 2014, http://www.consumerfinance.gov/newsroom/cfpb-warns-consumers-about-bitcoin/.

[45] See Kasia Klimasinska, "Terrorists Eying Bitcoin, Social Media to Fund Jihad, U.S. Says," *Bloomberg BNA Banking Daily*, June 15, 2015; Nathaniel Popper, "For Ransom, Bitcoin Replaces the Bag of Bills," *New York Times Deal Book*, July 25, 2015, http://www.nytimes.com/2015/07/26/business/dealbook/for-ransom-bitcoin-replaces-the-bag-of-bills.html.

[46]Department of the Treasury, "National Terrorist Risk Assessment," at pp. 57-58 (2015), http://www.treasury.gov/press-center/press-releases/Pages/jl0072.aspx.

[47] U.S. Department of Justice, "Assistant Attorney General Leslie R. Caldwell Delivers Remarks at the ABA's National Institute on Bitcoin and Other Digital Currencies," press release, June 26, 2015, http://www.justice.gov/opa/speech/assistant-attorney-general-leslie-r-caldwell-delivers-remarks-aba-s-national-institute.

[48] The CFPB has "announced that consumers who encounter a problem with a virtual currency product or service can now submit a complaint with the Bureau." See CFPB, "CFPB Warns Consumers About Bitcoin," August 11, 2014, http://www.consumerfinance.gov/newsroom/cfpb-warns-consumers-about-bitcoin/.

[49] U.S. Department of the Treasury, Financial Crimes Enforcement Network, "Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies," March 18, 2013, http://www.fincen.gov/statutes_regs/guidance/html/FIN-2013-G001.html.

[50] Form S-1 Registration Statement, Winkelvoss Bitcoin Trust, http://www.sec.gov/Archives/edgar/data/1579346/000119312513279830/d562329ds1.htm.

[51]U.S. Securities and Exchange Commission, Office of Investor Education and Advocacy, "Investor Alert: Ponzi Schemes Using Virtual Currencies," SEC Pub. No. 153 (7/13); U.S. Securities and Exchange Commission, "SEC Charges Texas Man with Running Bitcoin-Denominated Ponzi Scheme" press release 2013-132, July 23, 2013, http://www.sec.gov/News/PressRelease/Detail/PressRelease/1370539730583.

[52] U.S. Securities and Exchange Commission, "Investor Alert: Bitcoin and Other Virtual Currency-Related Investments," May 7, 201), http://investor.gov/news-alerts/investor-alerts/investor-alert-bitcoin-other-virtual-currency-related-investments#.U7rMyCgYCZQ.

[53] See http://www.sec.gov/litigation/complaints/2013/comp-pr2013-132.pdf.

purchase goods or services and can be exchanged for conventional currencies, they are money, and, thus, a contract for the investment of Bitcoins is an "investment contract," and, therefore, a security under federal securities law.[54] In another enforcement action, the Department of Homeland Security charged Mt. Gox, which is the Japanese-based largest Bitcoin exchange in the United States, with operating an unlicensed money services business in violation of 18 U.S.C. Section 1960 and seized its bank account. Subsequently, Mt. Gox filed for bankruptcy in Japan, and on June 14, 2014, a federal bankruptcy judge approved its petition under Chapter 15 of the U.S. Bankruptcy Code, allowing the U.S. bankruptcy court to protect its U.S. assets while the bankruptcy proceedings continue abroad.[55]

The federal banking regulators have yet to issue guidance or regulations governing how banks are to deal with Bitcoin, outside of the anti-money laundering framework. Under current law, the federal banking regulator with the greatest responsibility over the payment system is the Board of Governors of the Federal Reserve System.[56] In February 2014, Federal Reserve Chair Janet Yellen told the Senate Banking Committee that "Bitcoin is a payment innovation that's taking place outside the banking industry. To the best of my knowledge there's no intersection at all, in any way, between Bitcoin and banks that the Federal Reserve has the ability to supervise and regulate."[57] Nonetheless, the Federal Reserve Board, in its May 9, 2014, joint meeting with its Federal Advisory Council, considered Bitcoin's potential as "a threat to the banking system, economic activity, or financial stability" and appears to have adopted a policy that may be characterized as watchful waiting.[58] That policy produced no regulatory issuances in 2014. However, studies of the technical aspects of Bitcoin were featured in three research papers, two issued by Federal Reserve regional banks[59] and one published by the Federal Reserve Board's Divisions of Research and Statistics and Monetary Affairs.[60]

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[54] Securities and Exchange Commission v. Shavers, 2013 WL4028182, No. 4:13-CV-416 (E.D. Tex. August 6, 2013). This appears to be the first ruling addressing the question of whether digital currency issued without the backing of a government or other official entity is to be legally considered money.

[55] Michael Balthon, "Mt. Gox U.S. Bankruptcy Approved to Help Bitcoin Hunt," *Bloomberg News*, June 17, 2014, http://www.bloomberg.com/news/2014-06-17/mt-gox-u-s-bankruptcy-approved-to-help-bitcoin-hunt.html.

[56] A section of the U.S. Code is entitled "Regulatory responsibility of Board for payment system," 12 U.S.C. §4008. Under that provision, which was enacted as part of the Expedited Funds Availability Act of 1987, Congress has delegated to the Board of Governors of the Federal Reserve System "responsibility to regulate ... any aspect of the payment system, including the receipt, payment, collection, or clearing of checks, and any related function of the payment system with respect to checks."

[57] Senate Committee on Banking, Housing, and Urban Affairs, Semiannual Monetary Policy Report to the Congress, February 27, 2014, available at http://www.banking.senate.gov/public/index.cfm?FuseAction=Newsroom.Video.

[58] Federal Advisory Council and Board of Governors of the Federal Reserve System, Record of Meeting, May 9, 2014, http://www.federalreserve.gov/aboutthefed/fac.htm/. The Record of the Meeting at p. 10 includes the following statement with respect to Bitcoin: "Systemically, Bitcoin's nascency makes it more curiosity than threat. Its greatest near-term hazards are its avoidance of consumer protection measures and illicit use, both of which support increased regulation. Medium- to long-term effects could be more pronounced as the network self-refines and adoption increases, requiring traditional payment processors to adapt and respond."

[59] François R. Velde, "Bitcoin: A Primer," Chicago Fed Letter, December 2013, https://www.chicagofed.org/publications/chicago-fed-letter/2013/december-317; and Stephanie Lo and J. Christina Wang, "Bitcoin as Money," Federal Reserve Bank of Boston, Current Policy Perspectives, No. 14-4, http://www.bostonfed.org/economic/current-policy-perspectives/2014/cpp1404.htm; and Tim Sablik, "Digital Currency: New Private Currencies Like Bitcoin Offer Potential—and Puzzles," Federal Reserve Bank of Richmond EconFocus (3d Quarter 2013).

[60] Anton Badev and Matthew Chen, *Bitcoin: Technical Background and Data Analysis*, Federal Reserve Board, Divisions of Research & Statistics and Monetary Affairs, Finance and Economics Discussion Series 2014-10, October 7, 2014, http://www.federalreserve.gov/econresdata/feds/2014/files/2014104pap.pdf.

Federal Reserve Regional Bank Activities

At least three Federal Reserve economists are studying digital currencies and Bitcoin in particular.[61] Moreover, a director of Risk, Policy, and Analytics in the Banking, Supervision and Regulation Division of the Federal Reserve Bank of San Francisco recently published an article geared to alerting community bankers to the implications, including the "potential opportunities and risks."[62]

State Regulatory Activity

State authorities moving in the direction of regulating virtual currencies sometimes discover problems in applying existing laws to technological currencies. Three states—New York, California, and Connecticut—have taken steps to devise a regulatory framework that could usher in increased use of digital currencies,[63] provided adequate consumer protections and regulatory safeguards can be developed.[64] In an effort to assist states in developing regulations to license and supervise virtual currency operations, the Conference of State Bank Supervisors (CSBS),[65] released a CSBS Model Regulatory Framework for State Regulation of Certain Virtual Currency Activities (CSBS Model Framework)[66] on September 15, 2015. According to the CSBS, the CBSB Model Regulatory Framework "includes components that CSBS has identified as key to a virtual currency regulatory regime that protects consumers and the larger marketplace, while supporting responsible innovation."[67]

New York State

On June 3, 2015, New York State became the first state to establish a framework for regulating digital currency businesses when the New York State Department of Financial Services (NYSDFS) issued regulations providing for prudential supervision of virtual currency businesses operating in New York State.[68] Moreover, on May 7, 2015, New York State issued its first virtual currency license to a Bitcoin exchange, itBit Trust Company, LLC, which also received a license

[61] François R. Velde, "Bitcoin: A Primer," Chicago Fed Letter, December 2013, http://www.chicagofed.org/digital_assets/publications/chicago_fed_letter/2013/cfldecember2013_317.pdf; Stephanie Lo and J. Christina Wang, "Bitcoin as Money," Federal Reserve Bank of Boston, Current Policy Perspectives, No. 14-4, http://www.bostonfed.org/economic/current-policy-perspectives/2014/cpp1404.htm.

