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Cryptocurrencies—Investment or Electronic Currency of the Future

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Today it seems you cannot open a financial publication without seeing at least one article on bitcoins or other virtual currencies/cryptocurrencies. This article will attempt to clear up many of the misunderstandings that have governments, regulators, banks, and consumers confused. The authors will also posit what lies ahead for commerce, the global banking system, the unbanked without access to finance, reserve currencies, and central banking systems and that all have a ‘new player in town’.

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Brief History of Currencies

Centuries before the time of Christ, individuals traded and bartered utilizing stones, beads, shells, and almost anything of perceived value. The world’s first coins were either gold or silver and were minted by King Alyattes of Sardis, Lydia in approximately 610 BC. The first paper currency was utilized in China during the Tang dynasty over 1,000 years ago. The first European banknotes were issued in Sweden in 1661. As early as the 1800s in Europe, traders used something called a “tally stick” which in a sense was the first credit card; notches on a wooden stick indicated the amount of money lent or owed.

The exchanging of one country’s currency for another country’s currency is as old as the currencies themselves. One of the main reasons that in ancient times so many coins were either gold or silver is because there was little dispute over the value of an ounce of silver or gold compared to the value of a Roman coin that merely had the picture of an emperor stamped on it.

Why Cryptocurrencies—Anonymous Banking

It does not seem feasible to have an anonymous global banking system with all the regulatory bodies across the world, but the cryptocurrency marketplace is trying. How the investment regulators collide with cryptocurrencies will determine the future of

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the crypto industry. Notwithstanding the investment issues, with the momentum of bitcoin ATMs, BitPay, LitePay debit cards in partnership with Visa¹ that were abandoned² but gave a hint to possibilities, and a full-court press on bitcoin/cryptocurrency wallets becoming mainstream, there is an epic battle about to ensue in the global banking industry.³ We believe that banks will inevitably maintain their position as the primary disseminator of currency. We also believe that cryptocurrencies are here to stay and will at least make a valiant run as an alternative to fiat currencies going forward, especially where the cryptocurrency platforms become mainstream.⁴ Banks will inevitably create their own cryptocurrencies and/or try to acquire or limit competitive cryptocurrencies that threaten their marketplace. Bank of America is already challenging this industry for existential reasons.⁵ On any particular holiday when banks are closed, “Bitcoin, as a peer-to-peer (P2P) settlement system, was able to process over \$1 bln [billion] worth of transactions, and more than \$7 bln [billion] worth of Bitcoin was traded on a single day. Regardless of holidays and weekends, users of Bitcoin and other cryptocurrencies like ether can freely transact on a peer-to-peer basis, through the utilization of wallets.”⁶ For example, *Business Insider* reported a recent \$99 million litecoin transaction that cost 40 cents and took 2.5 minutes.⁷

This leads us to the Federal Reserve and the central banking system and we feel that it is also inevitable that some form of cryptocurrency will be present in both of those systems. “Some central banks are analyzing a cryptocurrency or other forms of digital currency that could be made widely available to the general public and serve as an alternative safe, robust and convenient payment, instrument, said the study by the group that includes the Federal Reserve and 59 other central banks for nations that account for about 95 percent of world gross domestic product.”⁸ Before Jerome Powell advises the primary Federal Reserve banks to choose a cryptocurrency, we have many years ahead of sifting through regulatory changes, vetting periods and the realization that cryptocurrencies are not evil. Just like the credit card and payday loan industries, the “evildoers” need to be washed away before the industry can survive and be embraced by consumers, however.

There is one arena that makes logistical sense for cryptocurrencies and that surrounds the “unbanked” group which currently has very little or no access to any banking system. There, however, are more caution flags waving in this arena to inject cryptocurrencies into than solution flags.

The first issues with outsiders bringing cryptocurrencies into a developing nation or an area that does not

possess a sufficient banking system but whose recipients might not appreciate the intrusion. “As is the case with all efforts of outsiders attempting to better the lives of distant people, an uneasy awareness exists of the legacy of colonialism and the fine line between assistance and paternalism.”⁹ The real danger here is the volatility and insecurity of cryptocurrencies which could put the assets of those who can least afford a loss, at risk.

There are two schools of thought on the risks for the unbanked and they both reflect the immaturity of this innovation. One school believes that cryptocurrencies are the wave of the future and it would be foolish not to bring a solution to the unbanked so they can transact goods and services and participate in a broader form of commerce. The countervailing arguments point to the advisory and regulatory bodies that caution that cryptocurrencies require research, that a user be educated on the risks and cautions that users not “gamble” with resources that they cannot afford to lose.

The authors of this piece advise the unbanked to avoid bitcoin, ethereum, Bitcoin Cash, and all other public cryptocurrencies due to its extreme volatility. We would encourage some organization to specifically design and implement a cryptocurrency that would serve the unbanked and have a foundation behind it as a store of value. In fact, we believe that before 2019, there will be such an instrument and we believe, if done properly with proper vetting and due diligence, that this instrument will be a significant solution to bringing the unbanked into the 21st century!

No central bank or agency governs these new vehicles and thus when there is an irrevocable and untraceable trail of clues after a hack and theft of millions of dollars of cryptocurrencies, the investigators are unable to follow the money. This is a problem. In fact, this war between the cryptocurrency anonymity juggernauts and the traceable regulated banking is just about to begin. All of the thousands percent increases of these currencies could be wiped out with one regulation worldwide that would shatter the anonymity aspect of cryptocurrencies.

Ransomware criminals love anonymity. Their ability to have their victims pay in bitcoins has caused many companies to purchase bitcoins so the companies can retrieve their data *via* ransom if they are hacked.¹⁰

Let’s explore how these platforms are intended to work and what happened to the second largest cryptocurrency, ethereum, that created a crisis and eventual split of its founders. The center of this technology is a Decentralized Autonomous Organization, or DAO. This is the foundation underpinning a good number of cryptocurrencies and is critical for all stakeholders to understand. Without going into detail, the largest

cryptocurrency after Bitcoin embodies what is known as “smart contracts”. “Basically, ‘smart contract’ is the term used to describe a computer code that enables the exchange of things of value, such as money, shares, property, and information.”¹¹ The uses for smart contracts are virtually endless. They are easier to implement, do not require intermediaries such as notaries and lawyers and are recorded on a ledger known as the blockchain.¹²

Several uses for smart contracts are:¹³

- Raising capital through crowdfunding digitally and safely;
- Securely implementing insurance contracts, real estate contracts, and other contracts that do not require lawyers, agents, or other intermediaries;
- Controlling access to personal information in associations or public groups like country clubs or homeowner associations;
- Tracking supply chains so that the entire process is implemented through smart contracts and available on the blockchain for all to witness;
- Predictions on certain events like elections or winners of any time of sporting event where gambling or cash prizes are awarded to the winner.

