May 1, 2018

THE CRYPTO ASSET CLASS: BACKGROUND AND SECURITIES LAW ISSUES[1]

Kevin W. Vonnahme, Esq., JD, LLM, MBA
Mick Law P.C. LLO
www.micklawpc.com

The term "crypto" derives from cryptography, which is a method of storing and transmitting data in a particular form (encryption/decryption) so that only intended recipients can make use of it. The crypto asset class is a rapidly emerging asset class that is largely unregulated. There is not yet a clear consensus on the appropriate label to use (i.e., whether a crypto should be referred to as a currency, coin, token, commodity, etc.). Regardless of the label, the investment characteristics of crypto assets generally differ from those of traditional currencies, commodities or securities.

Importantly, crypto assets are not backed by a central bank or a national organization, any hard assets, human capital or other form of credit. Rather, crypto assets are market-based, i.e., a crypto asset's value is determined by (and fluctuates often, according to) supply and demand factors, the number of merchants that accept it and the value that various market participants place on it through their mutual agreement, barter or transactions. Proponents of crypto typically believe a crypto has value either as a "medium of exchange" or as a type of "store of value" comparable to gold. In the investment context, crypto coins and tokens are commonly described as having a "market capitalization" or "market cap," which, in the crypto sector, is measured by multiplying the current price (in dollars or other currency or crypto) by the amount of the circulating supply of the crypto.[2]

The crypto asset class essentially came into existence with the launch of Bitcoin in the 2008/2009 timeframe and has expanded rapidly in recent years and months.[3] There are currently more than 1,500 crypto coins/tokens listed on coinmarketcap.com, which illustrates how rapidly the crypto asset class has expanded. Many books have been written on Bitcoin and other cryptos, and a comprehensive analysis of the entire crypto asset class is beyond the scope of this material. This material will begin with an overview of Bitcoin and then follow with information regarding other aspects of the crypto asset class. Risk factors relating to the crypto asset class are included throughout. Finally, this material will also include a brief summary of developments relating to Initial Coin Offerings ("**ICOs**"), crypto-related ETFs, OTC markets and futures. The following overview of Bitcoin was taken largely from information obtained through independent research and our firm's due diligence review of a private placement memorandum used in connection with a private Reg D offering by a certain cryptocurrency fund. Our firm has not independently verified the information in this material unless indicated otherwise.

---

[1] The following educational material was prepared as of May 1, 2018 by Kevin W. Vonnahme, Associate Attorney at Mick Law P.C. LLO. This material has not been updated for any developments occurring subsequent to the date of this white paper.

[2] The following site tracks various crypto market caps: https://coinmarketcap.com/all/views/all/

[3] As used herein, the term "Bitcoin" may refer to the Bitcoin network or the Bitcoin crypto (Symbol: "**BTC**") depending on the context.

Overview of Bitcoin, the Bitcoin Network and the Bitcoin Market

Bitcoin was created in 2008/2009 by a person or group that used the name "Satoshi Nakamoto," with the belief that: *"[w]hat is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party."[4]*

In 2009, Satoshi Nakamoto (which is believed to be a pseudonym for a person or group of people) designed and created Bitcoin-Qt, the original mathematical Bitcoin network source code and protocol. I would encourage everyone interested in cryptos to review the original white paper on Bitcoin by Satoshi Nakamoto (originally issued to subscribers of a cryptography mailing list on October 31, 2008), which is available on the bitcoin.org website.[5] In this tradition, several developers of other cryptos besides Bitcoin have published their own white papers describing the purpose and expected usefulness of the new crypto. The absence of a white paper for a crypto may be a potential red flag.[6]

Bitcoin is a type of decentralized, virtual "cryptocurrency" that functions without the intermediation of any central authority. Each individual Bitcoin unit exists as a digital file, based upon a mathematical proof, and is comprised of two numbers, or "keys": (1) the public key that encrypts a transaction value; and (2) the private key that decrypts it. Bitcoin allows users to send payments within a decentralized, peer-to-peer network and does not require a central clearing house or financial institution clearing transactions. The smallest unit into which a Bitcoin can be divided is called the Satoshi: 1 Bitcoin contains 8 million Satoshi.

Currently, Bitcoin is not represented by any official organization, government or public or private authority, and the Bitcoin network does not rely on any government authority or financial institution to create, transmit or determine the value of Bitcoin. While it is generally believed that Bitcoin originated independent of any foreign or domestic government authority or corporate influence, the creator of Bitcoin has not been conclusively identified.

Bitcoin Network. The "Bitcoin network" refers to the online platform through which Bitcoin is "mined," validated and transmitted. Understanding the Bitcoin network requires an understanding of the terms "cryptography," "blockchain" and "mining."

Cryptography. In the Bitcoin context, cryptography refers to the mathematical proofs on which any given Bitcoin is based. Because "mining" a Bitcoin requires the user to solve a complicated proof, the cryptography basis is intended to provide the Bitcoin network a high level of security. Such security, in turn, is designed to permit network users to control transactions and prevent double-spending (i.e., when a unit of virtual currency would be concurrently sent to and accepted by two different recipients). The Bitcoin network hosts (provides a forum for) the blockchain and Bitcoin mining. As explained below, these latter two concepts are necessary to create a consensus on the network about which transactions will be confirmed and considered valid.

---

[4] Original white paper on Bitcoin.
[5] https://bitcoin.org/bitcoin.pdf
[6] The following site provides a searchable database of crypto white papers: http://whitepaperdatabase.com/.

Blockchain (Distributed Ledger).   The blockchain is a chronologically ordered, public record of all validated Bitcoin transactions across the Bitcoin network. It is shared among all Bitcoin users. Each "block" in the "chain" (or entry in the record) contains and confirms many waiting transactions. The blockchain works as follows. Engaging in Bitcoin transactions requires a user to install or access on its computer or mobile device a Bitcoin software program that will allow the user to generate a digital Bitcoin account—commonly known as a "digital wallet" or "wallet"—in which to store Bitcoin, connect to the Bitcoin network, and purchase or sell, own, transfer or receive Bitcoin. Users that have installed available Bitcoin-Qt must also make periodic software upgrades. Each Bitcoin wallet includes a unique address and verification system consisting of a "public key" and a "private key" which are linked mathematically to each other. A public key serves as an address for the digital wallet (similar to a bank account number). A user must provide the public key to the party initiating the transfer. The private key is a secret piece of data that proves the user is authorized to spend Bitcoin from a specific wallet (similar to a PIN used to confirm a transaction). The private key authorizes access to, and transfer of, the funds in the digital wallet to other users. Private keys may be stored on a user's computer or on remote servers.

If a user loses the private key or fails to secure or make a backup of the public and private key relating to a digital wallet, the user will permanently lose access to the Bitcoin contained in the associated digital wallet. Additionally, there is risk that a digital wallet containing the keys may be deleted or hacked into without any recourse to a centralized group or agency to assist in its recovery. In comparison, if a thief steals a credit card or hacks into a bank account, the financial institution has the ability to freeze the account and/or reverse fraudulent transactions. With crypto hacks, there is no centralized intermediary to turn to for relief. This feature is part of the tradeoff with crypto transactions, which are designed to be irreversible. With traditional online transactions, the potential for disputed transactions and reversibility may lead to higher transaction costs and/or delays.

Each Bitcoin user must "sign" transactions with a data code derived from entering the applicable private key into a "hashtag algorithm." The hashtag algorithm produces a hash (or timestamp) which serves as a signature validation that the transaction has been authorized by the Bitcoin owner. Each timestamp includes the previous timestamp hash as input for its own hash. This dependency of one hash on another is what forms a chain, with each additional timestamp providing evidence that each of the previous timestamp hashes existed. Presently, each block on the blockchain contains a record of hundreds of validated transactions. Each validated transaction contains a unique identifier (i.e., a Bitcoin address/public key) that can be searched and located on the blockchain through websites such as www.blockchain.com. Currently, it takes approximately ten minutes for each Bitcoin transaction to be confirmed by the network through the efforts of miners and a new block in the blockchain to be created. Each block that is added to the blockchain reduces the risk that a previous transaction will be reversed or that double spending has occurred.

Mining and Comparison to Gold. Bitcoin mining is the process of validating and adding transaction records to Bitcoin's public ledger of past transactions (i.e., the blockchain). Each block is an independent mathematical proof which depends on the previous block. As an incentive to update the blockchain, Bitcoin miners may collect transaction fees for the transactions they confirm, along with newly created Bitcoin (i.e., rewards). When Bitcoin's network was launched in 2009, mining was the only method of acquiring Bitcoin. Satoshi Nakamoto and Hal Finney were the

main initial miners, and they conducted the first Bitcoin transaction.[7]

The mining process is designed so that only the first miner to compute the proof is rewarded with Bitcoin, while the rest of the miners have to start over on a new block. Bitcoin supply is increased with every new block of transactions that is added to the blockchain. The amount of the reward changes over time in accordance with a set schedule. The Bitcoin block mining reward is cut in half every 210,000 blocks, and the current reward is 12.5 Bitcoins for each block that is added to the blockchain.[8] The reward for solving a block is automatically adjusted so that roughly every four years of operation of the Bitcoin network, half of the amount of Bitcoins created in the prior four years are created. It is understood (but not guaranteed) that the total number of Bitcoins in existence will never exceed 21 million. Based on the halving schedule, it is generally believed that the 21 million limit is not expected to be reached before the year 2140.