[62] Wallace Young, "What Community Bankers Should Know About Virtual Currencies," Federal Reserve Bank of San Francisco Community Banking Connections" (2d Quarter, 2015).

[63] Evan Weinberger, "NY Bitcoin Rules Put Virtual Currency On Path to Legitimacy," Law 360 (July 17, 2014), http://www.law360.com/articles/558472?utm_source=rss&utm_medium=rss&utm_campaign=articles_search.

[64] Michael Bobelian, "New York's Financial Regulator, Benjamin Lawsky, Maintains Lead on Bitcoin Regulation," Forbes (July 25, 2014), http://www.forbes.com/sites/michaelbobelian/2014/07/25/new-yorks-financial-regulator-benjamin-lawsky-maintains-lead-on-bitcoin-regulation/.

[65] The Conference of State Bank Supervisors (CSBS) is an organization representing state banking regulators. See http://www.csbs.org/about/what/Pages/default.aspx.

[66] CSBS, "State Regulators Issue Model Regulatory Framework for Virtual Currency Activities," media release, September 15, 2014, https://www.csbs.org/news/press-releases/pr2015/Pages/PR091515.aspx?PF=1.

[67] Ibid.

[68] New York Department of Financial Services, Superintendent Benjamin A. Lawsky, "NYSDFS Announces Final Bitlicense Framework for Regulating Digital Currency Firms," speech, June 3, 2015, http://www.dfs.ny.gov/about/speeches/sp1506031.htm. (Contains a link to New York Codes, Rules and Regulations, Tit. 23, Ch. I, Regulations of the Department of Financial Services, Part 200, Virtual Currencies.)

to operate as a trust under New York State banking law.[69] In September 2015, New York granted the first BitLicense application to a virtual currency firm, Circle Internet Financial.[70] On October 5, 2015, a New York license to operate as a trust was issued to a Bitcoin exchange, Gemini Trust Company LLC, which was founded by Cameron and Tyler Winlevoss.[71]

The New York regulations are the result of efforts of the NYSDFS that began in 2014 with the issuance of subpoenas seeking information on a raft of virtual currency issues.[72] On January 28-29, 2014,[73] the NYSDFS held public hearings on possible regulation of virtual currencies and, on July 17, 2014, issued, for public comment, a proposal to license and regulate virtual currency businesses operating in New York State.[74] A revised proposal was issued in February 2015.[75]

The final regulations require that businesses involved in transmitting, storing, buying, selling, exchanging, issuing, or administering a virtual currency must be licensed by the NYSDFS. Licenses are not required for digital currencies used exclusively in an online gaming environment or for digital currencies that can be redeemed for goods and services, provided they cannot be exchanged for fiat money (such as U.S. currency). Licenses are not required for software developers or merchants investing in virtual currencies or using virtual currencies solely to buy and sell goods and services. A state-chartered bank may be approved by the NYSDFS to operate as a virtual currency exchange without securing a virtual currency license.

The regulations prescribe standards for virtual currency businesses and establish procedures for the NYSDFS to use in approving, suspending, or revoking virtual currency licenses. Before granting a license, the NYSDFS must investigate the financial condition, character, and general fitness of any applicant. A license may be granted only when it has been determined that the business will be conducted "honestly, fairly, equitably, carefully, and efficiently ... and in a manner commanding the confidence and trust of the community."[76]

The regulations provide the NYSDFS with broad authority to prescribe minimum capital requirements and to subject licensees to any condition deemed "appropriate." The licensing process requires the submission of detailed information on principal officers, principal stockholders, principal beneficiaries, and members of the board of directors, and fingerprints from certain officers and employees with access to customer funds. Applicants are also required to supply information on banking arrangements; fulfillment of tax obligations; methodology for valuing the virtual currency; and products and services to be offered. The regulation requires

[69] New York State Department of Financial Services, press release, "NYDFS Grants First Charter to a New York Virtual Currency Company," May 7, 2015, http://www.dfs.ny.gov/about/press/pr1505071.htm.

[70] New York State Department of Financial Services, press release, "NYSDFS Announces Approval of First Bitlicense from a Virtual Currency Firm," September 22, 2015, http://www.dfs.ny.gov/about/press/pr1509221.htm.

[71] New York State Department of Financial Services, press release, "NYSDFS Grants Charter to 'Gemini' Bitcoin Exchange Founded by Cameron and Tyler Winkelvoss," October 5, 2015, http://www.dfs.ny.gov/about/press/pr1510051.htm.

[72] New York State Department of Financial Services, "Notice of Inquiry on Virtual Currencies," August 12, 2013, http://www.dfs.ny.gov/about/press2013/memo1308121.pdf.

[73] See http://www.dfs.ny.gov/about/hearings/vc_01282014_indx.htm.

[74] New York State Department of Financial Services, Proposed Regulations Submitted for a 45-Day Notice and Comment Period to Solicit Public Feedback, http://www.dfs.ny.gov/about/press2014/pr1407171.html.

[75] The text of the original proposal, the revised proposal, and the final regulations, together with public comments, may be found at the New York Department of Financial Services website at http://www.dfs.ny.gov/legal/vcrf_comments_3749_up.htm.

[76] NYCRR, Tit. 23, sec. 200.6; 37 N.Y. Reg. 7 (June 24, 2015).

regulatory periodic examinations; financial disclosures; and approval of change of control and mergers or acquisitions.

There are anti-money laundering provisions in addition to those required under federal law,[77] cybersecurity, and anti-fraud requirements, and an array of consumer protection provisions. Customers must be provided with disclosures that address such matters as price volatility; whether transactions are reversible; risk of fraud; liability for unauthorized transactions; and the possibility that future legislation will have an adverse impact. Under the regulations, each virtual currency business operating in New York will be required, before each transaction, to disclose specified information in writing and have the disclosure acknowledged by the customer.

Start-up virtual currency businesses will be able to qualify for a conditional license that would be issued for two years that would be renewable at the discretion of the New York State Superintendent of Financial Services. Before a conditional license is issued, the NYSDFS must consider various factors, including the potential risks and measures to be taken to mitigate them; whether the business is a regulated or licensed financial service provider; and previous business experience of the applicant.

California

California has enacted legislation opening the way for virtual currency to be used to purchase goods and services. California Assembly bill no. 129, signed into law by Governor Jerry Brown on June 29, 2014, repeals a provision of California law that outlawed anything circulating as money other than the lawful money of the United States.[78] In addition, it appears that the California Department of Business Oversight is in the process of considering whether to regulate virtual currency businesses.[79]

Connecticut

On June 19, 2015, Connecticut enacted legislation[80] amending the Connecticut Money Transmission Act[81] to require licenses for all virtual currency businesses operating in Connecticut. The legislation not only subjects them to requirements imposed on money services businesses, such as currency exchanges and money transmitters, it includes provisions establishing additional standards for virtual currency businesses. The legislation defines "virtual currency business" to mean "any type of digital unit that is used as a medium of exchange or a form of digitally stored value or that is incorporated into payment system technology."[82] Virtual currency used solely for online gaming and virtual currency that is part of a consumer rewards

[77] See Raveena Benepal, "Money Laundering Emerges as Contentious BitLicense Provision," *Bloomberg BNA Banking Daily*, July 29, 2015. Included in the requirements are appointment of a compliance officer and annual compliance audits.