A DAO is an organization that uses these smart contracts for their transactions. For the most part, these are streamlining the way volumes of transactions are implemented. Early on there were growing pains, however. There was an organization called Slock.it that used a DAO to make investment decisions. The problem came when the programmers of Slock.it allowed for a hole for hackers to corrupt the code and approximately \$50 million was stolen from the company. The founders of ethereum decided to help the company and create a hard fork in the code, which goes against the entire decentralized credo of cryptocurrencies. The ethereum founders ended up helping the company get the \$50 million back, but the hardcore ethereum founders ended up splitting and forming ethereum Classic, which does not have the hard fork in the program to help locate thieves. Ethereum is alive and well with a price above \$900 per ether coin. Ethereum Classic’s price is below \$50 per coin.

This one example is a very significant piece of data as to how the entire cryptocurrency industry is going to penetrate just about every two-party contract industry. Transaction-driven industries like real estate,¹⁴ insurance,¹⁵ car rental, hotel, travel, and law¹⁶ are beginning

to embrace the ethereum smart contracts because if they are not already being used by your competitors, they are certainly investigating it. Just as investment advisors need to proceed with caution, so too should businesses and law because there are certainly issues with these smart contracts being “smart”.¹⁷ “What are the requirements in today’s world to be accepted as a legitimate currency used for the buying, selling and exchanging of products and services?” Answer: Security, stability, size, volume, liquidity, and legitimacy.

Security and Hacking

Think for a moment if, during the climb of Google stock when it broke through the \$400 stock price in March 2013 that NASDAQ came out with a statement that five hundred million dollars (\$500,000,000) in Google stock was stolen and it can’t identify who stole it, because NASDAQ uses an anonymous stock-certificate-tracking system.

This scenario happened to Mt. Gox’s cryptocurrency exchange in February 2014 when five hundred million dollars (\$500,000,000) worth of bitcoins were stolen. The SEC, NYSE, NASDAQ, and the Attorney General of the United States have no power over Mt. Gox since it is located in Tokyo, Japan, yet hundreds of millions of US dollars were lost. Now, four years later, it could happen again as smaller hacks are happening at various exchanges and companies across the globe.

As it turns out, a new branch of investigators has now popped up that appear to be the new crypto law enforcement mechanism that just might help solve this major flaw in cryptocurrencies as a legitimate currency. These “Bitcoin Detectives” as they call themselves are now the newest cyber police and are narrowing in on a way to expose the anonymous thieves.¹⁸ Their system is fascinating and may actually work. Without giving away their secrets, these cyber criminals are going to quickly realize that when you steal hundreds of millions of dollars the age-old process of investigation is usually the best way to catch the bad guys... “Follow the Money.”

Until these electronic detectives can perfect their “sniffers,” cryptocurrencies are still at risk, however. The mining companies in the cryptocurrency exchanges have not rectified their security problems that have allowed for hundreds of millions of dollars to be hacked from the various systems. For legitimacy and acceptance broadly, these problems will need to be cleared up relatively quickly. The following are a few more examples of security breaches:

- December 19, 2017—“*A cryptocurrency exchange in South Korea collapsed on Tuesday after it suffered a second cyberattack in eight months and lost a large amount*

of its digital-currency reserves. Yopian, the company that operates a Seoul-based exchange called Youbit, suspended digital-currency trading and filed for bankruptcy after its systems were hacked in the predawn hours of Tuesday. The exchange trades 10 virtual currencies including bitcoin and ethereum. Yopian said in a statement that the latest security breach caused it to lose 17 percent of its total assets. The company didn't specify the type of virtual currencies that were stolen or the financial value of its losses. The previous cyberattack, in April, also resulted in losses from its reserves;"¹⁹

- January 27, 2018—"Japanese exchange Coincheck Inc. said Sunday it would spend up to ¥46.3 billion (\$426 million) to pay back customers after it was hacked and lost cryptocurrency worth some \$530 million two days earlier. In a release on its Web site, Coincheck said customers holding the cryptocurrency NEM would be paid back in Japanese yen at a rate of 88.549 yen per NEM. The company said it lost 523 million NEM after the cyberattack, meaning the payments would amount to ¥46.3 billion. It said about 260,000 customers hold NEM;"²⁰
- February 10, 2018—"An Italian cryptocurrency exchange called BitGrail said on Friday that it lost about 17 million tokens of a cryptocurrency called Nano, with a market value of about \$170 million. In a note on its Web site, the exchange said, "Internal checks revealed unauthorized transactions which led to a 17 million Nano shortfall, an amount forming part of the wallet managed by BitGrail." It didn't indicate exactly when the hack occurred. The exchange said that it has informed authorities, and that it didn't believe any other currencies it holds were affected. It did say, however, that it was suspending all withdrawals and deposits temporarily."²¹

Until the US regulatory bodies come together to resolve these issues,²² it is entirely possible the cryptocurrency marketplace could look and operate a lot more like the cannabis industry where legal Colorado state entities do not violate state laws by conducting business, but the moment they pay federal 941 taxes, they are admitting to a federal crime. The solution in Denver is for the cannabis companies to haul duffle bags of cash to the Denver IRS office; federal banks won't allow them to transact business because marijuana is still federally illegal. Thus, the cannabis companies are searching for ways to transact business without using fiat currencies and having to deposit monies in a bank. Welcome to the world of cryptocurrencies. "Technology companies like SinglePoint²³ and POSaBIT²⁴ are working to generate a payment method for dispensaries and consumers using bitcoin. In recent years, some cryptocurrencies have

cropped up specifically for cannabis transactions, like PotCoin²⁵ and HempCoin."²⁶ This is just one example of how cryptocurrencies can exist well into the future.

