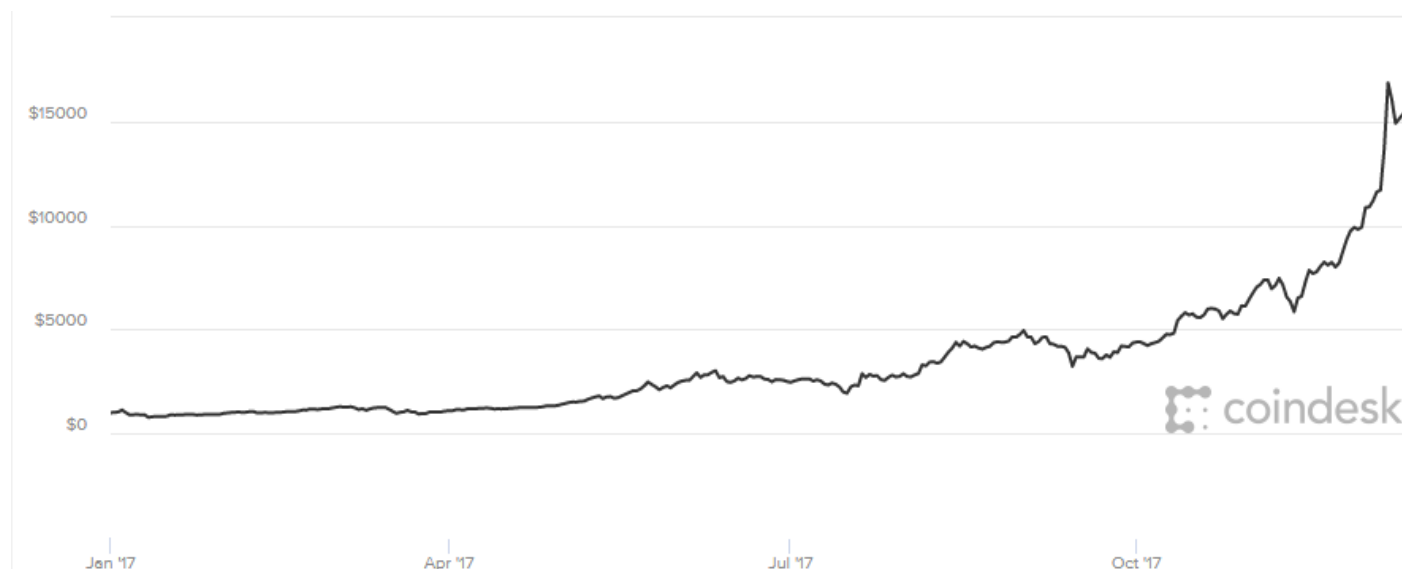


Bitcoin:

Bitcoin, a stateless digital currency, continues to captivate global investors. While it has some similarities to gold, it has captured the imagination of investors as nothing we have experienced in years. Over the last several weeks, bitcoin has climbed from \$7,000 to \$8,000 and now has even eclipsed \$19,000 per coin. It doubled in value since mid-October 2017 and doubled again over the last couple of weeks. In 2017 to date, its value has soared from \$982 to well over +1,600%. It took 1,230 days for it to eclipse \$1,000 and another 1,269 days to eclipse \$2,000. It took 16 days to move from \$7,000 to \$8,000 and only 7 days to move past \$9,000 for the first time. Now it is moving well over \$1,000 on a daily basis.



The value of all bitcoins in existence exceeds \$250 billion, which represents ~ 15% of the \$1.6 trillion of US currency in circulation. As “Fin Tech” specialists, we are constantly asked about our opinion on bitcoin and various other cryptocurrencies. The analogy we like to use is that bitcoin is to block chain as email was to the internet in the late 1990s. We believe that block chain is the real story and technology advancement. Once data is stored in a block chain database, it can never be modified or deleted, and every record is permanent. Many new and interesting ways exist for block chain to improve current recordkeeping processes. Block chain technology has the potential to eliminate much of the friction in traditional financial transactions and potentially could revolutionize commerce. It could eliminate many middlemen and provide secure execution of “smart contracts” in a fast and efficient way.

Instead of understanding the underlying benefits of this general ledger system and its vast uses, too many people mistake this wonderful advancement for a digital currency that simply runs on this new platform. We will address block chain and its opportunities in a soon-to-be released research note, but for now we will address the newsworthy bitcoin phenomenon.