[78] See http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB129.

[79] See California Department of Business Oversight, "What You Should Know About Virtual Currencies" (April 22, 2014), and "DBO Commissioner Owen Clarifies Coinbase Exchange's Regulatory Status in California" (January 27, 2015). The latter states that "The California Department of Business Oversight has not decided whether to regulate virtual currency transactions, or the businesses that arrange such transactions, under the state's Money Transmission Act." Both are available at http://www.dbo.ca.gov/search.asp?q=virtual+currency&cx=001779225245372747843%3Ayckvhkzkpng&cof=FORID%3A10&ie=UTF-8.

[80] Conn. Pub. Act No. 15-53 (June 19, 2015), http://www.cga.ct.gov/2015/act/pa/2015PA-00053-R00HB-06800-PA.htm.

[81] Conn. Gen. Stat. §§36a-595 to 36a-612, http://www.cga.ct.gov/current/pub/chap_668.htm#sec_36a-595.

[82] Conn. Gen. Stat. §36a-596(14).

program that cannot be converted into fiat currency are not covered by the definition. Under the legislation, virtual currency businesses must maintain a surety bond sufficient to account for the potential volatility of the digital currency. Under the legislation, the Connecticut Banking Commissioner has broad authority to impose conditions when granting a virtual currency license and may disapprove an application upon determining that issuing the license would subject "undue risk of financial loss to consumers, considering the applicant's proposed business model."[83]

Conference of State Bank Supervisors

On December 14, 2014, the CSBS issued its Draft Model Regulatory Framework[84] in an attempt to begin a process for states to develop some level of consistency in their approaches to the regulation of virtual currency businesses while emphasizing the need for flexibility. The release of the draft framework was accompanied by requests for public comment on 20 questions that attempted to discern such matters as the extent to which regulatory frameworks that cover money services businesses must be tailored to cover companies handling diverse virtual currency activities. Issues covered in the questions ranged from the advisability of one-size-fits-all regulation to such matters as how to denominate capital requirements—dollars or virtual currency.

After reviewing comments received from the public and conducting consultations with regulators and other stakeholders, the CSBS finalized the draft framework and released the "CSBS Model Regulatory Framework for State Regulation of Certain Virtual Currency Activities" (Model Framework) on September 15, 2015.[85] The Model Framework sets a standard for state regulation of virtual currency activities by entities not included in state regulation of depository institutions. It recommends that states adopt laws to cover firms and activities handling virtual currency that parallel their laws governing firms and activities involving sovereign currency. The Model Framework, therefore, covers firms transmitting virtual currency and firms exchanging virtual currency. It also includes firms providing services to virtual currency transmitters and exchanges, such as purveyors of wallets, payment processors, and merchant acquirers. The Model Framework, however, does not include a special regime for startup companies. Instead, the CSBS advises any state that chooses to include separate arrangements for new companies to devise adequate consumer protections.

The Model Framework's definition of *virtual currency*[86] begins by stating that "[v]irtual currency is a digital representation of value used as a medium of exchange, a unit of account, or a store of

[83] Conn. Gen. Stat. §36a-600(7)(c).

[84] Conference of State Bank Supervisors, "State Regulatory Requirements for Virtual Currency Activities; CSBS Draft Model Regulatory Framework and Request for Public Comment," December 16, 2014, http://www.csbs.org/regulatory/ep/Pages/framework.aspx.

[85] CSBS, "State Regulators Issue Model Regulatory Framework for Virtual Currency Activities," media release, September 15, 2014, https://www.csbs.org/news/press-releases/pr2015/Pages/PR091515.aspx?PF=1.

[86] Ibid. The definition is as follows:

> Virtual Currency is a digital representation of value used as a medium of exchange, a unit of account, or a store of value, but does not have legal tender status as recognized by the United States Government. Virtual Currency does not include the software or protocols governing the transfer of the digital representation of value. Virtual Currency does not include stored value redeemable exclusively in goods or services limited to transactions involving a defined merchant. Virtual Currency does not include units of value that are issued in affinity or rewards programs and that cannot be redeemed for either fiat or virtual currencies. Virtual currency, as used in this framework, includes "digital currency" and 'cryptocurrency.

value, but does not have legal tender status as recognized by the United States government." The definition excludes the software employed in virtual currency operations and certain stored value and rewards programs as well as the following types of activities:

> Merchants and consumers who use virtual currencies solely for the purchase or sale of goods or services;
>
> Activities that are not financial in nature but utilize technologies similar to those used by digital currency;
>
> Activities involving units of value that are issued in affinity or rewards programs and that cannot be redeemed for either fiat or virtual currencies; or
>
> Activities involving units of value that are used solely within online gaming platforms and have no market or application outside of those gaming platforms.[87]

The Model Framework embodies a regulatory scheme that is similar to the types of regulation currently applicable under state law to financial firms handling transactions involving U.S. dollars or other fiat money. The Model Framework includes requirements for supervision, examination, and enforcement authority over virtual currency businesses and activities. It specifies that a state's virtual currency regulatory regime should cover licensing, capital and investment standards, consumer protection, cybersecurity, and compliance standards. Although the Model Framework includes requirements for surety bonds, it does not require cyber insurance.

Applicability of Selected Laws to Digital Currency

Counterfeiting Criminal Statutes

The basic governmental interest in enacting laws against counterfeiting obligations of the United States is protecting the value of the dollar and the monetary system. Under title 18 U.S.C. Sections 470-477 and 485-489 counterfeiting and forging of U.S. coins, currency, and obligations is subject to criminal sanctions, and under 18 U.S.C. Sections 478-483, criminal sanctions are prescribed for counterfeiting foreign coins, currency, and obligations. None of these statutes, however, applies expressly to a currency that exists only on the Internet and in computers in a digital form. Although the usual prosecution under these statutes involves attempts to replicate Federal Reserve notes or coins produced by the U.S. Mint, at least one case involved a conviction for issuing and circulating Liberty Dollars, designed as similar to but distinguishable from U.S. dollars and intended to "limit reliance on, and to compete with, United States currency."[88] Whether a digital currency, even if it is designed to attack the value of U.S. legal tender, could be prosecuted under the current language of these statutes is not clear.[89]

[87] Ibid.

[88] U.S. Attorney's Office, Western District of North Carolina, "Defendant Convicted of Minting His Own Currency," press release, March 18, 2011, http://www.fbi.gov/charlotte/press-releases/2011/defendant-convicted-of-minting-his-own-currency.

[89] For a discussion, see, 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," University of Illinois, *Journal of Law, Technology and Policy*, vol. 2013 (Spring 2013).

The Stamp Payments Act of 1862, 18 U.S.C. Section 336

The Stamp Payments Act makes it a crime to issue, circulate, or pay out "any note, check, memorandum, token or other obligation, for a less sum than $1, intended to circulate as money or to be received or used in lieu of lawful money of the United States." This law was enacted in 1862 to protect postage stamps from competition by private tokens. Congress had approved stamps as currency for fractions of $1 because metal coins were being hoarded and were virtually out of circulation.[90] It does not seem likely that a currency[91] that has no physicality would be held to be covered by this statute even though it circulates on the Internet on a worldwide basis and is used for some payments of less than $1. The language of the statute, "note, check, memorandum, token," seems to contemplate a concrete object rather than a computer file; moreover, a digital currency such as Bitcoin, without a third-party issuer, cannot be said to be an obligation. However, there are some arguments that could be made, particularly should a digital currency become pervasive enough to be considered a possible competitor to U.S. official currency.[92]

The Electronic Fund Transfer Act, 15 U.S.C. Sections 1693 et seq.