The security issue still exists for consumers. The precious commodity backing up cryptocurrencies is a long alphanumeric code or integer that you most likely should only have one copy of on a removable storage device (cold storage)²⁷ where you can safe keep it. If you buy cryptocurrencies on an online exchange, they keep your code for you behind their firewall, which is why the Mt. Gox situation was so devastating. People who thought their currency was safe lost all their money. Cold storage is the advisable way to store your cryptocurrency. For those just coming into the cryptocurrency world, it must be somewhat shocking to think that in a world riddled with Internet security issues and online banking that for a currency that exists solely online, the one sure way to secure it is to have a physical storage device stored under your mattress reminiscent of a bygone era.

Just in the past few weeks before this article was completed, one of the authors has been busy in the cyber world. He rescued a CPA from a cyber ransom attack by paying \$3,200 in Bitcoin to unlock the CPA's email after the CPA threw up the surrender flag asking for help. Then, an investment in an ICO that now no longer takes American investors, required the author to contact their attorney advisor who specializes in crypto law to help navigate the return of the investment back to the bitcoin wallet from whence it came. We are happy to report that both of the above scenarios turned out to be successful, but not without a significant amount of time spent in the pursuit, and a little money to the ransom terrorists.

Stability

Stability is the single biggest obstacle for cryptocurrencies. Most businesses based in the United States are rarely affected by currency fluctuations. Many international businesses have a major percentage of their businesses based on not only buying certain products from foreign countries but also selling their end product to foreign countries. If these international companies trade with countries that have currencies that are unstable, they can (a) use the currency markets to hedge these exchange risks; (b) force that country to both pay or sell their products and services in US dollars, and (c) use an intermediary to take the currency risk out of play based on currency exchanges that exhibit small incremental movements in deep markets.

Cryptocurrencies have been anything but stable. They were stable in the early years, but that was merely from the fact that there was little interest and very little

volume. Ethereum traded at \$17.64 in April, 2017, and less than a year later it hit a high of \$1,338 (a 7,585 percent increase) before dropping 37 percent in only a few months down to \$845.56 and then three months later lost another 70 percent down below \$300, wiping out the 2018 gains.

If you received ten bitcoins in November 2017 for \$190,000 in services and held those bitcoins until January 18, 2018 (only 2 months) and then bought more inventory with your bitcoin, you would have lost 45 percent of your buying power and would have received 45 percent less product, because bitcoin lost 45 percent in two months. For this reason, the marketplace is going to have a difficult time embracing bitcoin, ether, and all the other cryptocurrencies until some form of stability or hedging is present in this marketplace. The following are two recent examples of the volatility:

- December 22, 2017—*Bitcoin Plunges 25 percent in 24 Hours in a Cryptocurrency Market Rout. The price of bitcoin tumbled sharply in Asia, wiping one-fourth of its market value in the past 24 hours alone, as a wave of selling hit the broader cryptocurrency market just before the Christmas holiday weekend. Bitcoin recently traded at \$13,758 after earlier falling as low as \$12,504, according to research site CoinDesk. The notoriously volatile digital currency started December at about \$10,000 and traded close to \$20,000 this past weekend but has been in retreat since. From its recent peak, the virtual currency has lost about \$121 billion of its total market value in less than a week or more than twice the market cap of Tesla Inc.*²⁸
- January 17, 2018—*Bitcoin prices fell below \$10,000 on Wednesday, marking a drop of about 50 percent from their December record and illustrating the degree to which the cryptocurrency remains a highly illiquid and volatile investment. Bitcoin fell as low as \$9,966, down around 6 percent on the day and nearly half from its Dec. 17 record of \$19,783.21, according to data from CoinDesk. A day earlier, the cryptocurrency plunged as much as 25 percent. Later in the US morning, the price bounced back above the \$10,000 mark. Wednesday's drop spread quickly to other major digital currencies. Ether was down as much as 33 percent XRP was down 47 percent Litecoin was down 35 percent Newer tokens like Cardano, EOS and Monero were down 35 percent or more.*²⁹

In the last year, the explosive growth of different cryptocurrencies and skyrocketing volume and dollar value of cryptocurrencies is not, we repeat, not due to the interest in cryptocurrencies becoming the trading

currency of the future; it's because of the speculative trading fever of the underlying currency.

Size–Volume–Liquidity

We address the issue of currency gaining worldwide acceptance of size, volume, and liquidity because they are interrelated. If the currency is going to be used for commerce, it must be available worldwide. The term used for this size/volume is referred to the amount of a specific currency in “circulation.” There are a number of formulas for calculating circulation, but the more generally accepted, simplest formula is the number of coins, paper currency, and banknotes that have been issued minus any that have been removed from circulation by a country's central bank. The Bank for International Settlements listed the following numbers for the amount of currency in circulation as of December 31, 2016.³⁰

(Converted to Billions of US Dollars)

1. United States	\$1,509
2. Europe – Euro	\$1,217
3. China	\$1,000 (estimated) ³¹
4. Japan	\$915
5. Cryptocurrencies	\$205 ³²
6. India	\$196
7. Russia	\$145
8. United Kingdom	\$93
9. Switzerland	\$79

Don't be fooled by the amount of money in circulation for established currencies as it pales in comparison when you consider the trillions of dollars that are traded in the currency markets daily, the best measure of liquidity and volume. The world's largest trading market for currencies is the US-based Forex Market.

According to the Bank for International Settlements, the preliminary global results from the 2016 Triennial Central Bank Survey of Foreign Exchange and Over the Counter (OTC) Derivatives Markets Activity show that trading in foreign exchange markets averaged \$5.09 trillion per day in April 2016. This is down from \$5.4 trillion in April 2013 but up from \$4.0 trillion in April 2010. Measured by value, foreign exchange swaps were traded more than any other instrument in April 2016

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at \$2.4 trillion per day, followed by spot trading at \$1.7 trillion.³³ The \$5.09 trillion break-down is as follows:

- \$1.654 trillion in spot transactions;
- \$700 billion in outright forwards;
- \$2.383 trillion in foreign exchange swaps;
- \$96 billion currency swaps;
- \$254 billion in options and other products.

