

High Level Investment Report

Trusted Advice & Peace of Mind

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Bitcoin & Cryptocurrencies: Fad or For Real?

I hope everyone is having a wonderful summer, and enjoying the heat!

I thought I would direct the focus of this edition of the **High Level Investment Report** towards “**investor education**”, rather than focusing on the markets or investment strategy. I have been spending the last couple of months researching a topic that some of you may have recently heard about, and others possibly not (yet). **Because of the hype around Bitcoin and similar Digital Cryptocurrencies**, I thought I would combine the Spring & Summer newsletter into one report, and take a complex topic and try to make it more “high level”.

Would you like to quadruple your money in one year? Who wouldn't? And this is the reason many people are interested in Bitcoin recently. It's not for the right reason, but what gets peoples' attention better than hearing someone is making a fortune? Let's learn a bit about Bitcoin & Cryptocurrency.

What is a CryptoCurrency? No, it's not the money that Superman used on his home planet of Krypton, however for many people the idea of a “currency” or **money that is digital and created on the internet** might as well be something from a comic book, or at least outer space!

However, with the recent price increases on many cryptocurrencies shooting up like a rocket (many have doubled, tripled or even grown 10-fold in the past few months!), people have taken notice for reasons ranging from **greed, speculation, intrigue, and genuine interest** to learn about what is potentially becoming as revolutionary for money and payment systems as the the internet was for information sharing and communication in the 1990's.

The purpose of this article is to draw attention to Cryptocurrencies so that if and when you hear about Bitcoin, Ether, or other digital currencies, you will have some information and background as to what they are about, at least in a general sense.

This report is **NOT a recommendation to purchase Bitcoin, but I do recommend that you open your mind** to learn about the cryptocurrency phenomenon that is developing rapidly.

Recently, our BMO Capital Markets Technology Analyst, **Amrish Srivastava, Ph.D.**, wrote a report that included a general background on Bitcoin and Cryptocurrency, which helped me in finishing this report. With his approval, I have used some of his information to help cover off important details relating to the cryptocurrency markets.

What is Bitcoin or Cryptocurrency?

Bitcoin was the first-of-its-kind **digital currency** proposed back in 2008, based on a **peer-to-peer network** (people dealing directly with people via the internet), aimed at eliminating the role of financial institutions (both as intermediaries and as currency issuers). It is a form of electronic payment system based on mathematical proof.

The currency is created and held electronically, and not controlled by any one entity. The Bitcoin network is decentralized, with no central control over it (unlike a country's currency, which is controlled by a Central Bank and can be created with a push of a button). **Bitcoin transactions are confirmed and recorded on a distributed ledger referred to as a "blockchain."**

Since the inception of Bitcoin, many alternative forms of cryptocurrency built on the same framework of peer-to-peer networks have emerged. Bitcoin and others such as **Ethereum**, (discussed below) have become increasingly accepted as both a currency of exchange and a store of value. Today, Bitcoin is accepted by a wide array of businesses that range from Microsoft, Dell, Newegg, and Steam, all the way to cheapair.com. **Most recently, Japan introduced legislation accepting Bitcoin as a legal form of payment.**

1Yr Price of Bitcoin - \$500 to \$3,000 USD



Source: Bitcoincharts.com

Bitcoin trades as any other currency would, although **it has been highly volatile since its rise to prominence.**

In the last year alone, as shown in the previous chart, **Bitcoin has risen 5-fold in value.** However, if you look closely at the chart, since May 2017 the price has moved from \$1,500 to \$3,000 within 6 weeks (**100% increase**), then fell from \$3,000 down to \$2,000 (**33% drop**), only to shoot back up towards \$3,000 (**50% increase**) in the last couple weeks of July!

Bitcoin is very different than 'Fiat' Currency, which is paper currency that can be created out of thin air until eventually it is rendered valueless (Venezuela, Argentina and Zimbabwe have all recently experienced their currencies value become basically worthless). Because of the limited eventual Bitcoin in circulation, **the scarcity factor creates a store of value and is the original reason Bitcoin was attractive to the early adopters.** Bitcoin was being bought when price returns were not large, and this was driven by a small (but strong) underlying culture of people who didn't trust the monetary system.