The Electronic Fund Transfer Act (EFTA) establishes a framework for transfers of money electronically, but its coverage is limited in such a way that it appears not to be applicable to a digital currency in transactions involving no depository institution. The EFTA specifically applies to transfers of funds initiated by electronic means from a consumer's account held at a financial institution. It covers transfers "initiated through an electronic terminal, telephonic instrument, or computer."[93] Its application is limited to deposit accounts "established primarily for personal, family, or household purposes,"[94] "held by a financial institution,"[95] with "financial institution" limited to banks, thrifts, savings associations, and credit unions.[96]

Federal Tax Law

Digital currencies have characteristics of traditional tax haven jurisdictions: earnings are not reported to the IRS and users are provided some level of anonymity. Unlike traditional tax havens, however, digital currencies are able to operate without involving a financial institution.[97]

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[90] For further exposition of the genesis, legislative history, and analysis of the Stamp Payments Act, including the possibility that it may apply to electronic currency, see Thomas P. Vartanian, Robert H. Ledig, and Yolanda Demianczuk, *Echoes of the Past with Implications for the Future: The Stamp Payments Act of 1862 and Electronic Commerce*, 67 BNA's Banking Report (September 23, 1996).

[91] Virtual currencies, such as Linden Dollars, are not likely to conflict with this statute because they do not appear to "circulate as money or be received in lieu of lawful money," within the meaning of the statute. They circulate only in a limited environment and are redeemable only in virtual goods, and, thus, are similar to the tokens and tickets redeemable in goods and services on a limited basis that courts have found not to have been issued in violation of the Stamp Payments Act. United States v. Monongahela Bridge Co., 26 F. Cas. 1292 (W.D. Pa. 1863) (No. 15796); United States v. Roussopulous, 95 F. 977 (D. Minn. 1899).

[92] See Vartanian et al., supra, n. 8, and Reuben Grinberg, "Bitcoin: An Innovative Digital Currency," 5 Hastings Science & Technology Law Journal 159 (2012).

[93] 15 U.S.C. §1693a(6).

[94] 15 U.S.C. §1693a(2).

[95] 15 U.S.C. §1693a(2).

[96] 15 U.S.C. §1693a(11).

[97] For further information, see Marian, Omri, "Are Cryptocurrencies Super Tax Havens?," 112 Michigan Law Review First Impressions 38 (2013).

Until March 2014, the IRS provided limited guidance on the tax consequences of activities involving the virtual world. It cautioned:

> [i]n general, you can receive income in the form of money, property, or services. If you receive more income from the virtual world than you spend, you may be required to report the gain as taxable income. IRS guidance also applies when you spend more in a virtual world than you receive, you generally cannot claim a loss on an income tax return.[98]

The guidance was limited and did not appear to target a digital currency such as Bitcoin that is used as a medium of exchange for goods and services in the real world. A GAO report in 2013 had found inadequate IRS efforts to address tax implications of virtual currencies not used within a virtual economy.[99] GAO recommended that IRS take a step to counter misinformation circulating about virtual currencies in view of the possibility for growth in such currencies. Rather than recommending a costly rigorous compliance approach, GAO recommended that IRS "find relatively low-cost ways to provide information to taxpayers, such as the web statement IRS developed on virtual economies, on the basic tax reporting requirements for transactions using virtual currencies developed and used outside virtual economies."[100]

It appears that the IRS heeded the GAO recommendation. On March 25, 2014, the IRS posted on its website a notice, *IRS Virtual Currency Guidance: Virtual Currency is Treated as Property for U.S. Federal Tax Purposes; General Rules for Property Transactions Apply*.[101] The guidance advises U.S. taxpayers that virtual currency is treated as property for federal tax purposes and provides answers to 16 Frequently Asked Questions.[102] It advises taxpayers on a range of matters such as when to include the fair market value of virtual currency in computing gross income; how to determine the fair market value of virtual currency; and whether payments made using virtual currency are subject to backup withholding. According to the IRS, some of the general implications of the requirement that virtual currency be treated as property for federal tax purposes are

> Wages paid to employees using virtual currency are taxable to the employee, must be reported by an employer on a Form W-2, and are subject to federal income tax withholding and payroll taxes.
>
> Payments using virtual currency made to independent contractors and other service providers are taxable and self-employment tax rules generally apply. Normally, payers must issue Form 1099.
>
> The character of gain or loss from the sale or exchange of virtual currency depends on whether the virtual currency is a capital asset in the hands of the taxpayer.

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[98] Internal Revenue Service, "Tax Consequences of Virtual World Transactions," http://www.irs.gov/Businesses/Small-Businesses-&-Self-Employed/Tax-Consequences-of-Virtual-World-Transactions.

[99] U.S. Government Accountability Office, "Virtual Economies and Currencies: Additional IRS Guidance Could Reduce Tax Compliance Risk," GAO-13-516, May 15, 2013.

[100] Ibid.

[101] IRS Notice 2014-36 (March 25, 2014), "IRS Virtual Currency Guidance: Virtual Currency Is Treated as Property for U.S. Federal Tax Purposes; General Rules for Property Transactions Apply," http://www.irs.gov/uac/Newsroom/News-Releases-for-March-2014. (Hereinafter, IRS Notice 2014-36.)

[102] IRS Notice 2014-21, at http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CCcQFjAB&url=http%3A%2F%2Fwww.irs.gov%2Fpub%2Firs-drop%2Fn-14-21.pdf%3Futm_source%3D3.31.2014%2BTax%2BAlert%26utm_campaign%3D3.31.14%2BTax%2BAlert%26utm_medium%3Demail&ei=SV-9U8rNNq_fsAS53oKIAw&usg=AFQjCNGA0SLTV8u_FVS4mR2drXjThS1BHg&bvm=bv.70138588,d.cWc.

> A payment made using virtual currency is subject to information reporting to the same extent as any other payment made in property.[103]

Federal Anti-Money Laundering Laws

Under the criminal anti-money laundering laws,[104] engaging in financial transactions that involve proceeds of illegal or terrorist activities or that are designed to finance such activities is prohibited. Money laundering crimes generally involve transactions processed by financial institutions, which is why the Bank Secrecy Act (BSA) imposes various recordkeeping requirements on banks and other financial institutions.[105] Under the Currency and Foreign Transaction Reporting Act[106] component of the BSA, financial institutions must file reports of cash transactions exceeding amounts set by the Secretary of the Treasury in regulations, and file suspicious activity reports (SARs) for transactions meeting a certain monetary threshold or intended to evade reporting requirements. Financial institutions, as required by the Secretary of the Treasury, must also develop and follow anti-money laundering programs and customer identification programs. All of these requirements apply to *money services businesses* (MSBs), a category of financial institution that must register with the Department of the Treasury.[107] MSBs include a variety of businesses, including dealers in foreign exchange, check cashers, traveler's check issuers, providers of prepaid access cards, and money transmitters.[108] These entities must register with the Department of the Treasury and comply with BSA requirements.

Financial Crimes Enforcement Network (FINCEN) Actions

FINCEN Guidance

On March 18, 2013, Treasury's Financial Crimes Enforcement Network (FINCEN) issued interpretative guidance[109] requiring Bitcoin exchanges—individuals and businesses that change Bitcoins into U.S. or foreign currency—to register as MSBs pursuant to the BSA. Subsequently, FINCEN issued rulings indicating that (1) individuals or companies that mine Bitcoins, use them, and convert them into real currency for their own use are not exchanges and do not have to register as MSBs[110] and (2) companies investing in Bitcoins exclusively for their own account are not exchanges and do not have to register as MSBs.[111]

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[103] IRS Notice 2014-36.

[104] 18 U.S.C. §§1956 and 1957.

[105] Titles I and II of P.L. 91-508, including 12 U.S.C. §§1829b, and 1951-1959; 31 U.S.C. §§5311 et seq.

[106] 31 U.S.C. §§5311 et seq.

[107] Bank Secrecy Act requirements for money services businesses are listed on the Financial Crimes Enforcement Network's website at http://www.fincen.gov/financial_institutions/msb/msbrequirements.html.

[108] 31 C.F.R. §1010.100(ff).

[109] U.S. Department of the Treasury, Financial Crimes Enforcement Network, "Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies," (March 18, 2013), http://www.fincen.gov/statutes_regs/guidance/html/FIN-2013-G001.html.

[110] FIN-2014-R001, "Application of FinCEN's Regulations to Virtual Currency Mining Operations" (January 30, 2014), http://www.fincen.gov/news_room/rp/rulings/html/FIN-2014-R001.html.