“The most often traded currency pairs are the EUR/USD (approx. 28 percent of all volume), the USD/JPY (approx. 17 percent of all volume), and the GBP/USD (approx. 14 percent of all volume).”³⁴ In contrast, the cryptocurrency market changes roughly \$50 billion a day, comparable to the New York Stock Exchange.³⁵

Cryptocurrencies Multiply

As any new product or concept that is embraced by consumers spawns countless copycats and competitors, cryptocurrencies have not only followed suit in this regard, but they have created an unprecedented threat of fraud and misdirection for consumers. Anyone with basic programming skills can create a cryptocurrency.

The cryptocurrency pioneer, bitcoin, began in 2009. In March, 2018, there were about 1,500 coins and tokens with a market capitalization of approximately \$500 billion US dollars.³⁶ Then, just five months later that market capitalization dropped 60 percent down to just above \$200 million and there are now over 1,900 coins. To see the current status of the crypto marketplace, go to <https://coinmarketcap.com/> for all of the most up to date statistics. As the cryptocurrency market keeps growing, questions as to how the governments will control the money supply begin to creep into boardrooms and policy meetings. The answer is very concerning to traditional economists that are accustomed to fiat currency.

The above concerns sound a bit worse than actual reality, primarily because governments still have control over regulating this new industry. Although they cannot stop future cryptocurrencies from multiplying in number, they can control how they affect the buying and selling of goods and services.

We explore this concept a bit further, as this is one of the major concerns that is affecting the unknown future of this cryptic industry. Bitcoin is the clear leader as the pioneer and has the largest market cap at just over \$100 billion US dollars. There is a total of 21,000,000 (twenty-one million) bitcoins available and once all of those bitcoins have been mined or have unlocked the

code so that they can go into circulation, no more bitcoins can be generated. Unlike the US dollar which, at the “flick of a pen” from the Treasury Department, can kick out 5,000,000 one-hundred-dollar notes to add \$500 million of US dollars into circulation, once the last bitcoin is thrust in to circulation, the only variable that can change is the price fluctuation of the cost of a bitcoin. In this manner, bitcoin is akin to gold, though more gold can be found, the increments are small and thus gold functions as a fixed supply of value. This is why it is popular with some who fear inflationary pressures.

When will all bitcoins be in circulation? The designers set up the program so that there are a certain number of bitcoins that are awarded once a block formula is successfully solved. When bitcoin started, the number of bitcoins per block was 50. After 210,000 blocks of 50 bitcoins per block, the program is set to cut in half the 50 bitcoins to 25 bitcoins per successful block mined... and so forth. Every 210,000 blocks will half again until the sum of bitcoins per block ($50 + 25 + 12.5 + 6.25\dots$) = 100. 100 times 210,000 = \$21,000,000 or twenty-one million bitcoins in circulation. This whole process will take almost 100 years to complete. Because of the halving system, almost 17 million of the 21 million bitcoins are already in circulation (approximately 80 percent) in the early months of 2018. All statistics, timing, bitcoins per block, when the blocks half again from 12.5 to 6.25 can all be found on the Bitcoinblockhalf.com Web site. The originators of a cryptocurrency wrote a computer program that requires other computers to try and guess a random integer from 0 to 4,294,967,296 called a nonce that will unlock a block of virtual coins that can be saved by the owner of the computer that cracked the code.³⁷ Many thousands of computers can be trying to crack the code for a block at the same time and only one of the fastest computers, or a lucky computer, will be the victor. All the other computers then have to move on to the next block. Since the originators wanted to release only portions of their currency every year, the program adjusts to make sure only a block is obtained every 10 minutes or so. For instance, bitcoin is going to be releasing portions of its 21 million coins until around the year 2140.

This is only how bitcoin, litecoin, and several others of the blockchain technology cryptocurrency coins operate. Litecoin has 84 million total coins with about 69 percent or 58 million in circulation for a market cap of \$3.2 billion as of August 2018. Ethereum does not currently have a finite number that it will cap out at. It currently has about 101 million in circulation for a \$30 billion market cap. Ethereum has the smart contracts that are wrapped into its platform and will be one of the main focal points for how this industry moves forward.

In the opinion of the authors, ethereum will be one of the survivors in this complex industry because the millions of transactions for basic needs such as real estate, insurance, and car rentals can be done quicker and easier through the blockchain technology, which is what ethereum's smart contracts operate under.

The top five in market cap in early 2018 were bitcoin, ethereum, ripple, bitcoin cash, and litecoin. In August 2018, EOS and stellar overtook Litecoin in marketcap, primarily because the Visa® deal fell through for litecoin. The other coins of note are Cardano, NEO, IOTA, Tether, Dash, TRON, and Monero. Each has unique aspects to them and prices range from .10 cents to over \$1,000 per coin. The top ten coins in market cap account for 86 percent of the entire \$205 billion market cap of the cryptocurrency world.³⁸ This is an amazing number, when you consider that, as shown above, only four economies (the United States, the European Union, China, and Japan) have more currency in circulation than the collective market capitalization of cryptocurrencies.

This has risen the alert flags of regulators and governments across the world so much so that crackdowns, policy changes, and bans have created an unstable, undulating price fluctuation for the most circulated cryptocurrencies. This investment instability has put a black mark on the investment aspect of cryptocurrencies. As a pure investment, all investment advisors should warn every client that these are extremely volatile, complex investments, and should not be purchased with anything but speculative, discretionary funds they are prepared to lose. This is unfortunate because, notwithstanding the prior warning to the public, the underlying platforms such as smart contracts and methods of payment for transactions are the true inherent value of cryptocurrencies. These components should be evaluated separately by consumers to improve the ease of transacting and by merchants for their value to increase the enterprise value of their company.