Summary:

Just as we do not provide any expert opinion on currency movements in the US dollar, Chinese Yuan, British Pound, Euro and others, we do not believe there is much to add on predicting fiat currency moves. We believe bitcoin is in a bubble and we will not join this speculative party. In this note, we will detail why we have a hard time buying into bitcoin as a viable currency and comment on how it is functioning on enthusiasm, not merit. If we are wrong in this premise, our investment process and philosophy would seek to capture the benefits of its volatility without making a call on its underlying price movement. For us, this comes back to the kind of business models we seek out. Would we rather be a bridge builder or a toll-keeper? Our preference is to identify business models that benefit from secular growth and earn steady and recurring revenue. We always will look to be the toll-keeper on that bridge where millions of drivers want to pass. Over the next few pages, we will discuss how we plan on “investing” in bitcoin. Those who are loyal readers of our research can probably guess that it will be boring, predictable, and based upon trying to eliminate the majority of the underlying risk.

Our Preference:

In our concentrated portfolios, the largest area of exposure is the payment space. We have published various notes on the secular growth of digital payments and the decline of cash ([read here](#)). Other research has focused on which merchant processors we prefer and where we see trends in the acquiring space trending ([seen here](#)). We have also published several notes on the dominant payment networks, Visa and MasterCard ([seen here](#)). In September of 2016, we published a detailed note on PayPal (ticker PYPL) and what we saw as the opportunity in mobile wallets as well as the future of digital payments ([seen here](#)). The emerging payment business is a wonderful, secular growing industry. We prefer to own companies that win over time and every time, as opposed to being investors that need to be right on the underlying price movement of an asset.

Bubbles:

A decade ago, we remember visiting Las Vegas and hearing stories of waitresses owning multiple condos, all without putting any money down. We remember the taxi driver in New York City bragging about his growing real estate “empire” and how this was all possible without the traditional 20% down payment. Today, more and more people are trying to get exposure to the digital currencies, and many are looking to profit from a quick trade. We challenge you to attend a holiday party without bitcoin getting mentioned or hearing chatter about how “I made a fortune on bitcoin... just last week!”

There is no doubt that retail interest in digital currencies has at a fever pitch. On CNBC or Bloomberg, every other segment is focused on bitcoin and its meteoric rise. Is bitcoin the modern version of the tulip mania of the 1600s? Is Cameron Winklevoss correct stating that bitcoin is a multi-trillion-dollar opportunity about to rise 20-fold over the next few years?

To further emphasize where bitcoin stands on this frenzied scale, one needs only to look at trading in Bitcoin Investment Trust or BIT, an unregistered fund that simply holds bitcoin. Last week, Fidelity reported that this ETF was the 5th most popular stock among its brokerage customers and buyers outnumbered sellers by more than 40%. To make matters worse, the share price exceeds the underlying bitcoin BIT holds by 70%.



One of our biggest issues with bitcoin is that it has been a one-way market. We have been concerned that trading in bitcoin has been dominated by buyers, not sellers. Without a valid market to short bitcoin, it is our opinion that huge retail demand spurred this unprecedented rise in value. Until real, regulated, experienced exchanges got involved, bitcoin was bound to simply be a one-way trade. For us, there was too much risk and not enough information upon which to base a valuation.

Its Creation:

Bitcoin was designed as a virtual currency that could be traded by two users without any governmental or bank involvement. In 2009, the pseudonymous creator of the cryptocurrency, Satoshi Nakamoto, designed bitcoin as a secure online alternative to cash. The number of bitcoins is limited to 21 million, and 16.7 million bitcoins exist today. According to data from Blockchain, Nakamoto is rumored to hold almost 4.7% of all the bitcoins that will ever exist. If current prices are a fair valuation, this would imply a net worth approaching \$20 billion.

The initial intent was to make casual payments and lower transactions costs, all without the involvement of traditional financial institutions. The goal was to bypass the bank-based, fiat currency system and permit secure, online transactions.

With a foundation of libertarian principles, zealous proponents mock regulation and traditional rules. Despite its intention, we feel that bitcoin fails to accomplish what its founder envisioned. Instead of permitting casual transactions at low costs, bitcoins are the preferred currency of criminals. Speculators and momentum traders are attracted to the volatility and price increase. Lastly, there is a group of owners that fear central banks' monetary policies and worry about potentially inflating away their savings.