[111] FIN-2014-R002, "Application of FinCEN's Regulations to Virtual Currency Software Development and Certain Investment Activity" (January 30, 2014), http://www.fincen.gov/news_room/rp/rulings/html/FIN-2014-R002.html.

FINCEN Administrative Rulings

On October 27, 2014, FINCEN released two administrative rulings denying exemptions from MSB regulations for two companies involved in virtual currency activities.[112] One ruling applied to a business proposing to act as an intermediary between credit card holders and hotels dealing only in Bitcoins; the other proposed to set up a trading platform to match offers to buy and sell virtual currency for legal tender. In both cases, FINCEN ruled that the companies qualified as money transmitters under the MSB regulations and did not meet the criteria for exemption as payment processors.

Specifically, FINCEN ruled that a company that sets up a payment system to facilitate payments between U.S. credit card holders and certain businesses that deal only in virtual currencies qualifies as a MSB and must register and be subject to regulation as such. In the first ruling, the business in question was proposing to offer U.S. credit card holders a means of paying for reservations in certain Latin American hotels that operate solely on the basis of Bitcoins and do not accept credit card payments or payments in dollars or other sovereign currencies. According to the information provided to FINCEN, the company would supply the hotels with software through which credit card charges would be directed to the company rather than to the hotel. The company would then pay the hotel in Bitcoins, after deducting a fee, using Bitcoins that it had purchased from Bitcoin exchanges at wholesale. The company would charge the credit card holders the dollar equivalent of the hotel charges and bear the risk of exchange rate fluctuation between the time of the credit card charge and payment to the hotel. The company argued that it did not meet FINCEN's definition of *virtual currency exchanger* and that it was acting as a payment processor and not a money transmitter. FINCEN ruled that the proposed activities fall squarely within the regulatory definition of *money transmission services*[113] and, because the business does not operate through a clearing and settlement system involving only businesses regulated under the BSA, the company does not qualify for an exception as a payment processor.[114]

In the second ruling, FINCEN determined on October 27, 2014, that a company proposing to set up a virtual currency trading platform would be required to register as an MSB. Under the proposal, customers would deposit U.S. dollars and virtual currency in accounts that would be maintained separately in their names and could be used to execute orders to the company to buy or sell the currency at a given price. Orders would be executed automatically through the platform, which would attempt to match buy and sell orders from among the customers maintaining accounts with the company. If no match was found at the given price, no transaction would be executed. The company argued for an exemption from the MSB regulations on the grounds that its operations were similar to those of commodities or securities exchanges and that it was not transmitting money to counterparties. FINCEN characterized these arguments as irrelevant. Instead, FINCEN looked to the regulatory definition of *money transmitter* and found it to cover the company's activities. According to FINCEN, "in each trade conducted through the

[112]FIN-2014-R011, "Request for Administrative Ruling on the Application of FinCEN's Regulations to a Virtual Currency Trading Platform, and FIN-2014-R012, "Application for Administrative Ruling on the Application of FinCEN's Regulation to a Virtual Currency Payment System," http://www.fincen.gov/statutes_regs/rulings/. (Hereinafter FIN 2014-R2011 or FIN-2014-R012.)

[113] "The term *money transmission services* means the acceptance of currency, funds, or other value that substitutes for currency from one person and the transmission of currency, funds, or other value that substitutes for currency to another location or person by any means." 31 C.F.R. §1010.100(ff).

[114] 31 C.F.R. §1010.100(ff)(5)(ii)(B) and FIN-2013-R2002, "Whether a Company That Offers a Payment Mechanism Based on Payable-Through Drafts to Its Commercial Customers Is a Money Transmitter (November 13, 2013).

Platform, two money transmission transactions occur: one between the Company and the Customer wishing to buy virtual currency, and another between the Company and the Customer wishing to sell such virtual currency at the same exchange rate."[115]

FINCEN-Department of Justice Enforcement Action

On May 5, 2015, FINCEN brought its first enforcement[116] action against a virtual currency exchange, Ripple Labs, Inc. (Ripple), which sells XRP ("ripples"), a virtual currency with market capitalization second to that of Bitcoins. The charges against Ripple, by both FINCEN and the U.S. Attorney for the Northern District of California, involve failure to register as a money services business and to maintain an adequate anti-money laundering program. The DOJ had investigated Ripple for operating an unlicensed money services business in violation of a federal criminal statute.[117] Under an agreement reached with FINCEN and DOJ, Ripple is subject to a total penalty of $700,000, $450,000 of which is to be forfeited to DOJ and the remainder paid to the U.S. Treasury. In addition, Ripple has agreed to take certain remedial measures. Under the settlement agreement, DOJ will not prosecute Ripple for any of the conduct detailed in a Statement of Facts and Violations, and Ripple has agreed to continue to cooperate with DOJ in related Bank Secrecy Act (BSA) investigations of the conduct of Ripple "and its officers, directors, employees, agents, and consultants." Ripple has also agreed to take certain remedial steps, including continuing to implement and improve its BSA compliance program and to move one of its organizational components to a money services business registered with FINCEN. That component functions in such a way that its "end users" are able "to interact with the Ripple protocol to view and manage their XRP and fiat currency balances."

Federal Election Campaign Act

In what the *Washington Post* characterized as "one of the first rulings by a government agency on how to treat the virtual currency,"[118] the Federal Election Commission (FEC) voted unanimously to permit a nonconnected political committee to accept Bitcoin contributions and to purchase Bitcoins as an investment. The FEC released an Advisory Opinion[119] on May 13, 2014, that focuses on the specifics of the particular request that the FEC was approving. Whether the ruling will be limited with respect to (1) the amounts that may be received from each contributor per election and (2) the screening procedures specified in the request approved by the FEC appears to be uncertain. The request came from Make Your Laws PAC, Inc. (MYL), a nonconnected political action committee (PAC) registered with the FEC. MYL sought and received permission to accept Bitcoins of up to $100 per contributor per election. MYL proposed to obtain online the contributor's name, address, occupation and employer, as well as an affirmation that the donor is not a foreign national and is the owner of the Bitcoins. These screening procedures satisfied the FEC as adequate with respect to MYL's obligation to examine contributions and determine eligibility of contributors. MYL also received permission to buy Bitcoins and to hold Bitcoins for

[115] FIN-2014-R1011, at 3.

[116] Financial Crimes Enforcement Network, "FinCEN FinesRiple Labs Inc. in First Civil Enforcment Action Against a Virtual Exchanger," May 5, 2015, http://www.fincen.gov/news_room/nr/html/20150505.html.

[117] 18 U.S.C. §1960(b)(1)(B).

[118] Matea Gold, "Federal Election Commission Approves Bitcoin Donations to Political Committees," *Washington Post*, May 8, 2014, http://www.washingtonpost.com/blogs/post-politics/wp/2014/05/08/federal-election-commission-approves-bitcoin-donations-to-political-committees/.

[119] FEC AO 2014-02 "Political Committee May Accept Bitcoins as Contributions," http://www.fec.gov/pages/fecrecord/2014/june/ao2014-02.shtml.

sale. Permission was refused with respect to using Bitcoins to pay expenses. Under the ruling the Bitcoins are to be treated as contributions of "anything of value,"[120] as authorized under the Federal Election Campaign Act.[121] They may be held in MYL's Bitcoin wallet until liquidated, when they are to be deposited in a campaign depository.