Bitcoin mining is currently very expensive and time-consuming, and miners must dedicate substantial resources to continuously power and cool devices. The mining reward system is designed to ensure miners are compensated for their efforts and new Bitcoin enters into public circulation. The Bitcoin network's mining protocol is intended to make it more difficult to solve for new blocks in the blockchain as the processing power dedicated to mining increases. Therefore, the Bitcoin mining process is designed to incentivize people to be efficient and use as little power as possible to create blocks and validate the transactions. Given the time and resources that must be dedicated to mining, miners "pool" their efforts and act cohesively to combine their processing power to solve blocks. These efforts are called mining "pools" (pool members generally split any resulting rewards based on the processing power they each contributed to solve for such blocks).

The following is a more technical description of the mining process, which was taken from the book *Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond*, by Chris Burniske and Jack Tater.

> "The mining process for bitcoin is a continual cycle of hashing a few pieces of data together in pursuit of an output that meets a predetermined difficulty level, mainly the number of 0s that the output starts with. [Burniske and Tater] call this output the *golden hash*. Recall that a hash function takes data—for example the text in this sentence—and hashes it into a fixed-length string of alphanumeric digits. While the output of a hash function is always a fixed length, the characters within it are unpredictable, and therefore changing one piece of data in the input can drastically change the output. It's called a golden hash because it bestows the privilege of that miner's block of transactions being appended to Bitcoin's blockchain. As a reward, that miner gets paid in a coinbase transaction, which is the first transaction in the block. Currently, that transaction delivers 12.5 Bitcoin to the lucky miner.

---

[7] Hal Finney passed away in 2014 after battling ALS (Lou Gehrig's disease).
https://www.wired.com/2014/08/hal-finney

[8] The Bitcoin mining reward schedule can be found at the following site: http://www.bitcoinblockhalf.com. According to this site, there are approximately 17 million Bitcoins already in circulation out of a maximum 21 million, or 81% of the limit.

"The computers involved in Bitcoin's mining process take four pieces of data: [1] a hash of the transactions for that block, [2] the hash (identifier) of the previous block [incorporating the hash of the previous block is what links together the blockchain and makes it immutable], [3] the time, and [4] a random number called the *nonce*. Different computers on the network take these four variables and increment the nonce, perhaps starting with a nonce equal to 0, then going to 1, then to 2, hoping that by changing this one variable the hash output will meet the necessary requirement of the number of starting zeros. The more nonces the miner can test, the more chances the miner will find the gold hash that meets this requirement. The rate at which new nonces can be tested is called the *hash rate*; it is the number of times per second a computer can run these four variables through a hash function and derive a new hash."[9]

The use of the phrase "mining" in the crypto context is believed to have derived from the following comparison to gold miners in the original white paper on Bitcoin.

"By convention, the first transaction in a block is a special transaction that starts a new coin owned by the creator of the block. This adds an incentive for nodes to support the network, and provides a way to initially distribute coins into circulation, since there is no central authority to issue them. **The steady addition of a constant amount of new coins is analogous to gold miners expending resources to add gold to circulation** [emphasis added]. In our case, it is CPU time and electricity that is expended.

"The incentive can also be funded with transaction fees….Once a predetermined number of coins have entered circulation [21 million], the incentive can transition entirely to transaction fees and be completely inflation free."[10]

Regarding the ultimate expectation of minimal transaction costs, note that current transaction fees and/or verification times for cryptos can be relatively high compared to traditional payment methods, such as credit cards. For example, it may take at least 10 minutes for a Bitcoin transaction to be verified (added to the blockchain).[11] Note, however, that crypto transactions are designed to be irreversible whereas traditional payment methods have the potential for disputed transactions and reversibility. Additionally, many cryptos are intended to be used to facilitate international transactions, in which case, the crypto transaction costs and times may be relatively low in comparison to traditional payment methods (e.g., using Western Union). Nevertheless, many commentators have criticized Bitcoin's transaction process as being costly and inefficient, and the extreme volatility of Bitcoin's price may make it undesirable for use as a "medium of exchange." In response, some proponents of Bitcoin believe it can be thought of as a type of "store of value" comparable to gold.[12]

---

[9] *Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond*, at p. 212.
[10] Original White Paper on Bitcoin at p. 4.
[11] The following site lists current Bitcoin transaction fees and verification times: https://bitcoinfees.info/.
[12] https://www.cnbc.com/2017/10/26/bitcoin-underestimated-peter-thiel-says.html ("I do think people are a little bit … underestimating bitcoin especially because ... it's like a reserve form of money, it's like gold, and it's just a store of value. You don't need to use it to make payments," quoting Peter Thiel).

A number of new cryptos have been developed with varying attempts to improve on some aspect of the Bitcoin concept, such as improving the average transaction times/costs or adding greater privacy protections. For example, Litecoin was designed to be an improved version of Bitcoin having an average transaction time of 2.5 minutes (¼ of the transaction time of Bitcoin) and an aggregate limit of 84 million Litecoins (4x the limit of Bitcoins). Ripple, which is briefly described later, can purportedly process a transaction in as little as four seconds. There are also efforts underway to develop a Bitcoin "lightning network" that

> "…effectively creates a layer on top of bitcoin, enabling fast and cheap transactions which can net settle to the bitcoin blockchain….Without the security of the blockchain behind it, the lightning network will not be as secure, which implies that it will largely be used for small or even micro transactions which carry a lower risk. Larger transfers that require decentralized security are more likely to be done on the original layer." [13]

Tax Treatment

The Internal Revenue Service ("**IRS**") has taken the position that any "convertible virtual currency," or any virtual currency that has an equivalent value in real currency (i.e., dollars, euros, etc.), or that acts as a substitute for real currency, shall be treated for U.S. federal tax purposes using general tax principles applicable to property transactions.[14] <u>Thus, a taxpayer who invests in crypto will generally realize capital gain or loss on the sale or exchange of the crypto (reported on IRS Form 8949)</u>. When a taxpayer successfully "mines" virtual currency, the fair market value of the virtual currency as of the date of receipt is includible in gross income, and a miner may also be subject to self-employment tax on the net earnings from mining activity.[15] Historically, the tax reporting compliance rate has been relatively low (some surveys suggest that less than 10% of crypto capital gains are reported in U.S. tax filings); however, there have been some recent developments that may lead to greater compliance.

In November 2017, the IRS obtained a federal court order requiring *Coinbase*, a large crypto exchange, to provide the IRS with certain identifying information regarding users having crypto transactions of at least $20,000 in a year during the 2013 to 2015 period.[16] Additionally, note that the recently enacted Tax Cuts and Jobs Act (the "**TCJA**") eliminated the ability to enter into like-kind exchanges under Internal Revenue Code Section 1031 for any asset other than real estate. Therefore, the exchange of one crypto for another crypto (e.g., exchanging Bitcoin for

---

[13] https://www.coindesk.com/information/what-is-the-lightning-network/

[14] See "IRS Virtual Currency Guidance: Virtual Currency Is Treated as Property for U.S. Federal Tax Purposes; General Rules for Property Transactions Apply" (https://www.irs.gov/newsroom/irs-virtual-currency-guidance). The IRS has not taken a position with respect to the federal tax consequences of crypto transactions that do not involve "convertible virtual currencies."

[15] Id.

[16] https://www.theverge.com/2017/11/29/16717416/us-coinbase-irs-records ("A California federal court has ordered Coinbase to turn over identifying records for all users who have bought, sold, sent, or received more than $20,000 through their accounts in a single year between 2013 and 2015. Coinbase estimates that 14,355 users meet the government's requirements….The government made no claim of suspicion against individual users, but instead argued that the order was justified based on the discrepancy between Coinbase users and US citizens reporting Bitcoin gains to the IRS. Coinbase boasts nearly 6 million customers, but according to a government filing, fewer than 1,000 US citizens have reported cryptocurrency holdings on their taxes.")

Ether) should be considered a taxable event.[17]

Ultimately, the tax treatment combined with high volatility of crypto exchange rates and burdensome accounting may diminish the usefulness of a crypto as a medium of exchange for transactions in the U.S. To illustrate, suppose a landlord (Lisa) and a tenant (Tom) agree that rent payments can be payable in Bitcoin. Each month that Tom pays in Bitcoin, he will have to determine the current BTC/$ exchange rate and then send that amount of BTC to Lisa. For tax purposes, Tom will also have to keep track of his hold period and the amount of gain/loss, i.e., (1) the date he originally received the BTC that he is now sending to Lisa and (2) the value/basis of BTC at the time he originally received such BTC. Likewise, Lisa will have to keep track of the date and exchange rate each time she receives BTC and also when she subsequently exchanges such BTC for dollars or something else.

As a result of the accounting/input complexity, some crypto exchanges (e.g., *Coinbase*) and crypto-tracking service providers (e.g., *CoinTracker*) have launched programs to help taxpayers track their crypto transactions.[18] In light of the recent attention and Congressional hearings into Facebook's data sharing practices, it will be interesting to see what industry standards and regulatory requirements regarding data security, privacy protections and restrictions on data sharing will develop for crypto exchanges and crypto-tracking service providers. For example, (1) will a crypto-tracking service provider be able to sell data to third parties for marketing or other purposes; and (2) under what circumstances will the crypto exchanges and/or service providers be required to share crypto transactions data with government agencies (e.g., suspicious activity reports)?