Regulators and Government Intervention

The following is a list of the current regulators of cryptocurrencies in the United States:

- **Commodity Futures Trading Commission (CFTC)**

The CFTC is responsible for recording and monitoring the trading of futures contracts on United States futures exchanges. The CFTC has the authority to fine, suspend, or sue the company or individual in federal court in cases of misconduct, fraud, or if a

rule is broken. The CFTC also regulates commodity pools and commodity trading advisors. Many hedge funds operate as commodity trading pools. In December 2017, bitcoin futures began trading on the Chicago Mercantile Exchange (CME) and on the Chicago Board of Options Exchange (CBOE). The CBOE is now commonly referred to as CBOE Global Markets and thus comes under the watchful eye of the CFTC.³⁹

- **National Futures Association (NFA)**

The NFA is to the CFTC as FINRA is to the SEC. The NFA is a self-regulatory organization designated by the CFTC as a Registered Futures Association. The NFA was created by Congress in September 1981. The Dodd–Frank Wall Street Reform Act of 2010 created additional new reforms and requirements relating both to the CFTC and the NFA. Membership in the NFA is mandatory for those institutions trading for clients on US-based future exchanges. The current NFA membership is roughly 4,000 firms and approximately 55,000 associates (licensed commodity brokers). One of the ways that the NFA regulates its members is through the publication of its NFA Rulebook containing rules, regulations, norms, and standards.⁴⁰ The NFA's Web site provides warnings as it relates to trading virtual currencies;

- **Securities Exchange Commission (SEC)**

Many lay investors do not understand that the myriad of investments regulated by the SEC—stocks, bonds, mutual funds, stock options, and other similar investments—does not include US commodity futures and commodity options. Those are regulated by the CFTC and the NFA mentioned above;

- **Financial Industry Regulatory Authority (FINRA)**

FINRA regulates approximately 4,250 brokerage firms and approximately 629,000 registered securities representatives.

The US Federal Reserve

Just in the last few months, there has been both a push and a prediction that in the relatively near future the Federal Reserve will create a US-based cryptocurrency.⁴¹ The Federal Reserve lists seven purposes and functions that include regulating financial institutions,

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consumer protection, and efficient safe payment and settlement system.⁴²

Examples of Governmental Intervention

It is almost a daily occurrence that some governmental agency or regulatory body worldwide files some warning to investors, new restrictions, or in some of the more severe cases, shutting down entire cryptocurrency exchanges or mining operations. The following are just a few examples in recent months:

- December 6, 2017—“*The Commodity Futures Trading Commission sent subpoenas Dec. 6 to virtual-currency exchange Bitfinex and its sister firm Tether Ltd., which issues tokens that it says are backed by a fund valued at about \$2.3 billion in US dollars. That fund hasn’t been audited, and critics have questioned whether Tether can verify that it actually has those funds in reserve;*”⁴³
 - January 22, 2018—“*Probably the biggest bombshell that the cryptocurrency markets were hit with was when South Korean financial regulators ruled they would no longer allow anonymous cryptocurrency trading accounts. The new regulations require anyone who is going to trade in cryptocurrencies to have a bank account that is linked to their cryptocurrency exchanges. Opening or utilizing a bank account already requires individuals to provide a laundry list of personal information. One of the motivations behind South Korea’s new regulation is its attempt to eradicate money laundering;*”⁴⁴
 - February 5, 2018—“*Chinese authorities plan to block Web sites related to cryptocurrency trading and fundraising, state media reported, in the latest move to tighten controls over what Beijing deems as risky investments. Regulators are planning ‘a list of measures’ aimed at cryptocurrency trading, including ‘dealing with domestic and international websites,’ according to a report Monday by Financial News, a publication affiliated with China’s central bank;*”⁴⁵
 - February 6, 2018—“*US regulators plan to ask Congress to consider imposing stricter federal oversight on trading of bitcoin and other cryptocurrencies, as market cops amplify alarms about an asset that is largely exempt from investor-protection laws. The chairmen of the Securities and Exchange Commission and the Commodity Futures Trading Commission plan to testify Tuesday that cryptocurrency trading has outgrown the state-based regulation that covers many platforms. The aggressive tone adds to headwinds that bitcoin faces, including a crackdown in China and a move by US banks to halt credit-card purchases of bitcoin. Bitcoin prices fell 11.6 percent on Monday, capping weeks of volatility. ‘The currently applicable regulatory*
- framework for cryptocurrency trading was not designed with trading of the type we are witnessing in mind,’ SEC Chairman Jay Clayton said in prepared remarks for the Senate Banking Committee;*”⁴⁶
- February 28, 2018—*The Wall Street Journal* reported that “*The Securities and Exchange Commission has issued dozens of subpoenas and information requests to technology companies and advisers involved in the red-hot market for cryptocurrencies.... The sweeping probe significantly ratchets up the regulatory pressure on the multibillion-dollar US market for raising funds in cryptocurrencies. It follows a series of warning shots from the top US securities regulator suggesting that many token sales, or initial coin offerings, may be violating securities laws. The wave of subpoenas includes demands for information about the structure for sales and pre-sales of the ICOs, which aren’t bound by the same rigorous rules that govern public offerings, according to the people familiar with the matter. Companies use coin offerings to raise money for everything from file-sharing technology to pet passports. ‘Many promoters of ICOs and cryptocurrencies are not complying with our securities laws,’ SEC chairman Jay Clayton said earlier this year. In another speech he said he has instructed his staff to be ‘on high alert for approaches to ICOs that may be contrary to the spirit’ of those laws;*”⁴⁷
 - March 2, 2018—Jeremy Gardner, a co-founder of hedge fund Ausum Ventures, said in a tweet, “*With Australia set to introduce new legislation that will empower authorities to monitor and regulate the activities of cryptocurrency traders, many analysts are anticipating that the country’s bitcoin investors will face a crackdown from the country’s tax office. Australia’s new cryptocurrency regulations will see anti-money laundering legislation extended in order to greater encompass the challenges posed by virtual currencies. Analysts are expecting that the Australian Tax Office (ATO) will launch a crackdown on Australian cryptocurrency traders once the new rules are in effect;*”⁴⁸
 - March 7, 2018—SEC policy statement: “*Online trading platforms have become a popular way investors can buy and sell digital assets, including coins and tokens offered and sold in so-called Initial Coin Offerings (“ICOs”). The platforms often claim to give investors the ability to quickly buy and sell digital assets. Many of these platforms bring buyers and sellers together in one place and offer investors access to automated systems that display priced orders, execute trades, and provide transaction data. A number of these platforms provide a mechanism for trading assets that meet the definition of a “security” under the federal securities laws. If a platform offers trading of digital assets that are*

securities and operates as an “exchange,” as defined by the federal securities laws, then the platform must register with the SEC as a national securities exchange or be exempt from registration. The federal regulatory framework governing registered national securities exchanges and exempt markets is designed to protect investors and prevent against fraudulent and manipulative trading practices.”⁴⁹ Bitcoin immediately fell 10 percent, almost \$1,000 after the announcement;