Disruptions:

Back in the mid 1990s and early 2000s, the online brokerages (Fidelity, Charles Schwab, Ameritrade, E*Trade and TD Waterhouse) were building out their infrastructure and online capabilities. When volumes surged, many experienced website outages preventing consumers from transacting online. We see many similarities between those online brokerages growing pains and what current bitcoin exchanges are experiencing.

On Wednesday November 29, 2017, bitcoin prices whipsawed above \$10,000, then \$11,000 before falling to \$9,500. Heavy trading of bitcoins, which hit a record level of more than 400,000 transactions, caused havoc on these newly created exchanges. At 10:32, Gemini, a NY based exchange first began to report service disruptions and "degraded performance" on its website. At 11:07 a.m., San Francisco based Coinbase temporarily began to halt executing orders while it tried to stabilize its systems. Kraken, also based in San Francisco, reported "partially degraded service" while Bitstamp, a European bitcoin exchange, had its website inaccessible at 3:35 p.m.

Daily service outages are not going to be acceptable for consumers desiring to transact in bitcoin. Over the last week, Coinbase has become the second-most-downloaded app in Apple's App Store. On Friday, December 8, 2017, Coinbase's CEO Brian Armstrong stated, "Despite the sizable and ongoing increases in our technical infrastructure and engineering staff, we wanted to remind customers that access to Coinbase services may become degraded or unavailable during times of significant volatility or volume." It is quite apparent that these exchanges are not ready to handle the volume and are not prepared to be a valid marketplace of price discovery.

Digital Currencies:

The Securities and Exchange Commission or SEC defines digital currencies and other digital assets as "a digital representation of value that can be digitally traded and functions as a medium of exchange, unit of account, or store of value." From a legal standpoint, the status of cryptocurrencies has not been totally agreed upon.

In the case SEC v Trendon Shavers, a Texas magistrate judge ruled that "bitcoin can be used as money...to purchase goods or services, and used to pay individual living expenses. Therefore, bitcoin is a currency or form of money." On the flip side of this legal argument, a Miami-Dade judge stated, in a money laundering case involving bitcoin, that the cryptocurrency "is not backed by anything...and is certainly not tangible wealth and cannot be hidden under a mattress like cash and gold bars."

As further legal cases and regulation are decided, the exact definition and legal standing of cryptocurrencies will become more established. In our opinion, it is too early to understand the ramifications of legal rulings on cryptocurrencies. Why is this important? Well, regulations need to be formally set and rules need to exist for this digital currency to be monitored.

#1) Medium of Exchange:

In our opinion, a currency needs two key ingredients to become a "valid currency". First, it must act as a **medium of exchange**. Can we easily transact for goods and services utilizing this currency? When we purchase an item online, we are required to utilize cards or a digital network like PayPal. If we walk into a store, we need to transact in cash or various other mechanisms like credit or debit cards.

We continue to hear of online merchants that either plan or have decided to transact at the point-of-sale in bitcoin. (Examples include Overstock.com, certain Subway locations, as well as potentially Square.) So, do these merchants accepting bitcoin help it meet our definition of a valid currency? We would like to know how many transactions are occurring on Overstock.com in bitcoin. Let's walk through an example and see why bitcoin will not be accepted at big box retailers for quite some time.

The Consumer Experience:

Let us assume you purchased a \$1,000 TV at Best Buy a few months ago using bitcoin. Using today's bitcoin valuation, that TV transaction would equate to a \$5,000 purchase. From the customer's perspective, we believe this would be considered an awful opportunity cost. Obviously, the customer would feel slighted because he or she could have purchased a much better TV for the equivalent bitcoin value. By using bitcoin instead of US dollars, the transaction cost for the consumer was a mistake.

Taking the example to the extreme, if you purchased a sub sandwich for \$5 at a Subway a month ago, I sure hope it was the greatest sandwich you ever ate! That turkey sub had the equivalent cost of a filet mignon and a wonderful bottle of Bordeaux wine at Capital Grille.