Anonymity and Illicit Use

Although Bitcoin transaction details are logged on the blockchain, a buyer or seller of Bitcoin may never know to whom the public key belongs or the true identity of the other party. Public key addresses are randomized sequences of 27-34 alphanumeric characters that, standing alone, do not provide sufficient information to identify users. Some parties may attempt to make illicit use of Bitcoin. On October 2, 2013, the FBI seized the domain name for the infamous "Silk

---

[17] https://www.fool.com/taxes/2018/01/07/36-of-bitcoin-investors-plan-to-commit-tax-fraud-t.aspx

[18] https://www.fool.com/taxes/2018/04/15/will-coinbase-report-my-bitcoin-gains-to-the-irs.aspx ("In addition to what it tells the IRS, Coinbase also has launched a tax report that it believes will help its users file their taxes. The report includes summaries of purchases and sales, including basis information that should help calculate capital gains. Coinbase's report mimics to some extent what stock investors get from their brokers on Form 1099-B, although the company does *not* send a copy of the report to the IRS as brokers are required to do for stock transactions. However, Coinbase has signaled that it could support 1099-B reporting….Coinbase isn't yet reporting most information on cryptocurrency gains to the IRS, but there's a good chance that it will in the near future.")

https://www.yahoo.com/finance/news/cointracker-raises-1-5m-tracking-155927733.html ("The [CoinTracker] service tracks your crypto across wallet addresses -- using public information, nothing private -- while it throws in API keys from the top 14 crypto exchanges. That helps fill in more gaps and give you a fuller read on how your crypto investment has performed. A transfer matching algorithm is in place to help figure out trades on decentralized exchanges, which are more complicated to track.")

Road" website—an online black marketplace for illicit goods and services—and arrested its alleged founder, Ross William Ulbricht. The website operated through multiple systems of strict anonymity and secrecy, using Bitcoin as the exclusive means of payment for illicit goods and services. As part of the raid, the FBI also seized over 26,000 Bitcoins from accounts on Silk Road, which were worth approximately $3.6 million at the time. On January 27, 2014, the CEO of *BitInstant* (the New York-based Bitcoin exchange service) was arrested on charges of money laundering and operating an unlicensed money transmitting business.

There have also been numerous reports of hackers demanding "ransom" payments in the form of Bitcoin or other cryptos.[19] Notably, it was reported that some alleged hackers claiming to have been involved in the infamous Equifax hack demanded that Equifax pay a ransom of 600 Bitcoin in September 2017, which was valued at approximately $2.5 million at the time.[20] Without getting into the technological process, note that a number of cryptos have been designed to provide even greater privacy/anonymity than Bitcoin (e.g., Dash, Monero and Zcash). As a result, one or more of these cryptos may become the crypto of choice for illicit users. Illicit use could cause significant reputational damage to one or more cryptos or the entire crypto asset class.

In addition, a new trend called "cryptojacking" emerged as a result of the high cost of mining (high electricity cost and computing power), whereby through the use of websites, apps or hacks an attempt can be made to essentially hijack someone else's computing power to use for mining crypto. The following is a description from a December 2017 *Scientific American* article:

> "Cryptojacking involves using someone's computer without their knowledge, perhaps for just seconds at a time, to mine a cryptocurrency. In the case of bitcoin, mining requires specialised hardware and consumes masses of energy. For example, each bitcoin transaction takes enough energy to boil around 36,000 kettles filled with water. **In a year, the whole bitcoin mining network consumes more energy than Ireland** [emphasis added].... Mining usually takes the form of a competition. Whichever computer solves the equation the fastest is rewarded with the money. With Moreno and other similar cryptocurrencies, a pool of computers can work together and share the reward if they win the competition. This allows individual computers to work on a just [*sic*] small part of the mining task. The larger the pool, the more chance there is of winning the reward. When a computer is cryptojacked, it is added to a pool for to [*sic*] work on the task. This is often done using a commercially available piece of software, such as Coinhive, which can [be] written into what looks like an ad using the common website language JavaScript. As the

---

[19] http://www.dw.com/en/criminals-hack-their-way-to-the-top/a-41485898
("As bitcoin has become more commonplace, the number of companies held ransom has grown. Since bitcoin is nearly untraceable [*sic*] has become the currency of choice for global criminal activity. The Federal Bureau of Investigation's (FBI) Internet Crime Complaint Center says that the reports of ransomware have nearly doubled since 2014. Often systems are breached and data stolen without victims even realizing it has happened until they are contacted by hackers.")

[20] https://hothardware.com/news/equifax-hackers-demand-bitcoin-ransom;
https://www.nytimes.com/2017/09/14/business/equifax-hack-what-we-know.html (unknown whether the alleged hackers were the actual hackers or if Equifax ultimately paid the ransom).

ad runs in the background, the computer is added to a pool….”[21]

Forking

I will begin this discussion by noting that the “fork” process is unregulated, can cause confusion and may be subject to the control of developers. Essentially, a fork can occur if miners solve a block at approximately the same time, which causes a "fork" in the blockchain. The Bitcoin network software and protocol try to resolve forks by automatically giving priority to the longest blockchain in the fork. If forks are unresolved there are effectively two Bitcoin networks operating at the same time, each with its own version of the transaction history. This creates an increased risk of receiving a double-spend transaction, and a general systemic risk to the integrity and security of the Bitcoin network.

Forks are commonly referred to as either a “soft fork” or “hard fork.” Without getting into the technological distinction, note that a new crypto can emerge out of a fork and exist alongside the original crypto (somewhat analogous to a “spin-off”). The holders of the original crypto might or might not receive the new crypto (in addition to continuing to hold the original crypto) as a form of “bonus crypto” depending on the circumstances. The outcome regarding whether the “bonus crypto” is received may depend on how the cryptos are held (i.e., held in a wallet versus held on an exchange that does not want to support the new crypto). Bitcoin Cash (Symbol: “**BCH**”) and Bitcoin Gold (Symbol: “**BTG**”) are examples of separate cryptos resulting from hard forks that have gained significant followings and exist alongside the original crypto, Bitcoin (Symbol: “**BTC**”).

Ethereum Fork, DAO and the SEC’s 21(a) Report

The following is a summary of a hard fork that occurred in connection with a well-known crypto, i.e., the Ethereum network and the Ether crypto (Symbol: “**ETH**”). Notably, this hard fork occurred under more disreputable circumstances, i.e., in the aftermath of a major hack of the DAO project (described below). Without getting into too many specifics, the Ethereum network is a complex network that is designed to serve as a platform for decentralized applications (“**Dapps**”), which are connected to the Ethereum blockchain through “smart contracts.” The Decentralized Autonomous Organization (“**DAO**”) was built as a “smart contract” on the Ethereum blockchain and essentially involved an Initial Coin Offering of DAO Tokens to be issued in exchange for Ether.

The DAO was created by Slock.it UG, a German corporation, and its co-founders, with the objective of operating as a for-profit entity that would create and hold assets through the sale of DAO Tokens to investors, which assets would then be used to fund “projects.” The holders of DAO Tokens stood to share in the anticipated earnings from these projects as a return on their investment in DAO Tokens. In addition, DAO Token holders could monetize their investments in

---

[21] https://www.scientificamerican.com/article/is-your-computer-secretly-mining-bitcoin-alternatives-a-guide-to-ldquo-cryptojacking-rdquo/

DAO Tokens by reselling DAO Tokens on a number of exchanges that supported secondary trading in the DAO Tokens. DAO Token holders also had certain voting rights.

In June 2016, a hacker used a flaw in the DAO's code to steal 3.6 million Ether, representing approximately one-third of the DAO's assets. In response to the hack, Vitalik Buterin (founder of Ethereum) and those involved with the DAO and Ethereum attempted to address the hack. They decided that the primary solution would be to release a software update to Ethereum (a hard fork) that would remove the funds from the hacker's account with the DAO, returning them to the rightful owner. While the motive for the hard fork may have been commendable, the decision by centralized players to forcefully remove funds from an account was controversial in the crypto community since it contradicted the concept of immutability (i.e., that all transactions are irreversible) and was interpreted by many to be a bad precedent or "slippery slope." As a result, some developers, traders and exchanges continued to support the other chain, which became known as "Ethereum Classic" (Symbol: "**ETC**"). This highlights a concern relating to hard forks. While some investors may think a hard fork is good if they receive the new crypto in addition to holding the original crypto (and compare it to a dividend), a hard fork has the potential to harm the value of the original crypto if there is a loss of confidence/following. With two separate blockchains, the users, miners, developers and companies involved in building applications have to decide which blockchain and inherent operating system to use.[22]

Furthermore, regarding the DAO, the U.S. Securities and Exchange Commission ("**SEC**") Enforcement Division launched an investigation into whether the DAO and associated entities and individuals violated U.S. securities laws with unregistered offers and sales of DAO Tokens in exchange for Ether. In July 2017, the SEC issued an investigative report (the "**21(a) Report**") that concluded that the DAO Tokens were "securities" and therefore were subject to federal securities laws.[23] The SEC focused on a number of factors relating to the offer and sale of the DAO Tokens and applied the *Howey* test to reach the conclusion that the DAO Tokens were "securities." Under the *Howey* test, a security exists where there is: (i) an investment of money; (ii) in a common enterprise; and (iii) an expectation of profits predominantly from the efforts of others.[24] The SEC

---

[22] *Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond*, at pp. 60-63.