- March 8, 2018—“Japan’s financial regulator punished several cryptocurrency exchanges on Thursday, including suspending operations at two of them for a month, part of new restrictions following an apparent \$530 million heist at one of its larger crypto platforms, Coincheck Inc. The Financial Services Agency said two of the country’s smaller exchanges, FSHO and Bit Station, had been ordered to halt operations for a month due to a lack of proper procedures to protect customers’ assets. The agency said the owner of Bit Station had improperly used customers’ bitcoin for personal use. It also asked Coincheck to better protect clients, take anti-money-laundering measures and overhaul operations.”⁵⁰

Mechanics of Investing and Trading Cryptocurrencies Today

There are various images associated with each cryptocurrency and most all of them are coin images. Many of them have “coin” in its name such as bitcoin, litecoin, bytecoin, and dogecoin. Dogecoin was created as a joke and is named after a Japanese dog. Images of coins are created only to provide some sense of reality to these virtual coins.

How Do You Buy Goods and Services Using Cryptocurrencies?

To buy goods and services using cryptocurrencies is actually very easy and secure. Hundreds upon thousands of merchants across the world accept cryptocurrency as payment for goods and services. The direct way to purchase goods and services is to have what is known as an electronic wallet that stores your cryptocurrencies. There are many companies that offer apps that you can install on smartphones that store and facilitate payments using cryptocurrencies. The process is easy, merely copying destination addresses of the seller and then clicking buttons in your wallet to send the agreed on amount of the cryptocurrency to the seller’s electronic wallet.

For those companies that do not have the ability to receive direct payments from an electronic wallet, there is the intermediary option, which is what many large

companies are now using. For example, Expedia uses a popular and widely accepted cryptocurrency exchange, Coinbase, as its intermediary.⁵¹

Venezuela has launched its own cryptocurrency called Petro to try and remedy its own debt crisis. As of August, they have initiated the process for the Petro to be a second unit of accounting for salaries and the purchase of goods and services. “As of next Monday, Venezuela will have a second accounting unit based on the price, the value of the Petro. It will be a second accounting unit of the Republic and will begin operations as a mandatory accounting unit of our PDVSA oil industry.”⁵² The state of Georgia accepts bitcoin for the payment of taxes and governments across the world will shortly be following suit.

Now that one can buy a gift card with bitcoin called Gyft or use a third-party app like purse.io and shop at Amazon.com and the fee is not much more than paying interest on your credit card, the world now has another form of payment with a market cap in the \$200 billion range. Skeptics who think cryptocurrencies are a fad destined to fail will need to see two hundred billion dollars disappear faster than it was created. Although Jamie Dimon, Chairman and CEO of JPMorgan Chase, once called bitcoin a fraud, his company now acts “as an agent for buyers and sellers of bitcoin XBT, an exchange-traded note designed to track the value of the cryptocurrency.”⁵³ This is indisputable evidence that the cryptocurrency bandwagon is gaining momentum.

Exchanges and Commerce

An Initial Coin Offering (ICO) is similar to an IPO where a company that has launched a cryptocurrency wants to raise money to grow. So far, only bitcoin has surfaced as a pseudo-currency. In fact, most of the other cryptocurrencies have what is known as a platform underlying their cryptocurrency. It is this fact that is critical to the argument as to whether cryptocurrencies will be a significant part of society in the future.

The commerce aspect of cryptocurrencies is the greater game, far above the investment component of how this new marketplace will unfold. Several industries are already morphing into a smart contract world using the blockchain technology. The question isn’t whether these platforms will be a significant part of society, it is when will the “bugs get ironed out” so that big business and governments embrace them.

Cryptocurrency Hedge Funds

As of mid-February 2018, the number of hedge funds specializing in cryptocurrencies rose to 226. This is incredible growth when you consider at the

start of 2017 there were only 37 hedge funds focused on cryptocurrencies. The hedge funds tracked by the leading hedge fund database provider Eurekahedge showed a return of 1,477 percent in 2017 on average. Estimated current value of these cryptocurrency-based hedge funds is \$3.5–\$5 billion.⁵⁴ Hedge Fund Research (HFR) is a separate entity that keeps track of fund managers investing in blockchain digital currency and distributed ledger technologies. HFR has created two blockchain indices: The HFR Block Chain Composite Index showed a 2,494 percent increase in the preceding 12 months through January 2018 and the HFR Cryptocurrency Index showed a 2,598 percent for the same period.⁵⁵

One of the more successful hedge funds has been Pantera Bitcoin Fund based in San Francisco. For the life of the fund which started in 2013, the total returns are a positive 25,004 percent.⁵⁶ It predominantly has been investing in bitcoins (this return was based on the bitcoin pricing of \$15,500) which far surpasses the highest performing non-cryptocurrency hedge fund which was up only 148 percent in 2017, whereas the average hedge fund was only up 8.83 percent 2017.⁵⁷ Pantera has a compounded annual rate of return of roughly 250 percent a year.

US Publicly Traded Cryptocurrency Companies

These bitcoin funds serve as examples of how investing in bitcoins works.

Bitcoin Investment Trust (GBTC) NASDAQ

The Bitcoin Investment Trust is one of the most popular ways for retail traders to make bets on bitcoin. Essentially, the Bitcoin Investment Trust works like an exchange-traded fund (ETF). The fund owns bitcoins on behalf of its investors, which the fund's managers are responsible for keeping safe. Based on the current amount of bitcoins the fund owns, February 28, 2018, each share currently represents about 0.00100567 bitcoin.^{58,59} Unfortunately, many GBTC investors don't fully understand exactly what it is they are buying, and the risks involved.