The Merchant Experience:

On the merchant side of the equation, multiple issues will need to be resolved before bitcoin can be accepted. First, merchants will need their merchant acquirer and processor to allow bitcoin transactions to occur. This will not be simple and will require extensive quantities of software code to be re-written. Even if a merchant wants to accept bitcoin, the fees associated with its acceptance, called the MDR or merchant discount rate, will likely be significantly higher than current costs of roughly 2.25%. Lastly, even if merchants were magically able to accept bitcoin payments tomorrow, we do not believe they would be willing to accept the volatility risk.

What do we mean? In the earlier example of a TV transactions at Best Buy, the merchant probably has a 3% to 5% gross margin. This example ignores traditional retail costs like rent, employees, electricity, et cetera. With Amazon slicing physical retailers' margins, this actually might be too aggressive an assumption. If Best Buy is selling that TV for \$1,000, assuming a 5% margin, this implies a cost to acquire of \$950 (from Sony or Samsung or Vizio). If bitcoin is the currency involved in the transaction and it has a 10% move down overnight, Best Buy now has \$900 of value in the bank. This would crush Best Buys economics and one would seriously question why Best Buy decided to accept transactions in bitcoin in the first place. A currency with that kind of volatility would require a merchant to be able to price and re-price its inventory in real time. This will not easily happen.

#2) Store of Value:

The second aspect to be a currency is for it to act as a **store of value**. One needs to be fairly confident of what it might be worth in the future, especially from day-to-day. For example, the value of a dollar freely floats and does get modestly eroded by the impact of inflation. However, consumers, merchants, and investors feel confident it can be a proper and stable store of value. One might question the Federal Reserve and whether or not it is properly monitoring inflation, but dollar volatility is fairly modest. On the other hand, bitcoin has had five-day periods when it was up 44% or down 25% against the US dollar. This volatility detracts from bitcoin as a store of value and furthers our point.

Gold 2.0:

Some investors consider bitcoin a safe haven asset that is comparable to gold. Since gold has been a store of value for thousands of years, some compare bitcoin to "gold for the technology age. These individuals believe that bitcoin is a modern-day version of gold. With gold experiencing its tightest trading range since October 2005, some believe that cryptocurrencies are stealing market share from the precious metal.

Like gold, bitcoin is not tied to one specific country or central bank. When there is an economic crisis or political uprising (i.e. Venezuela, Syria, etc), a specific national currency can plummet. While gold benefits from crises and uncertainty and many perceive it as the ultimate store of value, it does have issues. It still fails to act as a medium of exchange. Can you imagine walking into a Wal-Mart and attempt to pay for your shampoo by slicing off some of your gold bullion? So, while gold can be a safe store of value, it fails the method of payment criteria. In our opinion, gold is a commodity, not a currency.

Another aspect to consider is how difficult it is becoming to store bitcoin. Bitcoin storage looks to digital safes, where investors can store sheets of paper on which cryptographic keys are printed. To keep bitcoin safe from hackers, the costs to store the asset has been eclipsing some gold vaults. Just last week, \$70 million worth of bitcoins were stolen from a cryptocurrency-mining service called NiceHash. A security breach of their online bitcoin wallet resulted in 4,700 bitcoins getting taken. It certainly seems easier to breach a bitcoin wallet than to heist gold bullion from Fort Knox.

Fraud:

There is no doubt that bitcoin, with its ability to escape the eye of the law, has become the preferred avenue for aiding illegal commerce. The creator of the underground online drug bazaar Silk Road, Ross Ulbricht, had his stash of bitcoins seized once he received his life sentence for drug trafficking, conspiracy to launder money, and various other crimes. In addition, we are reminded daily of stories of hackers asking for and receiving payment in bitcoins for extortion plots (as did Uber three weeks ago).

Bitcoin bulls will argue that its reputation for being the currency of criminals is unjust, as many dishonest people have conducted illegal transactions in US dollars, Euros, and other various currencies. A primary concern for bitcoin investors is the security of their assets. Hacking of digital currencies is a legitimate concern, for the industry has been the target of much fraud. Back in 2014, the largest bitcoin exchange – Mt. Gox in Japan – filed for bankruptcy and investors lost more than \$470 million dollars.

Twice this month, hackers attempted to overwhelm Bitfinex's website with a distributed denial-of-service hack. We personally would not feel comfortable that our assets were safely being guarded.