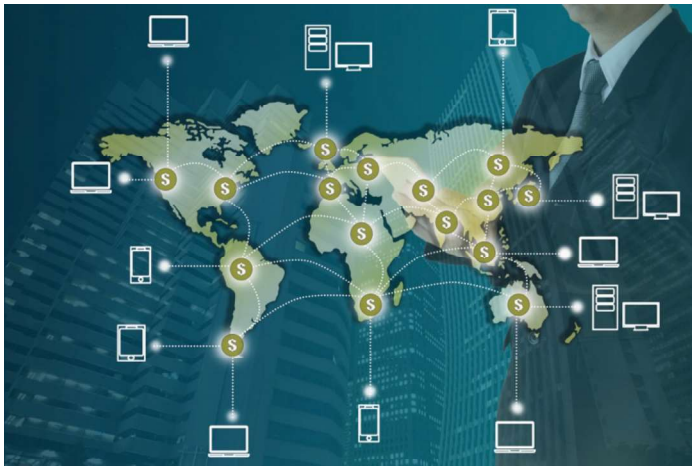


Bitcoin is a digital currency (you can't hold a Bitcoin in your hand like a loonie or a toonie), that is written by computer code, and the underlying computer code **caps the total circulation of Bitcoin at 21 million coins** (expected to reach that level in 2040). There are **16.4 million Bitcoins currently in circulation.** Based on a current price of \$2,800, the total market value of Bitcoin is approximately \$45 billion. To put Bitcoins' current value into perspective, **if you wanted to own Starbucks (the company) outright, you would need twice this amount of Bitcoin to buy every share**, so while Starbucks might accept bitcoin or create their own Cryptocurrency to buy their coffee, the market is still small in total "digital currency values".

This brings us to our next topic of “blocks”, “Blockchains”, and mining for cryptocurrency.

Cryptocurrency Mining

The **Bitcoin network is the infrastructure over which people send the digital currency to one another.** Think of it as sending an email from your email address to another person's email address. Similar to how the internet and email works (we don't ever take time to think about how it happens really), Bitcoin is sent over a more complicated online network, when two people enter into a transaction and the payment for a service or product is accepted in Bitcoin versus dollars. Given the decentralized nature of the currency, **no single entity is responsible for keeping track of the thousands of transactions that occur in a given time.** The online network deals with this issue by **consolidating all the transactions made during a given period into a list called the block.** Through the process of “mining”, these blocks are then written into a ledger type system.



The distributed ledger is a long list of blocks, **called the blockchain.** The blockchain lengthens by the addition of new blocks of transactions, but **keeps a full record of the dates and times of the transaction and both parties involved in a transaction, although their identities remain anonymous.**

To explain this another way, think of a **cheque book ledger.** Years ago when cheques were the form of payment often used, you would write a cheque and make it out to another person or store, to pay for a service or product. You would write down in your

cheque book ledger, the cheque number, the name of who the cheque was made out to, and the amount. Later in the month you would wait for the processed cheques to arrive in the mail, and you would go through your cheque book and tick off the cheques you wrote against your cheque book. You would confirm that payment went through and that your bank account balanced. Over time this “**ledger**” would grow longer in length, and all the transactions above the recent entry would be verified as a cleared cheque. **This is a way to think about the Blockchain, and the “ledger” mentioned above in a round-about way.** It is obviously not exactly the same, but I am trying to relate old world finance to the future of financial transactions.



How does one trust the legitimacy of the ledger and all of the payments within the system?

This is where “**Miners**” come in. Miners (**very smart computer coders, which I am not one of**) put the block of transactions (i.e. **purchases and information from your chequebook using the prior example**) through a review process and apply a formula to turn the data into a **compressed random sequence of letters and numbers known as a hash.....**and it gets more technical from there and starts to sound like another language. Bitcoin Mining is the **hardest part to understand,** and **to be honest there are many parts of it that repel my mind.** But for the purposes of this letter, **there are computer geniuses that work together using computing power, to trace, track and formulate checks and balances of bitcoin transactions that have occurred on the bitcoin network.** Because of the structure of the network not having a central controlling organization or government, **the digital currency “community” of tech savvy people work hard to confirm legitimate bitcoin transactions have occurred.**

Because there are **limited numbers of bitcoins in circulation**, these “miners” are working hard to keep track of where the bitcoins have gone and after every transaction has been verified, **that transaction is “locked into the record books” and can never be eliminated or adjusted, making the honesty and transparency of the digital currency system the priority.** For doing this service for the whole bitcoin community of current and potential users, these computer coders (**miners**), are awarded new Bitcoins as payment for their work. **Bitcoin is their “paycheque”.**

Other Cryptocurrencies:

One of the most interesting cryptocurrencies that has seen a recent surge of interest is **Ethereum**, which I will quickly tackle next, as it has a few additional details over the Bitcoin described above.

What is Ethereum?

The base currency or unit of Ethereum is referred to as **Ether**. Similar to Bitcoin, **Ether is a form of digital bearer asset** and **Ethereum borrows Bitcoin’s blockchain technology**, but introduces some interesting twists.