The GBTC trust is operated by Grayscale Investments. In May 2015, Grayscale gained regulatory approval to improve liquidity for its private investors by having shares of the trust trade on the US OTC Market. Unlike the GLD ETF, which buys and stores physical gold, Grayscale has a unique challenge in storing and protecting its digital bitcoin holdings. "For GBTC, we have leveraged a third-party custodian, a firm called Xapo," Sonnenshein (the founder) said. "There is super intense cryptographic physical security as well as geographic dispersion such that their security model has no single point of

failure." Unfortunately, due to the fact it's currently the only bitcoin trust of its kind out there for investors, traders have driven the price of the GBTC way above the value of the bitcoin it holds. In fact, the GBTC trust has consistently traded at a 50 percent premium to its assets under management... To make matters worse, analyst Ihor Dusaniwsky said short sellers have been paying 10 to 20 percent borrowing fees all year, and fees will likely continue to climb along with short interest. "Long GBTC holders may feel the pain of its 53 percent asset premium shrinking, while short sellers will probably be incurring a 50 percent + stock borrow fee – both sides will be paying a premium in order to ride the Bitcoin rollercoaster once the CBOE futures start trading," Dusaniwsky said earlier this month.⁶⁰

GBTC had a 90 for 1 split for shareholders of record on January 22, 2018. Merrill Lynch has banned its roughly 17,000 advisers from executing client requests to trade in GBTC.

March 6, 2018—Grayscale Investments, the creator of the Bitcoin Investment Trust, is launching four new trusts today, doubling its number of products aimed at helping investors explore cryptocurrencies. The new trusts - which bring ethereum, litecoin, XRP and bitcoin cash to the offerings the firm provides - join Grayscale's existing bitcoin, ethereum classic and zcash investment trusts, as well as its Digital Large Cap Fund, a multi-crypto investment fund announced last month. Each of the newly announced cryptocurrencies is already part of the Digital Large Cap Fund, but were not previously available individually. Michael Sonnenshein, the managing director of Grayscale Investments, said, "It is our belief that digital currencies as an asset class have not only arrived, but are here to stay. Consequently, we are committed to providing investors with structures that enable them to participate in this exciting asset class." As of March 5, Grayscale had \$2.1 billion in assets under management, he said, up from \$208 million just a year ago.⁶¹

The Securities and Exchange Commission has a pile of bitcoin ETF applications and institutional investors are lining up to get into the funds. Almost as soon as the first futures traded on the CBOE, the New York Stock Exchange filed for SEC approval for two ETFs based on bitcoin futures—one long and one short—to be managed by ProShares. Similarly, the CBOE has applied for approval for funds managed by fund families REX, First Trust, and GraniteShares.⁶²

Some companies are working to adopt Blockchain and cryptocurrencies into their business model. In 2014, Overstock.com became the first major retailer to accept bitcoin for transactions. That same year, the e-tailer also began developing a small division called Medici Ventures that is focused on blockchain technology, the underlying tech that powers and protects bitcoin transactions. Despite the fact that Medici lost nearly \$12 million

last year, Overstock shares have risen 260 percent since August, because a Medici subsidiary, tZero, announced it would begin trading digital coins and will seek to raise a record \$500 million through a digital coin offering. D.A. Davidson analyst Tom Forte has gone so far to say that if Overstock sold its e-commerce arm to home in on the blockchain, the stock would rise another 60 percent.⁶³ On March 1, 2018, the Securities Exchange Commission filed a request for information about tZero's initial coin offering (ICO) in December 2017.⁶⁴

Cryptocurrency Futures Trading

Cryptocurrency futures trading began in the United States in December 2017; currently, there is only one cryptocurrency being traded—bitcoin, although the CME has launched two indexes for tracking Ethereum.⁶⁵ The bitcoin currency future is traded on two US markets—CME Group and CBOE Global Market. The trading in bitcoin futures are very similar in both markets, the following are some of the basic similarities:

- You can be long or short the futures and contract months are quarterly;
- Unlike the cash for spot market for bitcoins, you can use margin and thus leverage your investment or hedging strategy;
- Settlement is a cash settlement—there is no physical delivery of bitcoin electronic currency;
- Both Chicago based markets are regulated by the CFTC, where many foreign virtual currency exchanges are to some degree unregulated;
- Bitcoin futures can be used to hedge a physical ownership of bitcoins;
- Spreading futures is available, but currently, there are no bitcoin options traded;
- It's not necessary to own bitcoin electronic currency and no "digital wallet" is necessary;
- Both markets currently contain "Contango"⁶⁶ the term for when further out contract months trade at a premium to the current or closer in contract months.

The following are some of the specifics of the CME Group and CBOE Global Markets and some differences:

CBOE Global Markets—CBOE Bitcoin (USD) Future XBT

- XBT (the symbol) futures are cash-settled futures contracts that are based on the auction price of bitcoin in US dollars on the Gemini Exchange;
- The contract multiplier is one bitcoin (bitcoin closing price \$14,000 times 1 = futures contract of \$14,000);
- Initial margin is 44 percent of the previous day's future settlement and maintenance margin is 40 percent;
- Minimum tick is \$10 per contract.

CME Group Bitcoin (USD) Future BTC

- BTC (the symbol) futures are cash-settled futures contracts that are based on the auction price of bitcoin in US dollars on the Bitcoin Reference Rate (BRR);⁶⁷
- CME has one additional day of trading on Sunday;
- Initial margin is 43 percent for hedgers and 47 percent for speculators; maintenance margin is 43 percent for both hedgers and speculators;
- The contract multiplier is five bitcoins (bitcoin closing price \$14,000 times 5 = \$70,000);
- Minimum tick is \$5 per contract.

In January 2018, Ameritrade allowed investors to trade bitcoin futures contracts on the CBOE with a minimum deposit of \$25,000 in their account. Other broker-dealers that allow clients to trade in bitcoin futures are Interactive Brokers, E*TRADE, and Wedbush, among others. As of July 2018, the millions that have thus far been traded on the two US bitcoin futures markets are best described as muted when compared to the Asian cash/spot markets.

Future Regulation

The SEC is already very actively regulating cryptocurrencies. The SEC's focus will mainly be on the fund-raising efforts/offerings by the cryptocurrencies companies and their reporting requirements. The bulk of SEC enforcement actions thus far on cryptocurrencies have related to private placements to raise funds, but that is expanding almost weekly. At SEC.gov, the SEC has extensive investor alerts and warnings for investors

Cryptocurrency

and potential participants relating to cryptocurrencies. As this article goes to press, the SEC has announced it will regulate the Cryptocurrency trading exchanges.