[23] Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO, Rel. No. 81207 (July 25, 2017), https://www.sec.gov/litigation/investreport/34-81207.pdf

[24] *Id.* ("Under Section 2(a)(1) of the Securities Act and Section 3(a)(10) of the Exchange Act, a security includes "an investment contract." *See* 15 U.S.C. §§ 77b-77c. An investment contract is an investment of money in a common enterprise with a reasonable expectation of profits to be derived from the entrepreneurial or managerial efforts of others. *See SEC v. Edwards*, 540 U.S. 389, 393 (2004); *SEC v. W.J. Howey Co.,* 328 U.S. 293, 301 (1946); *see also United Housing Found., Inc. v. Forman*, 421 U.S. 837, 852-53 (1975) (The "touchstone" of an investment contract "is the presence of an investment in a common venture premised on a reasonable expectation of profits to be derived from the entrepreneurial or managerial efforts of others."). This definition embodies a "*flexible rather than a static principle*, one that is capable of adaptation to meet the countless and variable schemes devised by those who seek the use of the money of others on the promise of profits." *Howey*, 328 U.S. at 299 (emphasis added). The test "permits the fulfillment of the statutory purpose of compelling full and fair disclosure relative to the issuance of 'the many types of instruments that in our commercial world fall within the ordinary concept of a security.'" *Id.* In analyzing whether something is a security, "form should be disregarded for substance," *Tcherepnin v. Knight*, 389 U.S. 332, 336 (1967), "and the emphasis should be on economic realities underlying a transaction, and not on the name appended thereto." *United Housing Found.*, 421 U.S. at 849.")

also found that the DAO had not met the requirements of crowdfunding regulations, because, among other things, it was not a broker-dealer or a funding portal registered with the SEC and FINRA. Nevertheless, in light of the facts and circumstances, the SEC decided not to bring charges; instead the SEC decided to caution the industry and market participants.[25] Accordingly, on July 25, 2017, the SEC's Office of Investor Education and Advocacy issued an investor bulletin educating investors about ICOs.[26] Importantly, note that while the DAO Tokens were deemed to be "securities," the 21(a) Report labeled the Ether crypto as a "virtual currency" rather than a "security."

Since issuing the 21(a) Report, the SEC has brought several enforcement actions relating to ICOs. On September 25, 2017, the SEC announced new enforcement initiatives and the creation of a Cyber Unit that will focus on targeting cyber-related misconduct, including violations involving distributed ledger technology and ICOs.[27] Suffice it to say, there is a significant likelihood/risk that the SEC will consider an ICO to be an unregistered offering of "securities." In each case, the determination will likely depend on the facts and circumstances and application of the *Howey* test. <u>Accordingly, I would recommend performing additional due diligence before approving or investing in any ICO, such as obtaining a legal opinion applying a *Howey* test analysis relating to the ICO.</u>

In addition, on January 4, 2018, the North American Securities Administrators Association ("**NASAA**") released a public caution on cryptocurrencies, ICOs and other crypto-related investment products. "Investors should go beyond the headlines and hype to understand the risks associated with investments in cryptocurrencies, as well as cryptocurrency futures contracts and other financial products where these virtual currencies are linked in some way to the underlying investment," said Joseph P. Borg, NASAA President and Director of the Alabama Securities Commission.[28]

Crypto Exchanges

Crytpo exchanges are third-party service providers that convert Bitcoin and/or other cryptos to fiat currencies (i.e., currency a government considers to be legal tender) or other cryptos. For example, Bitcoins are bought, sold and traded with publicly disclosed (but often-changing) valuations on crypto exchanges, where the majority of Bitcoin buying and selling activity occurs. Crypto exchanges may provide the most data with respect to prevailing valuations of Bitcoin. Market participants can choose which exchange on which to buy or sell Bitcoin, although these exchanges may charge significant fees for processing transactions.

A crypto exchange may be required to register with the U.S. Treasury Department's Financial Crimes Enforcement Network ("**FinCEN**") as a Money Services Business. In addition, some states have implemented (and other states in the future may implement) money transmitter rules that apply to exchanges operating in that state, which could increase costs or cause exchanges

---

[25] https://www.sec.gov/news/press-release/2017-131
[26] https://www.investor.gov/additional-resources/news-alerts/alerts-bulletins/investor-bulletin-initial-coin-offerings
[27] https://www.sec.gov/news/press-release/2017-176
[28] http://www.nasaa.org/44073/nasaa-reminds-investors-approach-cryptocurrencies-initial-coin-offerings-cryptocurrency-related-investment-products-caution/

to shut down. Moreover, on March 7, 2018, the SEC released a public statement on potentially unlawful crypto platforms (i.e., online trading platforms that allow investors to buy and sell digital assets).[29]   According to this public statement, a crypto exchange in the U.S. will need to register with the SEC as a national securities exchange or operate under an exemption from registration, such as the exemption provided for an alternative trading system ("**ATS**"), if the exchange allows trading of cryptos that are deemed to be "securities" (e.g., coins and tokens offered and sold in ICOs). An entity seeking to operate as an ATS is also subject to regulatory requirements, including registering with the SEC as a broker-dealer. In addition, some platforms offer digital wallet services (to hold or store digital assets) or transact in digital assets that are securities. These and other services offered by platforms may trigger other registration requirements under the federal securities laws, including broker-dealer, transfer agent or clearing agency registration, among other things.[30]   Note that the Ethereum network has historically allowed access to ICOs (see the discussion above regarding the DAO Token ICO).   Therefore, it is unclear whether the SEC will ultimately consider the Ethereum network to be an "exchange" that needs to register with the SEC.

Many crypto exchanges are located outside the United Sates. Over the years, a number of crypto exchanges have suffered from major hacks and thefts of millions of dollars' worth of cryptos, resulting in some exchanges shutting down and seeking bankruptcy protection. Some notable examples include *Mt. Gox* (an early and well-known exchange based in Tokyo, Japan that shut down in 2014 after an estimated $400 million was stolen)[31] and *Youbit* (an exchange based in Seoul, South Korea that shut down in late 2017). Regarding the *Youbit* hack, some have alleged that North Korean hackers may have been involved.[32] Also, one of the largest exchanges currently in existence, *Bitfinex* (based in Hong Kong)*,* was briefly shut down for a period of time in 2016 after hackers stole more than $60 million in Bitcoins.[33] Note that *Bitfinex* is currently the largest Bitcoin exchange, but in August 2017, it announced that it was exiting the U.S. retail market place due to the challenging regulatory climate.[34]

In September 2017, it was widely reported that regulators in China intend to shut down crypto exchanges in China (as well as banning ICOs).[35] Additionally, in December 2017, South Korea announced new legislation that will impose regulations to potentially ban anonymous accounts and continually monitor crypto exchanges, and the Ministry of Justice is reportedly considering unilaterally closing all crypto exchanges in South Korea.[36] Other jurisdictions, such as Japan, have been much more receptive towards cryptos and crypto exchanges and have begun licensing crypto exchanges.[37] Nevertheless, a crypto exchange in Japan recently suffered a major hack in January 2018. The hack of *Coincheck* involved a loss of an estimated $530 million relating to theft of 523 million NEM cryptos, which is believed to be the largest crypto theft on record at

---

[29] https://www.sec.gov/news/public-statement/enforcement-tm-statement-potentially-unlawful-online-platforms-trading
[30] Id.
[31] http://money.cnn.com/2014/02/28/investing/mt-gox-bankruptcy/index.html?iid=EL
[32] http://money.cnn.com/2017/12/20/technology/south-korea-bitcoin-exchange-closes/index.html
[33] http://money.cnn.com/2016/08/03/technology/bitcoin-exchange-bitfinex-hacked/?iid=EL
[34] https://news.bitcoin.com/bitfinex-drops-us-customers/
[35] https://www.theverge.com/2017/9/11/16288898/china-shutdown-rumored-bitcoin-exchanges-crackdown
[36] https://www.yahoo.com/news/crypto-prices-suffer-korean-government-151053429.html
[37] https://www.forbes.com/sites/outofasia/2017/11/02/japan-a-forward-thinking-bitcoin-nation/#66718f6733a3; https://phys.org/news/2018-03-japan-penalizes-cryptocurrency-exchanges-hack.html

the time, surpassing the estimated $400 million hack of *Mt. Gox* in 2014.[38] On a positive note for investors, *Coincheck* has reportedly spent ¥46.3 billion ($435 million) out of its own funds to compensate customers who were affected by the hack.[39]

       Trading Volume Data.   The following site provides certain data regarding Bitcoin exchanges and current trading volume: http://data.bitcoinity.org/. As of December 29, 2017, the top six Bitcoin exchanges reported by 30-day volume/market share were *Bitfinex* (2.11 million BTC volume and 34.4% of market share), *Coinbase* (1.23m and 20.1%), *Bitstamp* (692k and 1.3%), *Bitflyer* (666k and 10.9%), *Gemini* (342k and 5.6%) and *Kraken* (332k and 5.4%). As of April 30, 2018, trading volume had declined and the top six Bitcoin exchanges reported by 30-day volume/market share were *Bitfinex* (1.30 million BTC volume and 32.6% of market share), *Bitflyer* (550k and 13.8%), *Coinbase* (487k and 12.2%), *Kraken* (454k and 11.4%), *Bitstamp* (450k and 11.3%), and *Hitbtc* (195k and 4.9%).