Mining:

According to blockchain.info, there are roughly 337,000 bitcoin transactions per day. To put that in perspective, Visa processes 468 million transactions per day and can scale to handle 60,000 per second during the peak holiday season. Not only is bitcoin a poor medium of exchange, but it also lacks scale. In addition, the true cost of mining bitcoin is tremendously high.

Bitcoin mining is deciphering complex mathematical problems to verify a transaction. For solving these calculations, miners earn bitcoins as payment. It was recently estimated that the bitcoin mining community is using massive amounts of electricity to complete its calculations. For example, miners are using the equivalent amount of electricity that the entire country of Denmark uses.



Quite simply, bitcoin transactions cost more to process than current payment players, averaging nearly \$15. Bitcoin is struggling to clear its transactions as the backlog sits at an all-time high. Lastly, bitcoins take longer than normal card transactions to settle, approaching 2 hours in length. While it is easy to say bitcoin will replace traditional forms of payments, the "good funds" bank model is built upon a modest level of settlement risk. This is where banks and financial institutions get involved. The bitcoin reality is that its infrastructure cannot support real-time payments and will not permit immediate verification or access to funds for everyday payment purchases.

Governments:

Governments attempt to control their currency, monetary policy, and printing press. Through its central bank, a country can control its money supply. In our modern society, central banks have a monopoly on money. The threat of cryptocurrencies worries governments because they could lose control of their currency, which in turn would mean they lose control of their economy. Bitcoin's success would be economically disastrous and would potentially lead to chaos.

Central banks cannot print or manufacture bitcoin, so they are forfeiting control of their economy. If a country were to switch from its fiat currency, it would have no mechanism to create new money in the event of a crisis. Without a way to alleviate a problem, countries would be helpless to respond. In our opinion, if bitcoin becomes wildly successful, governments will not sit idly by and watch. We have seen what China's negative comments can do to the valuation of bitcoin. We expect significant regulatory scrutiny and rules to enter the digital currency marketplace in the near future. The first coordinated move by government(s) to regulate or institute banking rules upon bitcoin will result in a massive downward move in its price.

Regulation:

Financial institutions are the most regulated entities in the world and they are quite aware of the risks involved in moving money. Banks must insure they “know their customers” and follow “KYC” rules. These stringent rules allow governmental agencies to verify transactions and prevent money laundering. Governments enforce their laws and importantly take and earn taxes. Bitcoin believers are claiming that these old school CEO’s simply do not understand the way the world is going and that they are dinosaurs. We could not disagree more.

Recognizing that bitcoin is largely an unregulated market with high-price volatility, US regulators are beginning to ask questions. Are they looking to protect the average, retail customer? Are they looking for information regarding taxable transactions? Are they looking into criminal actions? We would have to believe the answer to all of these questions is yes.

This is only natural, as regulators are supposed to provide the rules and framework for orderly markets. They are relied upon to insure adequate guardrails and consumer protections for investors. J. Christopher Giancarlo, chairman of the CFTC, said, “Bitcoin, a virtual currency, is a commodity unlike any the commission has dealt with in the past,” and “as a result, we have had extensive discussions with the exchanges regarding the proposed contracts.”

Just a few days ago, Securities and Exchange Commission Chairman Jay Clayton issued a statement regarding his concerns with bitcoin and other digital currencies. He said, “There are tales of fortunes made and dreams to be made. We are hearing the familiar refrain, ‘This time is different’.” In our opinion, this cautionary statement will not be the last from a regulator who has a long-standing rule of protecting the investing public.

With regulators forcing exchanges to monitor trading, track risk indicators, and ensure proper market and margin requirements. The CFTC has insured that traditional exchanges could only launch options and futures contracts once they agreed to significant enhancements to help protect customers and maintain an orderly market. These are the proper actions of a regulator, and we are pleased some discipline has been brought to this “wild west” marketplace.

Taxes:

With tax reform coming to the US, how long will it take for our government to begin to question bitcoin transactions? Don’t all the people claiming huge profits in bitcoin trades have to pay taxes on their gains? Shouldn’t these trades be subject to the same currency transaction taxation laws other traders deal with? We believe that the IRS will soon closely look at bitcoin traders. The IRS, presumably eager to collect taxes on profits, has issued a Notice called 2014-21, which designates that virtual currencies can and should be treated as property for US federal tax purposes. This is important as this means that general rules for property transactions should apply. While the IRS has not issued any guidance on token exchanges, many tax professionals agree that such an exchange would probably not qualify for favorable tax treatment. This would have provided for deferral of gains or losses arising from a bitcoin transaction. We anxiously wait for rules that will require traders in the digital asset space to be forced to use a mark-to-market election. This would force investment gains and losses to be recognized in the current period and trigger the occurrence of a taxable event.