FINRA has had no enforcement actions relating to cryptocurrencies, but that day looms in the very near future. FINRA enforcement efforts will focus on the marketing, recommendations and sales efforts of their licensed registered representatives—stockbrokers and investment advisors. At FINRA.org, there are likewise extensive investor alerts and warnings for investors as it relates to virtual currencies and cryptocurrencies. FINRA Rule 3110 Supervision certainly applies to the recommendation and sale of cryptocurrencies.

This article has provided ample evidence that investing in cryptocurrencies is not for the faint of heart. Every single regulatory agency has gone out of its way to make it quite clear that investing in cryptocurrencies is a highly speculative venture. If a licensed broker or advisor either makes a misstatement or omits telling an investor a material fact as it relates to a potential cryptocurrency investment, that individual is also in violation of the antifraud statutes.⁶⁸ FINRA RULE 2020—Use of Manipulative, Deceptive or Other Fraudulent Devices could be violated in the recommendation of purchasing cryptocurrencies.

It's not as if brokers and advisers are bereft of a plethora of choices for high risk and speculative investments and strategies to recommend: Options, leveraged ETFs, private placements, day trading, and shorting, to name a few. Virtual currencies/cryptocurrencies are the latest addition to these speculative investments and strategies, but they offer a unique challenge to professionals in the securities industry because they are the hottest game in town. Millions and even billions have been made in just the last few years, and just like the California gold rush of 1849, investors, speculators, scamsters, and “miners” are attracted to this get-rich fever.⁶⁹ In addition to the regulators, broker-dealers, managers, supervisors, and compliance professionals will be faced with fast-moving, ever-changing virtual currency markets.

Conclusion

All indications point to a global future where cryptocurrencies will be mainstream across the world, and once stabilized, particularly in the Third World wherein the unbanked have no banking alternative.⁷⁰ The biggest issue is that most of the attention has been focused on the investment aspect of cryptocurrencies which has cast a dark cloud over these cryptic virtual coins from regulators and investment professionals. Where the attention should be focused is on the commerce aspects that are on the verge of changing the way the world transacts every-day activities, however.

When financial leaders such as Warren Buffet and Jamie Dimon come out strong against the volatility of the investment into cryptocurrencies, the world listens. When the commerce side of the smart contracts begins to creep into companies owned or invested by these financial leaders, we, however, will see what the tone of their opinions are on the commerce use of such instruments.

The ease of transactions through the blockchain technology from ethereum and other cryptocurrencies could simplify consumer transactions and increase the volume of goods and services in a secure environment with less volatility. The irony here is that the investment component of cryptocurrencies is riddled with the word volatility, while the commerce component reduces volatility. Sooner or later a sustainable equilibrium will be found.

Notes

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- money?”...“I hope bitcoin becomes a better way to do it. But you can replicate it a bunch of different ways. The idea that it [bitcoin] has some huge intrinsic value is just a joke in my view.” Tae Kim, *Bitcoin up sevenfold since Warren Buffett warned digital currency was a ‘mirage’*, CNBC (Sept. 7, 2017), see <https://www.cnn.com/2017/09/07/bitcoin-up-sevenfold-since-warren-buffett-warned-digital-currency-was-a-mirage.html>. “In similar fashion, billionaire investor Howard Marks told his clients to avoid high-flying digital currencies in July. ‘In my view, digital currencies are nothing but an unfounded fad (or perhaps even a pyramid scheme), based on a willingness to ascribe value to something that has little or none beyond what people will pay for it,’ Marks wrote in an investor letter. The manager then compared cryptocurrencies to the tulip mania of 1637, the South Sea bubble of 1720 and the internet bubble of 1999.” *Id.*
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 62. Rob Curran, "What You Need To Know About Bitcoin Funds", *WALL ST. J.* (Jan. 7, 2018).
 63. Ryan Drousseau, "Three Stocks That Are Soaring Because Of Bitcoin," *MONEY MAGAZINE* (Nov. 30, 2017), see <http://time.com/money/5042272/stocks-investing-bitcoin/>.
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 65. Evelyn Cheng, Futures exchange CME launches indexes for ethereum, the second-largest cryptocurrency, *CNBC* (May 14, 2018). see <https://www.cnn.com/2018/05/14/futures-exchange-cme-launches-indexes-for-ethereum-the-second-largest-cryptocurrency.html>.
 66. Contango is the prevailing term structure for most futures markets much of the time. For instance, a well-supplied physical commodity market should remain in Contango. The

pricing disparity between different delivery months should reflect the cost to store and insure the product over a given time frame. That's typically referred to as "cost of carry." A trader will pay more for the commodity at some future date to avoid incurring the costs of that commodity from now to that future date. In a normal market (Contango), there is a negative expected yield if a futures contract is rolled forward. See "Contango," *INVESTOPEDIA*, <https://www.investopedia.com/terms/c/contango.asp> (last visited June 5, 2018).

67. The BRR is calculated based on the relevant bitcoin transactions on all Constituent Exchanges between 3:00 p.m. and 4:00 p.m. London time. The price and size of each relevant transaction is recorded and added to a list which is portioned into 12 equally weighted time intervals of 5 minutes each. For each

partition, a volume-weighted median trade price is calculated from the trade prices and sizes of the relevant transactions across all the Constituent Exchanges. The BRR is then determined by taking an equally weighted average of the volume-weighted medians of all partitions. "CME CF Cryptocurrency Reference Rates," CME Group, see <http://www.cmegroup.com/education/bitcoin/bitcoin-reference-rate-methodology.html> (last visited June 8, 2018).

68. See 17 C.F.R. 240.10b-5 (2017).
69. "Prophets of Boom," *FORBES*, Feb. 28, 2018, at 60.
70. See generally Vigna, *supra* note 11; Leigh Cuen, "Afghan Tech Entrepreneur Uses Bitcoin To Empower Women," *IBT* (Aug. 8, 2017), <http://www.ibtimes.com/afghan-tech-entrepreneur-uses-bitcoin-empower-women-2575881>.

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