Federal Trade Commission Act

The Federal Trade Commission (FTC) Act[122] prohibits "unfair or deceptive acts or practices in or affecting commerce"[123] and authorizes the FTC to enforce those prohibitions. On September 15, 2014, the FTC brought a civil action under the FTC Act against Butterfly Lab, a Wyoming corporation with Kansas and Missouri offices. The suit was filed in the U.S. District Court for the Western District of Missouri. It charged Butterfly Lab with engaging in deceptive practices in violation of Section 5(a) of the FTC Act.[124] The complaint alleged that Butterfly misled consumers who prepaid for Bitcoin mining machines and services that the company sold on the Internet. According to the allegations, encryption machines and services that Butterfly sold from its website and through Facebook and Twitter were either not delivered as promised or, if delivered, failed to produce Bitcoins profitably, as advertised. Without hearing from the defendant, the court, on September 18, 2014, issued a temporary order freezing Butterfly's assets, appointing a receiver, and granting the FTC immediate access to the company's premises and records.[125]

The FTC's allegation charges Butterfly with receiving upfront payments amounting to thousands of dollars from consumers who responded to false and misleading advertisements claiming that the machines would conduct complex computations at high speed, using low electrical power. According to the complaint,[126] buyers of these machines were misled by assertions that the machines would solve the mathematical puzzles involved in mining Bitcoins and that buyers of the Butterfly machines or services would receive Bitcoins as rewards for solving these puzzles at a rate to make up for the cost of the initial outlay and, in short order, show a profit. Instead, some of the machines promised were never delivered; others were not delivered as promised or were defective when delivered. The result, according to the FTC, was that consumers could not produce Bitcoins, the company was unjustly enriched, and the court's intervention was required to stop a continuing substantial injury to consumers. The court found that the FTC had offered sufficient evidence for the court to conclude that Butterfly had likely violated and would continue to violate the FTC Act. The court further concluded that consumers would likely suffer "immediate and continuing harm" unless the court stopped the Butterfly operation. Because the court found that irreparable damage to consumers was likely if the defendant were notified of the case and able to transfer assets, the court found that there was good cause to appoint a receiver and to allow the FTC immediate access to the company and its records to, among other things, identify its assets.

[120] 2 U.S.C. §431(8)(A)(i); 11 C.F.R. §§100.52(a) and 100.52(d)(1).

[121] 2 U.S.C. §431 et seq.

[122] 15 U.S.C. §§41-58.

[123] 15 U.S.C. §45.

[124] 15 U.S.C. §45(a).

[125] Federal Trade Commission v. BF Labs, Inc., no. 4:14-cv-00815-BCW (W.D. Mo. filed Sept. 18, 2014). http://www.ftc.gov/enforcement/cases-proceedings/1423058/bf-labs-inc.

[126] A Federal Trade Commission webpage contains a link to the complaint, at http://www.ftc.gov/enforcement/cases-proceedings/1423058/bf-labs-inc.

Federal Securities Regulation

Securities regulation focuses on two different legal issues involving Bitcoins—investments purchased with Bitcoins and investing in Bitcoins. The SEC has been active in investigating issues related to Bitcoins and has published an investor alert on Bitcoin and other virtual currency-related investments.

Investments Purchased with Bitcoins

The United States District Court for the Eastern District of Texas held in August 2013 that it had subject matter jurisdiction over possible fraud in investments purchased with Bitcoins because of its determination that investments purchased with Bitcoins are securities.[127] The Securities and Exchange Commission (SEC) alleged that the defendant had violated provisions of the Securities Act of 1933[128] and the Securities Exchange Act of 1934[129] and had conducted a kind of Ponzi scheme. According to the facts stated by the SEC, the defendant, Trendon T. Shavers, who was the founder and operator of Bitcoin Savings and Trust (BTCST), had "made a number of solicitations aimed at enticing lenders to invest in Bitcoin-related investment opportunities." Shavers had advertised that he sold Bitcoins and that he would pay an investor up to 1% interest daily until the investor withdrew the funds or until BTCST could no longer be profitable. Investors lost a considerable amount of money, and the SEC brought suit. Shavers defended that the BTCST investments were not securities under federal securities laws because Bitcoins are not money and are not regulated by the United States. Shavers seemed also to argue that, because the investments were not securities, the court had no jurisdiction over a lawsuit alleging violations of the federal securities laws. The SEC argued that the BTCST investments were investment contracts, thus bringing them within the definition of "securities" and therefore subject to regulation by the SEC.

The court held that it did have jurisdiction over the case because of its determination that investments purchased with Bitcoins are securities. 15 U.S.C. Section 77b defines a "security" in a very broad way as "any note, stock, treasury stock, security future, security-based swap, bond ... [or] investment contract." Cases such as SEC v. W.J. Howey & Co[130] and Long v. Schultz Cattle Co.[131] have set out a kind of template for an investment contract: An investment contract involves (1) an investment of money (2) in a common enterprise (3) with the expectation of profits from the efforts of a promoter or a third party. Thus, according to the court, it had to determine whether the BTCST investments were an investment of money. The court found that, because Bitcoins can be used to purchase goods or services and even used to pay for individual living expenses, they are a "currency or form of money" and that "investors wishing to invest in BTCST provided an investment of money." The court also found that there was a common enterprise because the investors were dependent upon Shavers's expertise in Bitcoin markets and that Shavers promised a significant return on their investments. Finally, the Eastern District of Texas found that the third prong of the investment contract template was met because the BTCST investors had an expectation of deriving profits from their investments. Because it found that the BTCST

[127] Securities and Exchange Commission v. Shavers, No. 4:13-CV-416 (E.D. Tex. August 6, 2013).

[128] 15 U.S.C. §§77a et seq.

[129] 15 U.S.C. §§78a et seq.

[130] 328 U.S. 293 (1946).

[131] 881 F.2d 129 (5th Cir. 1989).

investments satisfied the investment contract definition, the court held that it had subject matter jurisdiction over possible fraud in investments purchased with Bitcoins.

On September 21, 2015, Shavers pled guilty to a count of securities fraud in U.S. District Court for the Southern District of New York.[132]

Investing in Bitcoins

The SEC is conducting investigations into bitcoin investments. For example, in June 2014, the SEC charged the co-owner of two Bitcoin-related websites with offering publicly traded securities without registering them.[133] An SEC investigation found that a co-owner of the websites published prospectuses on the Internet and solicited investors to buy shares in SatoshiDICE and FeedZeBirds. However, the co-owner had not registered the offerings with the SEC. Investors paid for their shares with Bitcoins. The charges were settled, with disgorgement of the profits plus a penalty. Andrew J. Ceresney, director of the SEC's Division of Enforcement, stated,

> All issuers selling securities to the public must comply with the registration provisions of the securities laws, including issuers who seek to raise funds using Bitcoin. We will continue to focus on enforcing our rules and regulations as they apply to digital currencies.[134]

The SEC is considering an application filed by Cameron and Tyler Winkelvoss to form a public exchange-traded fund (ETF) for Bitcoins.[135] According to the filings, the ETF will be traded on the NASDAQ OMX under the symbol "COIN." The SEC's website states that an ETF is often registered as an open-end investment company or unit investment trust under the Investment Company Act of 1940. The regulatory requirements for ETFs include the following:

> As investment companies, ETFs are subject to the regulatory requirements of the federal securities laws as well as certain exemptions that are necessary for ETFs to operate under those laws. Together, the federal securities laws and the relevant exemptions apply requirements that are designed to protect investors from various risks and conflicts associated with investing in ETFs.
>
> For example, ETFs, like mutual funds, are subject to statutory limitations on their use of leverage and transactions with affiliates. ETFs also are subject to specific reporting requirements and disclosure obligations relating to investment objectives, risks, expenses, and other information in their registration statements and periodic reports.
>
> In addition, ETFs are subject to oversight by boards of directors.[136]

The Winkelvoss brothers have made amendments to their filings, and the SEC appears to be still reviewing them.

[132] See http://www.justice.gov/usao-sdny/pr/texas-man-pleads-guilty-manhattan-federal-court-operating-bitcoin-ponzi-scheme.

[133] See http://www.sec.gov/News/PressRelease/Detail/PressRelease/1370541972520#.U7r1cii816Y.

[134] Ibid.

[135] See http://www.coindesk.com/winklevoss-bitcoin-etf-trade-nasdaq-coin-symbol.

[136] See http://www.sec.gov/investor/alerts/etfs.pdf.

In April 2015, Overstock.com, an online retailer headquartered near Salt Lake City, filed a registration statement with the SEC to register $500 million worth of equity in Overstock as the first digital stock.[137] The SEC is reviewing the application.

Securities Investor Alerts

In May 2014, the SEC's Office of Investor Education and Advocacy issued an investor alert to attempt to make investors aware about the potential risks of investments involving Bitcoin and other forms of virtual currency.[138] In the alert, the SEC expressed concern that Bitcoin and other virtual and digital currencies, as new products or technologies, have the potential to create fraud and high-risk investment opportunities.