Coinbase:

If any customer opens up a traditional brokerage account, regulations force financial institutions to follow a stringent set of rules. While cumbersome to enforce, banks follow these rules. Coinbase, the leading broker of bitcoin, obviously feels that it is not subject to the same set of regulations. Nearly a year ago, the IRS asked Coinbase to provide all its customer information, including names, birth dates, addresses, tax ID’s, transaction logs, and account invoices. Coinbase argued that this was an “invasion of privacy” and ignored the IRS’s request. Then, in March of 2017, the IRS filed a petition to enforce its summons. On Wednesday November 29, 2017, the courts ordered Coinbase to hand over information on its users that made transactions over \$20,000 from 2013 through 2015. Coinbase cheered the decision, as it will have to release only 3% of the information that the IRS originally requested. The ruling will give the IRS information on 14,355 Coinbase customers that made 8.9 million bitcoin transactions.

In our opinion, this presents two interesting points. First, bitcoin was originally conceived to be entirely devoid of regulation and oversight. If bitcoin becomes a legitimate asset class or currency, it will have to begin to adopt traditional “know your customer” rules. The second interesting aspect revolves around customer protections. If the average US brokerage customer wants the safety and soundness of a properly functioning marketplace with client protections and clearing mechanisms, he or

she must be willing to accept the government's oversight. Coinbase cannot have it both ways. It cannot be the marketplace where consumers transact but fail to play by the same rules as other banks, brokerages, or financial institutions have to play by.

Banks:

Whenever new technology emerges, "old school" incumbents fear change. It happened during the Dot Com era, when the internet emerged as a widely popular new medium. While we were not there for its introduction, we imagine the same doubters voiced concern with the automobile, radio, newspaper, and television.

We have heard people claim that big banks are the most at risk with the rise of bitcoin. JP Morgan's Jaime Dimon has called it a "fraud" that will eventually "blow up". BlackRock manages \$6 trillion dollars of assets and its management team has been quoted as calling bitcoin an "index for money laundering". Saudi billionaire investor Prince Alwaleed bin Talal said he expects bitcoin to "implode" shortly and compared it to an "Enron in the making." Other financial luminaries, like Warren Buffett and Seth Klarman, have also expressed skepticism on bitcoin. To summarize, these naysayers argue that bitcoin is bad at being PayPal, MasterCard, or Visa as a payment form. On this aspect, we totally agree.

As we discussed above, bitcoin and other cryptocurrencies are not good at being a mechanism of payment. They also fail to act as a good store of value. However, this is not why traditional financial institutions view them as a threat. It is not bitcoin's ability to act as a currency that worries them, but likely it is more akin to bitcoin's acting as a potential new competitor. What if bitcoin could bypass traditional financial institutions and act as an online, offshore banking system? Allowing customers to easily transact without the watchful eye of the government would be a clear advantage to what a banks offer. In our opinion, this is the key worry for most banks.

Where could we be wrong?

If the digital currency becomes more widely usable currency, it will ultimately prove successful. If bitcoin is a dramatic upgrade to gold, it will prove successful. We simply have too many doubts at this time to feel comfortable with the underlying asset.

When legendary Interactive Brokers founder Thomas Peterffy discusses market issues, people would be very wise to listen. As one of the world's most successful derivatives traders, Peterffy understands volatility and where problems can lie. He worries that bitcoin derivatives launched by CME or CBOE will introduce additional volatility into the markets. If the exchanges are not properly prepared, he is worried it might lead to an uncontrollable event. Specifically, Peterffy is concerned that low margin rates will encourage excessive speculation and then endanger both trading firms and their significantly important clearinghouses.

Futures margin rates typically range from 2% to 8%. E-mini S&P futures contracts need 3% initial margin, gold requires 4%, crude oil is 4% and natural gas is 8%. When an investor's losses exceed this range, brokers can immediately cover the decline and pursue any differences with the client. If bitcoin were to drop by 15% to 20% intraday, brokers would not be equipped to cover losses. What really worries Peterffy is that he foresees smaller and smaller trading firms offering lower and lower margin rates to attract business. This would bring more activity to the weakest link and to brokers least capable of handling a dramatic fall. If more bitcoin volume "accumulates on the books of weaker clearing members who will all fail in a large move, Peterffy is "extremely scared".