       Regarding trading volume data of other cryptos besides Bitcoin, many of the exchanges allow trading in only certain cryptos (e.g., an exchange may list only Bitcoin, Bitcoin Cash, Ethereum and Litecoin). Additionally, the exchange might not allow the exchange of an investor's local currency for a specific crypto and instead allow only an exchange of one major crypto for another crypto (e.g., Bitcoin/other crypto). Thus, if an investor wanted to use the exchange to acquire a lesser known crypto, the investor may have to first purchase Bitcoin and then exchange Bitcoin for the other crypto, which could: (1) result in additional transaction fees, (2) result in an additional taxable event; and (3) potentially distort the trading volume in Bitcoin. Regarding the latter point, some commentators have raised concerns that large-scale traders can manipulate the markets. In particular, some critics have questioned the relationship of the CEO of *Bitfinex* (the largest Bitcoin exchange) also being the CEO of Tether Limited, which issues Tethers (Symbol: "**USDT**") (Tether is a crypto that is designed to be pegged to the U.S. dollar and used to facilitate exchanges with other cryptos).[40]

Overview of Other Cryptos besides Bitcoin

       The following information came from our firm's independent research. Sources included the book titled *Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond,* by Chris Burniske and Jack Tatar, and numerous articles and other online sources, many of which are cited throughout. Our firm has not independently verified this information unless otherwise indicated.

       Subsequent to the launch of Bitcoin, additional cryptos have been created either independently or came into existence as a result of forks. In many cases, these new cryptos involved attempts to improve some aspect of Bitcoin (e.g., reduce the transaction time or increase privacy). Countless other cryptos have been created in ICOs with varying objectives (many of which may be highly suspect). There are currently more than 1,500 cryptocurrencies/tokens listed

---

[38] http://money.cnn.com/2018/03/08/investing/japan-cryptocurrency-exchanges-crackdown/index.html

[39] https://www.wsj.com/articles/hacked-japanese-cryptocurrency-exchange-pays-back-customers-1520917328 (The customers received refunds in yen at a rate of 88.549 yen per NEM, in line with earlier promises by Coincheck. That is higher than the current market rate but lower than the ¥110 value at the time of the hacking.")

[40] http://fortune.com/2017/12/05/bitcoin-btc-price-usd-tether-limited-bitfinex/ (questioning whether the newly issued Tethers are adequately backed up by U.S. dollars or other assets).

on coinmarketcap.com, the vast majority of which were created within the past 12 months. A detailed description and historical analysis of each of these cryptos is beyond the scope of this material. The following data and information is provided to illustrate the extreme recent growth and volatility of the crypto asset class. Note that cryptos may be traded at any time of the day or week. Certain data herein was reported as of the date of initial research, i.e., December 29, 2017 (4:00pm Central), which date and time was chosen arbitrarily. Updated data as of April 30, 2018 is also included later.

As of December 29, 2017, more than 1,300 cryptocurrencies/tokens were listed on coinmarketcap.com, which reported total "market cap" for the cryptos of approximately $603 billion (4:00 pm Central).[41] As of such date and time, coinmarketcap.com reported: (a) more than 30 cryptos with a market cap greater than $1 billion; (b) more than 150 cryptos with a market cap greater than $100 million; and (c) more than 600 cryptos with a market cap greater than $1 million. Of these, the top 20 cryptos by market cap (as of 4:00 pm Central on 12/29/2017) are listed in the table below.

#	Name	Symbol	Market Cap	Price	Circulating Supply	Volume (24h)	% 1h	% 24h	% 7d
1	Bitcoin	BTC	$242,764,176,773	$14,475.70	16,770,462	$12,589,600,000	-1.14%	1.04%	4.16%
2	Ripple	XRP	$82,380,341,083	$2.13	38,739,144,847 *	$6,753,820,000	-4.08%	46.96%	91.05%
3	Ethereum	ETH	$71,945,319,632	$744.40	96,649,126	$2,566,430,000	-0.91%	2.43%	9.23%
4	Bitcoin Cash	BCH	$45,915,644,676	$2,719.67	16,882,800	$2,589,000,000	0.44%	6.58%	-0.58%
5	Litecoin	LTC	$13,240,110,069	$242.81	54,529,808	$1,625,100,000	-1.03%	0.24%	-8.19%
6	Cardano	ADA	$12,625,342,561	$0.486956	25,927,070,538 *	$212,529,000	1.41%	21.66%	20.41%
7	IOTA	MIOTA	$9,979,486,552	$3.59	2,779,530,283 *	$187,388,000	-0.50%	0.27%	2.43%
8	NEM	XEM	$9,165,599,999	$1.02	8,999,999,999 *	$97,942,500	0.54%	15.10%	20.12%
9	Dash	DASH	$8,747,749,006	$1,123.98	7,782,833	$196,070,000	-0.42%	-0.09%	-6.22%
10	Monero	XMR	$5,731,049,802	$368.81	15,539,428	$164,467,000	-1.31%	-2.17%	8.56%
11	EOS	EOS	$5,389,784,219	$9.44	571,005,552 *	$434,964,000	1.57%	-0.61%	18.44%
12	Stellar	XLM	$5,270,399,753	$0.295112	17,858,981,517 *	$284,837,000	5.10%	34.11%	34.08%
13	Bitcoin Gold	BTG	$4,612,231,579	$275.61	16,734,449	$111,109,000	-0.47%	-3.25%	-11.76%
14	NEO	NEO	$4,574,960,000	$70.38	65,000,000 *	$146,896,000	-0.65%	9.60%	23.53%
15	Qtum	QTUM	$4,303,199,331	$58.33	73,769,300 *	$869,555,000	0.64%	7.88%	16.05%
16	Ethereum Classic	ETC	$2,954,941,254	$29.93	98,734,346	$231,746,000	1.09%	2.50%	-4.81%
17	BitConnect	BCC	$2,819,746,013	$455.92	6,184,698	$41,533,800	2.55%	9.77%	56.37%
18	Lisk	LSK	$2,580,944,116	$22.16	116,452,832 *	$76,530,400	-0.87%	-3.70%	11.70%
19	TRON	TRX	$2,357,348,843	$0.035854	65,748,192,476 *	$253,001,000	-1.29%	-7.18%	-5.01%
20	Verge	XVG	$2,289,578,635	$0.158930	14,406,207,982	$361,831,000	-6.48%	3.12%	32.83%

*Not mineable.

As indicated in the table above, the various cryptos can have vastly different prices, number of cryptos in circulation, trading volume and volatility, and not all cryptos are "mineable" in the same manner or in some cases are not mineable at all. Depending on the crypto, the software may be open-source or restricted-access in some capacity (public blockchain versus

---

[41] https://coinmarketcap.com/all/views/all/

private blockchain). In some instances, the developers/founders of a crypto may have "pre-mined," "insta-mined" or otherwise allocated some or all of the early supply of the crypto to themselves or others. In short, each crypto should be evaluated on its own and due diligence is critical.

The crypto asset class remains largely unregulated, and new developments can have massive impacts on the crypto markets. Based on the last three columns of the table above, you can see that crypto prices can be extremely volatile. For example, the price of XRP (Ripple's token) increased 46.96% and 91.05% over the prior 24 hours and seven days, respectively. XRP's price at the beginning of 2017 was 0.1 cent (i.e., one hundredth of one cent) and rose by more than 20,000% during 2017. As a result, Ripple temporarily became the crypto with the second highest market cap behind Bitcoin, a spot that had been held by Ether for much of the year. XRP's price rise in December 2017 may be attributable in part to positive news out of Japan.[42]

According to Ripple's website (https://ripple.com/xrp/), payments through the Ripple network can settle in approximately four seconds. In comparison, the average Bitcoin transaction takes 10 minutes. Ripple is designed to be a payment network for banks and financial institutions that allows them to send and receive currency and settle transactions more quickly and cheaply than existing systems.[43] Ripple does not have "mining" like the Bitcoin blockchain, where new Bitcoins are created every time a miner uploads transaction data; instead, Ripple transactions are verified by multiple parties to achieve consensus.[44] All 100 billion of the XRP tokens have essentially been "pre-mined" and are purportedly being released by the founders' company (Ripple Labs Inc.) into the market gradually each month to avoid flooding the market.[45] As such, Ripple Labs Inc. presumably has tax obligations in connection with each sale of its pre-mined XRP tokens.

Regarding valuation analysis, since a crypto is not a company, it does not have earnings or other commonly analyzed financial data. Fundamental analysis can be difficult or impossible, and many investors may be making crypto investment decisions based entirely on trends and/or speculation. Alternatively, analysts or investors may utilize various innovative metrics/models. Some factors that may be considered include, crypto usage rates, name recognition, media coverage, the circulating supply, ultimate coin limit, average transaction times and costs, characteristics of the mining process (e.g., reward schedule, difficulty, hash rates, etc.), perceived quality of the development team and various other factors.