> Potential investors can be easily enticed with the promise of high returns in a new investment space and also may be less skeptical when assessing something novel, new and cutting-edge.[139]

The North American Securities Administrators Association, an international investor protection organization, has included digital currency on its list of major threats to investors.[140]

Selected SEC Sanctions

In December 2014, the SEC issued a release[141] in which it announced that it was imposing sanctions on a computer programmer, Ethan Burnside, for his online operation of two venues that traded securities using the virtual currencies Bitcoin and Litecoin. According to the SEC, the sanctions were necessary because Burnside had never registered the venues as stock exchanges or broker-dealers. In addition, the SEC sanctioned Burnside for conducting unregistered offerings. The SEC order[142] indicates that Burnside cooperated in the agency's investigation and agreed to disgorge $68,000, made up of profits, interest, and penalties, and to a bar from participating in the securities industry.

In the view of the SEC, Burnside's not registering the virtual currency venues violated several statutes. Because of the enlistment of securities issuers to offer investments for purchase or sale to the public, the non-registration is a violation of Section 6 of the Securities Exchange Act.[143] This statute requires that "[a]n exchange shall not be registered as a national securities exchange unless the Commission determines that" various requirements assuring investor protection and other criteria are met. Despite making solicitations to the public to open accounts and trade securities, Burnside did not register the venues as broker-dealers, apparently a violation of Section 202(a)(11) of the Investment Advisers Act.[144] The SEC's order found that Burnside violated other provisions of the federal securities laws, such as Sections 5(a) and 5(c) of the Securities Act,[145] concerning requirements related to securities trading in interstate commerce, and Sections 5[146]

[137] See http://www.sec.gov/Archives/edgar/data/1130713/000104746915003890/a2224281zs-3.htm.

[138] See http://www.sec.gov/oiea/investor-alerts-bulletins/investoralertsia_bitcoin.html#.U7sE_Ci816Y.

[139] Ibid.

[140] See http://www.nasaa.org/3752/top-investor-threats.

[141] See http://www.sec.gov/News/PressRelease/Detail/PressRelease/1370543655716#.VKMTKcnivSE.

[142] See http://www.sec.gov/litigation/admin/2014/33-9685.pdf.

[143] 15 U.S.C. §78f.

[144] 15 U.S.C. §80b-2(a)(11).

[145] 15 U.S.C. §§77e(a) and 77e(c).

[146] 15 U.S.C. §78e.

(transactions on unregistered exchanges) and 15[147] (registration and regulation of brokers and dealers) of the Securities Exchange Act.

In its release announcing the sanctions imposed on Burnside, the SEC emphasized the importance of investor protection in an area that may be new to the investing public. The agency stated that

> Burnside operated two online enterprises that weren't properly registered to engage in the securities business they were conducting.... The registration rules are vitally important investor protection provisions, and no exemption applies simply because an entity is operating on the Internet or using a virtual currency in securities transactions.

In February 2014, the SEC suspended trading of Imogo Mobile Technologies' securities because of issues concerning the adequacy and accuracy of its public disclosures.[148] Before the suspension, Imogo announced that it was in the process of developing a mobile Bitcoin platform. This announcement created increased movement in the trading price of Imogo's securities.

In the Matter of Sand Hill Exchange, Gerritt Hall, and Elaine Ou, although not primarily focused on Bitcoin, did have a Bitcoin component.[149] In June 2015, the SEC issued a settled cease and desist order against this website operator and its two principals who claimed to offer an opportunity to anyone to make profits based on the performance of companies that were not yet publicly traded. The major issue concerned the website's sale of complex financial instruments to persons who were not eligible to purchase them. The principals of the website tried to find people to fund its accounts with either dollars or Bitcoins, perhaps adding to the complexity and uncertainty of the investments.

On December 1, 2015, the SEC charged two Bitcoin mining companies and their founder with conducting a Ponzi scheme.[150] The SEC's complaint defined mining for Bitcoin and other virtual currencies in the way that the term "mining" has been used in other Bitcoin complaints—as applying computer power in order to solve difficult equations for the purpose of verifying a group of transactions in that currency. The first to solve the equation is awarded units of the virtual currency.

The SEC has charged that Homero Joshua Garza used his Connecticut based companies, GAW Miners and ZenMiner, to offer shares of a Bitcoin mining operation. According to the SEC, the companies did not have enough computing power for the mining that it promised to conduct. As a result, investors paid for computing power that did not exist. Returns on the investment were paid to some investors, but those returns allegedly came from proceeds generated from sales to other investors; hence, an apparent Ponzi scheme. The SEC seeks permanent injunctive relief and the disgorgement of profits, in addition to interest and penalties.

Texas State Action

In March 2014, the Texas State Securities Board (Board) entered an emergency cease and desist order against a Texas oil and gas exploration company, Balanced Energy LLC, that claimed to be the first company in the industry to accept Bitcoin from investors.[151] According to the Board, Balanced Energy failed to disclose to its investors that there are risks involved in using Bitcoin

[147] 15 U.S.C. §78o.

[148] See http://www.sec.gov/litigation/suspensions/2014/34-71568.pdf.

[149] SEC Administrative Proceeding File No. 3-16598 (June 17, 2015).

[150] Securities and Exchange Commission v. Garza, No. 3:15-cv-01760 (D. Conn. filed Dec. 1, 2015).

[151] See http://www.ssb.state.tx.us/Enforcement/files/1731.pdf.

for investments and that the company was in violation of the Texas securities laws for not disclosing these risks to investors.

Commodity Futures Trading Commission Regulation

The Commodity Futures Trading Commission (CFTC) has authority to regulate commodities futures, their markets, and certain foreign exchange instruments. On September 17, 2015, the CFTC issued an order against an online platform for facilitating the trading of Bitcoin options contracts.[152]

In March 2014, the Derivabit platform became available as a risk management platform enabling transactions in Bitcoin options and futures contracts. Although the strike and delivery prices were in U.S. dollars, the premiums and settlement payments were in Bitcoins. The CFTC charged Coinflip, which was the operator of the Derivabit platform, and Francisco Riordan, the CEO of Coinflip (respondents), with violating certain provisions of the Commodity Exchange Act (CEA), such as the prohibitions on trading unregulated options[153] and on unregistered swap execution facilities.[154] The respondents consented to the CFTC's order without admitting or denying the charges.

In the order, the CFTC set out holdings and findings that establish its position on the regulatory characterization of Bitcoin. Among these holdings and findings are the following: (1) In note 2 of the order, the CFTC stated that Bitcoin is a virtual currency and defined virtual currency as a "digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value, but does not have legal tender status in any jurisdiction"; (2) The CFTC went on in the note to distinguish virtual currencies from "real" currencies, which it stated are the "coin and paper money of the United States or another country that are designated as legal tender, circulate, and are customarily used and accepted as a medium of exchange in the country of issuance"; and, perhaps most importantly, (3) The CFTC quoted the definition of *commodity* from Section 1a(9) of the CEA[155] and noted that, because the definition is very broad, "Bitcoin and other virtual currencies are encompassed in the definition and properly defined as commodities."[156]

There may also be the possibility that the CFTC could include such a digital currency within its foreign exchange regulations because the CEA does not define *foreign currency* or *foreign exchange*, although it covers and defines *foreign-exchange forwards* and *foreign-exchange swaps*.[157]

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[152] In the Matter of Coinflip, Inc. and Francisco Riordan, CFTC Docket No. 15-29 (Sept. 17, 2015).

[153] 7 U.S.C. §6c(b).

[154] 7 U.S.C. §7b-3(a)(1).

[155] 7 U.S.C. §1a(9). It reads:

The term *commodity* means wheat, cotton, rice, corn, oats, barley, rye, flaxseed, grain sorghums, mill feeds, butter, eggs, *Solanum tuberosum* (Irish potatoes), wool, wool tops, fats and oils (including lard, tallow, cottonseed oil, peanut oil, soybean oil, and all other fats and oils), cottonseed meal, cottonseed, peanuts, soybeans, soybean meal, livestock, livestock products, and frozen concentrated orange juice, and all other goods and articles, except onions (as provided by section 13–1 of this title) and motion picture box office receipts (or any index, measure, value, or data related to such receipts), and all services, rights, and interests (except motion picture box office receipts, or any index, measure, value or data related to such receipts) in which contracts for future delivery are presently or in the future dealt in.