JP Morgan and Citi represent 11.3% and 4% of US futures brokers market share. Both have stated they will not participate in clearing bitcoin futures contracts. In addition, Bank of America Merrill Lynch has informed its customers that it would not permit bitcoin futures trading. With volatility scarce in the markets, smaller banks might try to get involved to capture some of this market share. The danger to the financial system is real, so regulations and rules are clearly needed.

Enter the Exchanges:

Our version of financials is not traditional banks and brokers. These entities have opaque balance sheets and earnings releases that require hours for analysts to decipher. We prefer to own the exchanges, with their transparent transaction-based business models. In May of 2016, we wrote a detailed note ([which can be re-read here](#)) on the underappreciated value we saw in CME Group.

The traditional derivative exchanges have just launched bitcoin futures and options. The most logical bitcoin sellers will be algorithmic shops or market makers willing to take a contrarian viewpoint. While there will be some doubt about the proper, transparent pricing mechanism employed, at least these regulated entities will utilize proven collateral, margin and

clearinghouse techniques to insure transactions. These venues can legitimize bitcoin and should begin to dampen the massive volatility recently experienced.

CME, the world's leading and most diverse derivatives marketplace, has announced how it intends to list its bitcoin futures contract. Futures allow two parties to exchange an asset at a specified price at an agreed upon date in the future. It will launch on Monday, December 18, 2017, and has received approval from the CFTC, its regulator. Working with market participants on its design, bitcoin investors will have significantly more transparency, price discovery, and risk transfer capabilities.

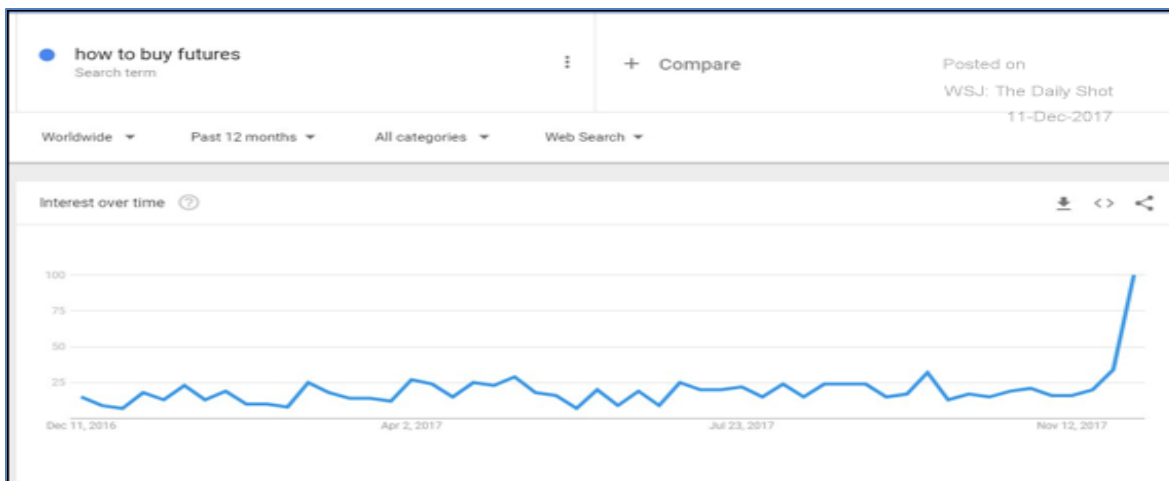
At launch, the bitcoin contract will be subject to a significant number of risk management tools, including an initial margin of 35%. Positions will be marked intraday, with stringent price limits. There will also be a number of additional risk and credit controls that CME enforces to ensure proper safeguards. The future contract will be cash-settled, which will help to dampen volatility. Some futures contracts are settled in the underlying assets, such as settling at the end of a contract with a barrel of oil. By cash settling its contracts, it should lower the need, access and volatility of bitcoin. Pricing will be determined once a day using CME's Bitcoin Reference Rate (or BRR), which has been designed around industry standard IOSCO Principles for Financial Benchmarks. There will be a price limit of 20% above or below the prior settlement price. Each contract will be composed of 5 bitcoins or \$25 per contract and the spot position limit will be 1,000 contracts.