In the case of Ripple, if the intention is for XRP tokens to be used primarily by financial institutions, it is unclear (to this author at least) if or how an investor in XRP will be able to use

---

[42] "Earlier this month, Nikkei reported that Japan and South Korean banks were using Ripple to test international funds transfers in a bid to cut costs by 30%. The test involved 61 Japanese banks. And more recently SBI Holdings, a Tokyo-based financial services group, said that its subsidiary SBI Ripple Asia had established a partnership with some of the nation's largest credit card providers (JCB, Credit Saison, and Mitsui Sumitomo Card) to look into distributed ledger technology, which underpins cryptocurrencies like Bitcoin." http://fortune.com/2017/12/28/ripple-price-bitcoin/

[43] https://finance.yahoo.com/news/ripple-xrp-everything-need-know-164535965.html
[44] *Id.*
[45] https://www.cnbc.com/2017/05/26/bitcoin-rival-ripple-is-sitting-on-many-billions-of-dollars-of-xrp.html

the tokens other than attempt to resell them to the financial institutions or other investors. In addition, since a privately-owned company (Ripple Labs Inc.) owns a substantial percentage of the total XRP tokens, there may be greater risk of price manipulation and/or regulatory concerns relating to XRP than with other cryptos. As previously indicated, a thorough due diligence review of each of the cryptos is beyond the scope of this educational material.

Many crypto prices rose by more than 1000% during 2017, including Bitcoin (more than 1,400%), Ripple (more than 20,000%), Ether (more than 8,000%) and Litecoin (more than 5,000%).[46] Not surprisingly, there were countless critics in 2017 who compared cryptos to tulip mania, the dotcom bubble or other bubbles. The following are some notable quotes warning against Bitcoin:

- "It's a mirage basically" and a "real bubble," Warren Buffet, CEO of Berkshire Hathaway (quotes from 2014 and October 2017);[47]

- "It's a fraud" and "worse than tulip bulbs," Jaime Dimon, CEO of JPMorgan (quote from September 2017);[48]

- "Avoid bitcoin like the plague," John Bogle, founder of Vanguard (quote from November 2017);[49] and

- "If you want to invest in Bitcoin be prepared to lose your money," Andrew Bailey, CEO of the Financial Conduct Authority, the primary financial regulatory body in the U.K. (quote from December 2017). [50]

Proponents of Bitcoin often respond by saying that the critics: (1) do not understand Bitcoin or the potential of the blockchain technology; (2) are bitter since they missed out on the investment opportunity; or (3) have a self-serving agenda to preserve the current system.

In recent months, crypto prices have been highly volatile and in many cases dropped substantially from the all-time highs reached in prior months. The following chart shows the historical price movement of Bitcoin over the past five years (as of April 30, 2018) (BTC/$).
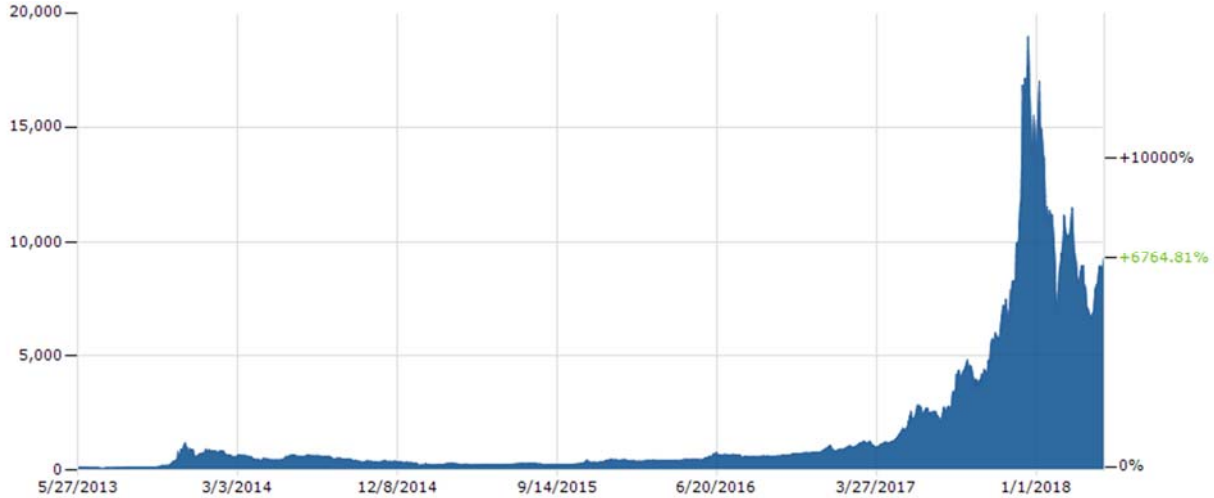
[*Chart to follow*]

---

[46] https://finance.yahoo.com/news/ripple-xrp-everything-need-know-164535965.html
[47] https://www.coindesk.com/real-bubble-billionaire-warren-buffett-doubles-bitcoin-doubt/
[48] https://www.bloomberg.com/news/articles/2017-09-12/jpmorgan-s-ceo-says-he-d-fire-traders-who-bet-on-fraud-bitcoin
[49] https://www.bloomberg.com/news/articles/2017-11-28/vanguard-founder-jack-bogle-says-avoid-bitcoin-like-the-plague
[50] http://fortune.com/2017/12/15/bitcoin-andrew-bailey-gambling/

Bitcoin

(Source: Markets Insider).[51]

As shown in the chart, Bitcoin had a massive rise in 2017. During the year, the price of Bitcoin rose from a little under $1,000 and reached a high of $19,843 in December 2017 before pulling back considerably, but still ending the year up more than 1,400%. In the early months of 2018, Bitcoin's price has been volatile and is down significantly since the beginning of 2018. Despite some recent gains, Bitcoin's current price of $9,333 as of April 30, 2018 is still less than half of the record high of $19,843 set in December 2017.

Ether had a comparable rise in 2017 and reached a high of $1,424 in January 2018 before dropping substantially and then rebounding somewhat to a current price of $679. The following chart shows the historical price movement of Ether from inception through April 30, 2018 (ETC/$).

[*Chart to follow*]

---

[51] http://markets.businessinsider.com/currencies/btc-usd?utm_source=markets&utm_medium=ingest?utm_source=markets&utm_medium=ingest

Ether

(Source: Markets Insider).[52]

As of April 30, 2018, nearly 1,600 cryptocurrencies/tokens were listed on coinmarketcap.com, which reported total "market cap" for the cryptos of approximately $429 billion.[53] The table below shows the top 20 cryptos by market cap as reported on coinmarketcap.com (as of April 30, 2018, 4:00 pm Central).[54]

#	Name	Symbol	Market Cap	Price	Circulating Supply	Volume (24h)	% 1h	% 24h	% 7d
1	Bitcoin	BTC	$158,737,092,134	$9,333.18	17,007,825	$8,411,610,000	0.07%	-0.10%	4.23%
2	Ethereum	ETH	$67,370,561,202	$679.49	99,148,278	$2,761,560,000	-0.21%	-0.21%	5.20%
3	Ripple	XRP	$33,252,194,430	$0.849436	39,146,203,398 *	$577,138,000	-0.23%	-1.73%	-3.41%
4	Bitcoin Cash	BCH	$23,734,115,803	$1,387.75	17,102,588	$708,244,000	-0.34%	-2.70%	-2.27%
5	EOS	EOS	$14,806,635,625	$17.91	826,881,464 *	$3,565,790,000	-2.61%	-13.28%	52.30%
6	Cardano	ADA	$9,046,084,546	$0.348905	25,927,070,538 *	$295,367,000	-0.04%	-5.38%	20.93%
7	Litecoin	LTC	$8,483,785,577	$150.63	56,323,888	$341,879,000	-0.16%	-0.86%	-1.49%
8	Stellar	XLM	$8,031,091,134	$0.432445	18,571,358,517 *	$81,656,800	0.22%	-3.36%	16.12%
9	TRON	TRX	$6,544,113,371	$0.099533	65,748,111,645 *	$1,652,490,000	2.05%	15.73%	76.49%
10	IOTA	MIOTA	$5,573,180,580	$2.01	2,779,530,283 *	$64,333,800	0.25%	-0.80%	-5.56%
11	NEO	NEO	$5,549,888,500	$85.38	65,000,000 *	$417,168,000	-0.63%	-4.74%	11.49%
12	Monero	XMR	$4,028,558,621	$252.03	15,984,377	$104,010,000	-0.30%	-0.25%	-10.92%
13	Dash	DASH	$3,846,329,938	$478.44	8,039,282	$123,638,000	-0.08%	-2.38%	-6.02%
14	NEM	XEM	$3,734,109,000	$0.414901	8,999,999,999 *	$28,002,900	-0.06%	-1.53%	5.71%
15	Tether	USDT	$2,419,267,897	$1.00	2,417,140,814 *	$4,221,240,000	0.21%	0.14%	0.18%
16	VeChain	VEN	$2,391,254,034	$4.55	525,779,138 *	$114,687,000	-1.47%	-3.64%	16.29%
17	Ethereum Classic	ETC	$2,258,288,007	$22.26	101,460,522	$349,875,000	0.45%	2.73%	8.51%

---

[52] http://markets.businessinsider.com/currencies/eth-usd
[53] https://coinmarketcap.com/all/views/all/
[54] Id.