[156] In the Matter of Coinflip, Inc. and Francisco Riordan, CFTC Docket No. 15-29, at 3.

[157] 7 U.S.C. §§1a(24) and (25).

International Legal Issues

European Central Bank Study

The United States is not the only nation taking an interest in the potential impact of increased use of Bitcoin.[158] Because digital currency knows no national boundaries, it may require an international solution and, thus, has drawn the attention of international regulators. Traditional payment systems are based on statutory-based monetary systems, overseen by central banks that process transactions of depository banks and other authorized or chartered financial institutions. With virtual currencies, however, no laws and regulations define the duties and obligations of parties or provide for finality of settlement, resolution of disputes, or supervision of services provided. An October 2012 study of digital currencies by the European Central Bank is premised on the possibility that growth of digital currencies will carry with it a need for international cooperation in developing a regulatory framework.[159] According to the study, the current level of virtual currencies poses little risk to price stability; there are, however, risks to users and a potential for criminal schemes.[160] The study also notes that neither the European Monetary Directive nor the European Payment Services Directive clearly applies to virtual currencies such as Bitcoin.[161]

Financial Action Task Force 2014 Guidance and 2015 Report

The Financial Action Task Force, an inter-governmental organization of which the United States is a member, released a report assessing the risks that virtual currencies present to global efforts to combat money laundering and financing of terrorists in June 2014[162] and "Guidance for a Risk-Based Approach to Virtual Currencies" (FATF Guidance) in June 2015.[163] The 2014 report provides a glossary of key definitions, such as digital currency, virtual currency, convertible (or open) currency, and non-convertible (or closed) currency. It includes sections on legitimate uses of virtual currency and potential risks of virtual currency. It summarizes three law enforcement actions involving virtual currency, all spearheaded by the U.S. Department of Justice.[164]

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[158] A report by the Law Library of Congress "surveys forty foreign jurisdictions and the European Union, reporting on any regulations or statements from central banks or government offices on the handling of bitcoins as well as any significant use of bitcoins in business transactions." See Law Library of Congress, Global Legal Research Center, *Regulation of Bitcoin in Selected Jurisdictions*, January 2014, at http://www.loc.gov/law/help/bitcoin-survey/regulation-of-bitcoin.pdf.

[159] European Central Bank, "Virtual Currency Schemes," October 2012, http://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf. (Hereinafter, European Central Bank Report.)

[160] Ibid.

[161] European Central Bank Report, p. 43. The report noted that there are attempts in some of the countries belonging to the European Union to develop a means of regulating such currencies. Apparently courts in France are looking into whether Bitcoin transactions are subject to electronic money regulations. See Finextra.http://www.finextra.com/news/fullstory.aspx?newsitemid=22921.

[162] Financial Action Task Force, "Virtual Currencies: Key Definitions and Potential AML/CFT Risks," June 2014, http://www.fatf-gafi.org/topics/methodsandtrends/documents/virtual-currency-definitions-aml-cft-risk.html. (Hereinafter, FATF Report.)

[163] Financial Action Task Force, "Guidance for A Risk-Based Approach [to] Virtual Currencies," June 2015, https://www.google.com/search?q=Guidance+for+a+Risk-Based+Approach+virtual+Currencies&ie=utf-8&oe=utf-8. (Hereinafter FATF Guidance.)

[164] The three law enforcement actions are (1) the prosecution of Liberty Reserve by the Department of Justice (DOJ) and its designation by the U.S. Department of the Treasury as a financial institution of primary money laundering

The 2015 FATF Guidance is aimed at explaining how FATF's risk-based approach to standards for anti-money laundering and anti-terrorist financing apply to exchanges of virtual currencies that can be converted into fiat money. The goal is to aid national authorities seeking to develop regulatory regimes. The FATF Guidance recommends specific standards for countries to take a risk-based approach to identify and mitigate money laundering and terrorist financing risks implicated in virtual currency activities. It includes summaries of approaches taken in certain jurisdictions—Canada, China, the European Banking Authority, France, Germany, Hong Kong, Italy, Russia, Singapore, South Africa, Switzerland, United Kingdom, and the United States.[165]

On July 4, 2014, the European Banking Authority (EBA),[166] the European Union authority charged with monitoring financial activities and making recommendations for regulating banking concerns for safety and soundness purposes, released recommendations for steps to address the problems associated with the rise of virtual currencies, "EBA Opinion on 'virtual currencies."[167] In this document, the EBA identified 70 risks[168] associated with virtual currency, multiple difficulties[169] of crafting a regulatory regime addressing those risks, and some interim measures for the member states of the European Union to institute. As interim measures, the EBA recommended (1) subjecting virtual currency exchanges to the anti-money laundering and counter-terrorist financing requirements and (2) discouraging credit institutions, payment institutions, and e-money institutions from buying, holding, or selling virtual currencies.[170]

concern, cutting it off from the U.S. banking system; (2) the DOJ's indictment of the owner of Silk Road and seizure of its website and more than 600,000 Bitcoins resulting from its sale of drugs and other illegal operations; and (3) the DOJ and Manhattan District Attorney's investigation and indictment of felons associated with Western Express International's "global identity theft/cyberfraud scheme." FATF Report, at 10-12/. The U.S. Marshals Service has conducted two auctions of Bitcoins seized in connection with the Silk Road prosecution and is expected to sell the remainder. See Sydney Ember, "At an Auction of Bitcoins Seized From Silk Road, One Exchange Wins Big," *New York Times Dealbook*, December 10, 2014, p. B3.

[165] FATF Guidance, at p. 115-22.

[166] The European Banking Authority, established in 2011, is a European Union authority tasked with "creation of a European Single Rulebook in banking whose objective is to provide the single set of harmonised prudential rules for financial institutions throughout the EU. The EBA was established on 1 January 2011 as part of the European System of Financial Supervision (ESFS)," http://www.eba.europa.eu/about-us;jsessionid= F0A9FFE1AE5B85CF9C57D284FB06BBAC.

[167] European Banking Authority. "EBA Opinion on 'virtual currencies'" (July 4, 2014). Available on European Banking Authority webpage, under heading "EBA proposes potential regulatory regime for virtual currencies, but also advises that financial institutions should not buy, hold or sell them whilst no such regime is in place," https://www.eba.europa.eu/-/eba-proposes-potential-regulatory-regime-for-virtual-currencies-but-also-advises-that-financial-institutions-should-not-buy-hold-or-sell-them-whilst-n. (Hereinafter, EBA Opinion.)

[168] According to the EBA Opinion, "[t]he risks include the fact that a [virtual currency] ... scheme can be created, and then its function subsequently changed, by anyone, and in the case of decentralised schemes, such as Bitcoins, by anyone with a sufficient share of computational power; that payer and payee can remain anonymous; that [virtual currency] ... schemes do not respect jurisdictional boundaries and may therefore undermine financial sanctions and seizure of assets; and that market participants lack sound corporate governance arrangements." EBA Opinion, p. 5.

[169] According to the EBA Opinion, "[a] regulatory approach that addresses these drivers comprehensively would require a substantial body of regulation, some components of which are untested. It would need to comprise, amongst other elements, governance requirements for several market participants, the segregation of client accounts, capital requirements and, crucially, the creation of 'scheme governing authorities' that are accountable for the integrity of a .. [virtual currency] scheme and its key components, including its protocol and transaction ledge." EBA Opinion, p. 5.

[170] EBA Opinion, p. 6.

Concern About International Monetary Fund Authority

One issue that has received some attention is the ability of the International Monetary Fund (IMF) to defend a traditional currency of one of its member countries from a speculative attack involving a digital currency such as Bitcoin because the IMF's Articles of Agreement do not explicitly permit it to acquire a currency not issued by one of its members. At least one commentary[171] examines possible options for amending or reinterpreting the IMF's authority.

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[171] Nicholas Plassarus, "Regulating Digital Currencies: Bringing Bitcoin within the Reach of the IMF," 14 Chicago Journal of International Law 377 (2013), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2248419.