One aspect of futures contracts we have always appreciated is its vertical clearing model. If you purchase a futures contract on the CME, it is not fungible across another exchange. You cannot go long a bitcoin contract on the CME and then look to offset it on another exchange. This trading concentration acts like a "moat around the franchise" and is critical when an exchange is looking to build liquidity and volumes.

In the exchange industry, there is a saying that liquidity begets liquidity and volumes beget volumes. There are significant network effects, as buyers go where the most sellers are and sellers are attracted to where demand lies. One of the interesting features of futures markets is that there are usually only one or two contracts that build liquidity and begin to dominate a contract's trading. The battle to see which venue will control bitcoin options and futures is occurring right now. The first few exchanges that build a core trading base will likely be the winning marketplace. With limited volatility in so many other asset classes, the bitcoin opportunity looks like an attractive category to enter.

CBOE launched its XBT Bitcoin option on Sunday night, December 10th, 2017. Less than 4,000 contracts changed hands, representing a paltry \$68 million of notional volume. The opening price was \$15,000 and prices ultimately surged 25%. On its initial trading day, CBOE had to trigger two temporary trading halts, which were designed to dampen volatility.

To cement market share and spur activity, CBOE has wisely announced that all transaction fees will be waived throughout the month of December. This is an exchange trick that attempts to waive initial fees as a car dealer advertises a "lost leader". The retail community is comfortable transacting in stocks but is less experienced with options and futures. As people get educated on the process, volumes will climb. We have to believe that the derivative exchanges were pleased to see the Google search term "how to buy futures" spike over the last few days.



How We Will “Play” Bitcoin:

Our regular readers understand and appreciate our long-term approach to investing. We will continue to “stick to our knitting” and invest in growing “Fin Tech” franchises. Investing in bitcoins would be akin to our investing in obscure foreign currencies. It simply is not in our DNA. However, we will profit from the impending explosion of volumes underlying bitcoin trading. How? Well, we own the publicly traded exchanges. Whether CME or CBOE ultimately wins the bitcoin futures or options battle, we will benefit. Whether traditional bank CEOs want it to happen or not, digital currencies as an asset class are not going away. We do foresee a much tighter regulatory environment with heightened governmental oversight, which will make for very unprofitable days for some bitcoin owners and traders.

Whether bitcoin goes from \$19,000 to \$1,000 or rockets higher to \$50,000, our exchanges will benefit. Exchanges make money on volatility and are less concerned with underlying prices. Exchanges are primarily concerned with providing a venue for orderly price discovery. With bitcoin being the world’s most volatile trading product, exchanges are quite excited to profit on this investor craving. We do not estimate and then bet on the price of oil, commodities, or currencies. We choose to invest and then benefit from impending volatility. We prefer to invest in secular growth businesses rather than making speculative bets on an assets future price swings.

Conclusion:

In the California Gold Rush, thousands went West seeking gold and a fortune. Some hit it big, while others failed to even reach those “streams filled with gold”. We liken this example to the bitcoin frenzy occurring today. Some might become digital currency millionaires. Some might lose a small fortune on bitcoin. Either way, we will not participate in the traditional sense of betting on a digital or traditional currency. We invest in growing companies trading at a discount to their intrinsic value. As we have said many times, we prefer to invest in secular growing businesses, that have predictable ways of generating free cash flow and profits.

We cannot wait for millions to make a bet on bitcoin. During the Gold Rush, Levi Strauss made a small fortune, not searching for gold in those crowded streams. He opened a store, selling pans, shovels, bedding and clothing. Those seeking their fortune needed a merchant to supply them with their necessary dry goods. We believe the exchanges are the modern-day bitcoin merchant.

Good luck to all of you seeking your fortune betting on bitcoin’s rapid rise or those that cannot wait to profit on its demise. We will gladly own the exchanges, generating pennies per transaction, but hopefully on millions of transactions. Until the exchanges, acting as middlemen and insuring proper marks emerged, we were unable to participate in this marketplace. Now that the experienced exchanges and their trusted clearinghouses are involved, we are happy to participate with the impending volatility, activity and volumes.





Bitcoin
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