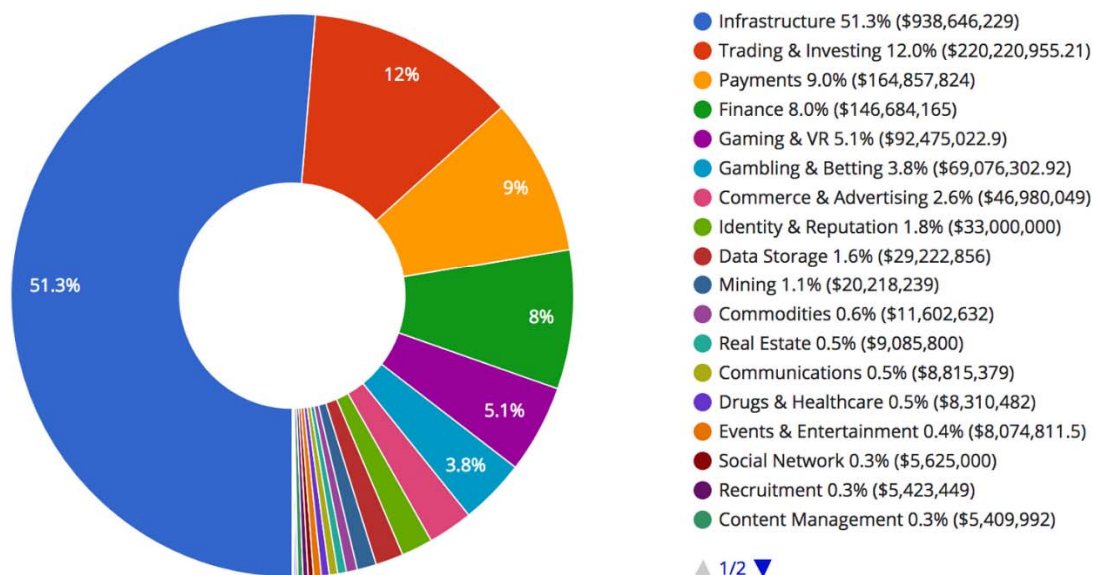| #	Name	Symbol	Market Cap	Price	Circulating Supply	Volume (24h)	% 1h	% 24h	% 7d
18	Qtum	QTUM	$2,059,266,306	$23.25	88,561,452 *	$437,427,000	-0.05%	1.60%	13.06%
19	OmiseGO	OMG	$1,771,203,592	$17.36	102,042,552 *	$69,078,800	-0.32%	-3.37%	9.89%
20	ICON	ICX	$1,682,938,419	$4.35	387,231,348 *	$98,041,400	-0.92%	-5.87%	13.67%

*Not mineable.

As indicated by the table, the crypto market remains extremely volatile. Five of the top 20 cryptos by market cap at such date showed gains of more than 16% over the prior seven days. Over this period, EOS had risen by 52.3% (despite dropping 13.3% over the prior 24 hours) and TRON's token had risen by 76.5%. While extreme gains such as these may generate additional publicity and investor interest in cryptos, be mindful that prices can plummet by large percentages as well, which has happened on numerous occasions in the crypto sector. Also note that 13 of the top 20 cryptos by market cap as of April 30, 2018 were reported as being "not mineable." This indicates that the creators/developers of these cryptos may hold a substantial portion of the total supply of that particular crypto. As such, there may be additional risk factors relating to these cryptos (potential for price manipulation, regulatory concerns, etc.).

In addition to the more than 800 cryptos with a market cap greater than $1 million, hundreds of additional cryptos were listed on coinmarketcap.com as of April 30, 2018 that had a market cap below $1 million, including more than 200 having little or unknown market caps. Many of these cryptos are likely involved in ICOs and may have been designed for specific industries/uses. The following image shows the various categories of ICOs in 2017.

[*Chart to follow*]

ICOs by Category 2017

Legend:
- Infrastructure 51.3% ($938,646,229)
- Trading & Investing 12.0% ($220,220,955.21)
- Payments 9.0% ($164,857,824)
- Finance 8.0% ($146,684,165)
- Gaming & VR 5.1% ($92,475,022.9)
- Gambling & Betting 3.8% ($69,076,302.92)
- Commerce & Advertising 2.6% ($46,980,049)
- Identity & Reputation 1.8% ($33,000,000)
- Data Storage 1.6% ($29,222,856)
- Mining 1.1% ($20,218,239)
- Commodities 0.6% ($11,602,632)
- Real Estate 0.5% ($9,085,800)
- Communications 0.5% ($8,815,379)
- Drugs & Healthcare 0.5% ($8,310,482)
- Events & Entertainment 0.4% ($8,074,811.5)
- Social Network 0.3% ($5,625,000)
- Recruitment 0.3% ($5,423,449)
- Content Management 0.3% ($5,409,992)

1/2 ▼

(Source: Steemit).[55]

Many of the small cap cryptos appear highly suspect based on their names alone. For example, some of the more humorous and questionable names include: Cryptonite ("XCN"), Hush ("HUSH"), UFO Coin ("UFO"), InsaneCoin ("INSN"), RouletteToken ("RLT"), TrumpCoin ("TRUMP"), BillaryCoin ("BLRY"), Shadow Cash ("SDC"), Ultimate Secure Cash ("USC"), Casino ("CASINO"), Evil Coin ("EVIL"), "MojoCoin ("MOJO"), Money ("$$$"), AllSafe ("ASAFE2"), Theresa May Coin ("MAY"), LetItRide ("LIR"), PonziCoin ("PONZI"), High Gain ("HIGH") and Bubble ("BUB"). There are also a number of cryptos with vulgar/offensive names that are not mentioned here. Suspect cryptos such as these could potentially cause reputational damage to the entire crypto asset class in the event they receive significant media coverage or regulatory attention. There have also been a number of reports of questionable companies adding "blockchain" or similar language to their name or company description in attempts to increase stock prices.[56] Even strong proponents of Bitcoin and other well-known cryptos are generally skeptical of a large percentage of the other cryptos/ICOs. For example, Daniel Krawisz of the Satoshi Institute considers ICOs "snake oil" and "pump and dump scams," and Pavel Kravchenko, founder of Distributed Lab, questions if we "really need all of these coins" and advises, "Let's think for a moment before participating in an ICO—could the same technology solve the same problems without the coin?"[57]

Advertising Bans

In recent months, a number of large internet companies (including Google, Facebook and

---

[55] https://seekingalpha.com/article/4132587-sec-issues-release-will-bitcoins-music-stop-game-hot-potato?ifp=0
[56] https://www.techspot.com/news/72430-more-companies-adding-blockchain-their-name-profiting-cryptocurrency.html
[57] *Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond*, at p. 257.

Twitter) have announced bans on crypto-related advertisements on their platforms. Even Reddit (the go-to place for many crypto enthusiasts over the years) has banned crypto ads since 2016 and has gone a step further and stopped taking payments in Bitcoin for its Gold program.[58]

Crypto ETFs, OTC Markets and Futures

ETFs. There have been a number of attempts to launch a registered exchange traded fund ("**ETF**") relating in some capacity to one or more cryptos, including the Winklevoss Bitcoin Trust ETF ("**COIN**") and SolidX Bitcoin Trust ETF ("**XBTC**"). However, to date, the SEC has not approved any ETFs or other exchange-traded products holding cryptocurrencies or other crypto assets. The SEC's March 10, 2017 ruling explains the primary reasons for the SEC's rejection of the COIN ETF. Essentially, the SEC decided that: (1) the markets for Bitcoin were "unregulated;" and (2) there were not sufficient "surveillance-sharing agreements" between the exchange where the COIN ETF would list (i.e., Bats BZX Exchange) and the crypto exchange(s) where Bitcoin for the ETF would be sourced/valued (e.g., the Gemini Exchange).[59] Without these two elements, the SEC believes that a national securities exchange would not have the ability to detect and deter manipulation of trading in shares of the ETF and thus could not meet its Exchange Act obligations.[60]

Notwithstanding the SEC's rejection of these ETFs, Bitcoin futures trading has been allowed (see the discussion below regarding the approval of Bitcoin futures trading by CME and CBOE). Accordingly, some analysts believe that the SEC may approve ETFs that track Bitcoin futures contracts. The SEC is currently considering the request of NYSE Arca, Inc. for a proposed rule change that would allow certain ETFs that track Bitcoin futures contracts (i.e., Proshares Bitcoin ETF and Proshares Short Bitcoin ETF) to be listed on the NYSE Arca exchange.[61] The SEC's review of the proposal is currently pending, and there is no guarantee that these ETFs will be allowed.

Finally, note that regulators in non-U.S. jurisdictions may have differing positions regarding allowance of structures comparable to ETFs having crypto-tracking strategies. For example, Sweden has approved certain crypto-tracking exchange-traded notes ("**ETNs**"), including the XBT Bitcoin Tracker One (COINXBT), which trades in Swedish krona, and the XBT Bitcoin Tracker Euro (COINXBE), which were launched on the Nasdaq Stockholm in 2015, and Ether Tracker One (COINETH) and Ether Tracker Euro (COINETHE) launched in October

---

[58] https://seekingalpha.com/article/4160447-crypto-mania-coming-end?ifp=0&utoken=c91512e7885b5b5a81c174a4f4fc93e82f35441f
[59] www.sec.gov/rules/sro/batsbzx/2017/34-80206.pdf ("…the [SEC] does not believe this surveillance-sharing agreement to be sufficient, because the Gemini Exchange conducts only a small fraction of the worldwide trading in bitcoin, and because the Gemini Exchange is not a 'regulated market' comparable to a national securities exchange or to the futures exchanges that are associated with the underlying assets of the commodity-trust ETPs approved to date"); see also https://www.sec.gov/rules/sro/nysearca/2017/34-80319.pdf (ruling rejecting the XBTC ETF based on the same reasoning).
[60] *Id.*
[61] https://www.investopedia.com/news/sec-considers-rule-change-allow-bitcoin-etfs/?partner=YahooSA&yptr=yahoo

2017.[62] Other jurisdictions may approve similar structures in the future. A full analysis of non-U.S. jurisdictions and regulatory positions is beyond the scope of this educational material.

OTC Markets. While not an ETF, a company sponsored by Grayscale Investments, LLC called Bitcoin Investment Trust ("**BIT**") has an investment objective of tracking the market price of Bitcoin less expenses. BIT was launched in September 2013 as a Rule 506(c) private placement offering to accredited investors and subsequently listed the shares for over-the-counter ("**OTC**") trading to allow the accredited investors the opportunity to sell their shares, subject to one-year hold period. In February 2015, BIT was approved for public quotation on OTCQX under the symbol "**GBTC**" and first began trading on OTCQX in May 2015 at a price of $44 per share. Over its short history, GBTC has traded at a significant premium (at times exceeding 100%) to its underlying Bitcoin holdings and NAV. In other words, at a 100% premium, investors in GBTC are essentially willing to pay $2 for every $1 of net assets. In January 2017, BIT had filed a registration statement with the SEC to register a public offering of new shares; however, the application was withdrawn in October 2017 and the public offering never commenced.

As of December 29, 2017, GBTC's trading price had reached more than $2,000 per share. In January 2018, GBTC underwent a 91-for-1 share split. Prior to the share split, each share represented ownership of approximately 0.0918 Bitcoins. The share split was designed to simplify the mental math for investors, i.e., after the share split each share will be equivalent to owning approximately 0.001 Bitcoins. For example, if one Bitcoin trades for $11,000, then the value of the Bitcoin Investment Trust's Bitcoin holdings should approximate $11.00 per share. As of April 30, 2018 (4:00 pm Central), Bitcoin's price was listed as approximately $9,333 per Bitcoin, and GBTC shares had closed trading for the day at $15.85 per share, representing a significant premium over the implied NAV of $9.33 per share (based on the aforementioned 0.001 ratio).

Additionally, in 2017, Grayscale Investments, LLC has also sponsored separate Rule 506(c) private offerings for additional companies with similar investment objectives tracking the prices of other cryptos, including Ethereum Classic Investment Trust, Ethereum Investment Trust and Zcash Investment Trust. An OTC trading market for the respective shares may potentially develop at some point in the future.

Futures. The Commodity Futures Trading Commission ("**CFTC**") has taken the position that Bitcoin and other virtual currencies are commodities covered by the Commodity Exchange Act ("**CEA**"), and thus, the CFTC has regulatory authority over firms/exchanges that trade futures or other derivatives of a cryptocurrency. In March 2018, a federal judge in the Eastern District of New York agreed with the CFTC's position in a preliminary injunction order granted in favor of the CFTC in connection with a certain CFTC civil enforcement action.[63]

---

[62] https://www.cnbc.com/2018/01/17/sec-frets-over-bitcoin-etfs-but-swedes-figured-it-out-years-ago.html ("[The XBT] ETN is an unsecured debt instrument that promises to pay the pattern of returns of the bitcoin price. Ironically, despite being an unsecure instrument, the XBT product tracks the spot price of bitcoin by holding the actual currency and forward contracts in case of a liquidity shortfall.")

[63] https://www.cftc.gov/PressRoom/PressReleases/pr7702-18 (The CFTC alleged that certain defendants had committed fraud and misappropriation in connection with purchases and trading of Bitcoin and Litecoin).

In December 2017, CME Group Inc., a/k/a the Chicago Mercantile Exchange ("**CME**") and Cboe Global Markets Inc., a/k/a the Chicago Board Options Exchange ("**CBOE**") each launched trading in Bitcoin futures after undergoing the self-certification process.[64] To guard against volatility, CME and CBOE each voluntarily agreed to put in place stricter than usual risk-management safeguards, including initial margin requirements of 47% and 44%, respectively (as a point of comparison, these margin requirements are approximately ten times more than the initial margin required for CME corn futures products).[65] The exchanges also agreed to enter into information sharing agreements and to send data to the CFTC on the settlement process so that the CFTC can conduct its own surveillance.[66] Nasdaq Inc. has also announced an intention to introduce Bitcoin futures.[67]

Note that none of the major exchanges currently offer futures based on any other cryptos besides Bitcoin. Additionally, there are uncertainties on a number of issues, such as how the futures will handle "hard forks" and what will be considered "actual delivery" of a crypto. On the latter issue, the CFTC has published a proposed interpretation on the meaning of "actual delivery" within the crypto context.[68] Note that the publication includes a reference to a CFTC enforcement action against *Bitfinex* and the resulting settlement order. In connection therewith, the CFTC found that the virtual currency platform violated certain sections of the CEA because the unregistered entity, i.e., *Bitfinex*, "did not actually deliver bitcoins purchased from them," but instead "held the purchased bitcoins in bitcoin deposit wallets that it owned and controlled."[69]

Proposed Crypto SRO. On March 13, 2018, *Gemini,* the crypto exchange founded by the Winklevoss twins, released a proposal to create the first self-regulatory organization ("**SRO**") for U.S. virtual currency exchanges called the Virtual Commodity Association ("**VCA**"). As envisioned, the VCA's purpose would be to: (i) foster financially sound, responsible and innovative crypto markets through a system of industry-sponsored standards, sound practices and oversight that would promote price discovery, efficiency and transparency in virtual currency markets; (ii) incentivize the detection and deterrence of manipulative and fraudulent acts and practices, including partnering with regulators and particularly the CFTC to share or refer information, as appropriate; and (iii) require member firms to adhere to certain "Sound Practices" (regarding responsible financial management, transparency, conflicts of interest, rules-based markets, cyber and information security, recordkeeping, surveillance, information sharing, cooperation with regulators and certain legal analysis) and provide a sanctions-based accountability program to compel ongoing member compliance.[70]

Of note, CFTC Commissioner Brian Quintenz encouraged the development of a crypto SRO in a March 7, 2018 keynote address before the DC Blockchain Summit.[71] In addition, shortly

---

[64] Under the CEA and CFTC regulations and related guidance, futures exchanges may self-certify new products on 24-hour notice prior to trading. https://www.cftc.gov/IndustryOversight/ContractsProducts/index.htm

[65] https://www.cftc.gov/PressRoom/SpeechesTestimony/opaquintenz8

[66] https://finance.yahoo.com/news/u-regulator-says-allow-cme-130000292.html

[67] https://www.bloomberg.com/news/articles/2017-11-29/nasdaq-is-said-to-plan-bitcoin-futures-joining-biggest-rivals

[68] http://www.cftc.gov/PressRoom/PressReleases/pr7664-17

[69] http://www.cftc.gov/idc/groups/public/@lrfederalregister/documents/file/2017-27421a.pdf

[70] https://gemini.com/blog/a-proposal-for-a-self-regulatory-organization-for-the-u-s-virtual-currency-industry/

[71] https://www.cftc.gov/PressRoom/SpeechesTestimony/opaquintenz8

after publication of Gemini's proposal for the VCA, Commissioner Quintenz issued a statement congratulating Cameron and Tyler Winklevoss on their leadership and thoughtful approach in outlining a virtual commodity SRO.[72] Notwithstanding, one should not assume that VCA or another crypto SRO will ultimately be created and implemented as there are a number of issues that must still be addressed, for example: (i) who will assess membership qualifications; (ii) what sanctioning and penalty authority will the body have over members; and (iii) what regulatory oversight will be imposed on the SRO by the CFTC (or other regulators).[73] CFTC Commissioner Rostin Behnam has also raised concerns with crypto SROs given the nascent nature of the industry and lack of a congressional mandate (in contrast, the regulatory framework for other SROs, such as the NFA and FINRA, has been established by statute).[74]

_____

Kevin W. Vonnahme, JD, LLM, MBA
Associate

MICK | LAW P.C.
ATTORNEYS & COUNSELORS

Mick Law P.C. LLO
816 South 169th Street
Omaha, NE 68118
402-504-1710 (main) ext. 1829
402-275-1829 (direct)
402-504-3951 (fax)
kvonnahme@micklawpc.com
www.micklawpc.com

---

[72] https://www.cftc.gov/PressRoom/SpeechesTestimony/quintenzstatement031318

[73] Article by Shearman & Sterling LLP on Mondaq.com titled "Gemini Co-Founders Cameron And Tyler Winklevoss Propose Virtual Commodity Self-Regulatory Organisation." http://www.mondaq.com/unitedstates/x/692998/fin+tech/Gemini+cofounders+Cameron+and+Tyler+Winklevoss+propose+virtual+commodity+selfregulatory+organisation

[74] Id.