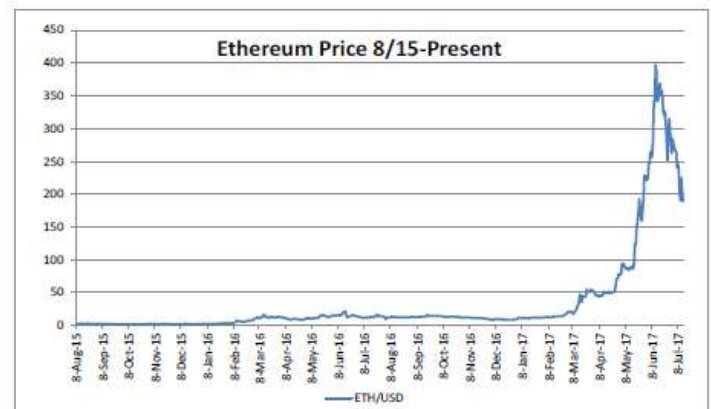
Combining the ledger of transactions with the concept of remote and incorruptible applications, the developers of Ethereum have created something called a **“smart contract.”** These smart contracts are aimed at **replacing third parties and intermediaries** to numerous types of transactions well beyond simple currency exchanges. What Bitcoin is trying to do to the world of financial transactions (replace payments using credit cards, cash and cheques), **Ethereum is trying to digitize a way to do all transactions**, decentralizing the existing client--service provider paradigm **and shifting to a peer-to-peer model.**

In other words, **Ether is a form of digital payment, that comes with terms built into the “contract payment” that must be satisfied before the money is released and paid.** The uses of this are endless, but a simple example would be someone buying a house with digital currency Ether, where they don’t need a lawyer to hold the money “in-trust” until certain terms of the contract are completed. The **“smart contract” can have terms within the contracts’ code that must be confirmed to be completed before the money is transferred.**

Think of it as sending an e-transfer of money to a person, which normally has a password they need to receive the money you sent them. With a Smart Contract, **on top of that password**, there are other things that need to be confirmed by both parties to make sure the terms are completed. **Once all are confirmed you will get your “e-transfer” of funds**, and the payment is 100% peer-to-peer (person to person with no one or entity in the middle).

As you can see below, **Ethereum has also had a massive price run up**, going from approximately \$20 to \$200 (**10 times in values**) in the last 12 months, and was recently at \$400 one month ago (the price has been cut in half to \$200 at the time of writing this report)!

Ethereum Price since inception: August 2015



Source: Investing.com & BMO Capital Markets July 18/17 report.

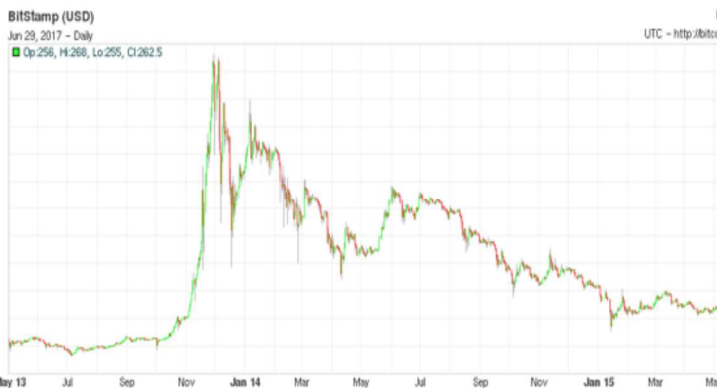
There are hundreds of other digital currencies and smart contracts being created, but **Bitcoin and Ether are the two most important right now** and this report should provide enough information about what Cryptocurrencies are, how they are created and ultimately transferred between people.

Summary Thoughts:

As mentioned at the start of the report, the purpose of the **report was to attempt to inform my client base about a topic in “finance”, which is gaining a lot of attention**, and it grows by the day. The topic is very hard to understand, even after weeks of research, particularly if you are not “wired” a certain way and are comfortable with computer coding. I definitely am not, but I am open minded to the technology and embracing it for the future as it develops.

Lots of Money has been made recently in Cryptocurrency. Late comers might be at a loss, but for most that have owned many of these currencies since May or June, they have been rewarded. However, **GREED** can easily become every investors' downfall, and **Greed is rearing its ugly head in the CryptoCurrency space.**

Below is a chart of Bitcoin from May 2013 until June 2015. After a **rise from \$100 to \$1100** between **September and December of 2013**, the price of Bitcoin fell and bottomed out at \$200 18-months later (an 80% decline).



Source: Bitcoincharts.com

I share this perspective because we could easily see this happen again now, before another advance in price takes Bitcoin to new All-Time highs.

The difference this time, is that in four short years people are now more open and exposed to Bitcoin and are now paying attention and **taking the next steps to actually buy and use Bitcoin** and other Digital Currencies (or at minimum are speculating and trading the currencies). **The more people who are exploring and adopting a comfort level with the idea of CryptoCurrencies, the closer we become to a time where digital currencies become a part of our everyday life.**



I want to be clear, I think the Bitcoin and the other digital currencies have a long ways to go in their development, and **I am not recommending them.** However, **the development and progression of the coding technology (the Blockchain) that backs Bitcoin and other currencies is the most important development of this discussion.**

In fact, on July 17th 2017, TD Bank announced that they joined the executive committee of Washington, D.C. based Chamber of Digital Commerce, focused on promoting adoption of the Blockchain and the use of digital assets. This will likely be a trend for most banks over time.

Therefore, it is important to pay attention to the news if there are discussions about Bitcoin or Cryptocurrencies. Some of it will be negative, some of it speculative, **but all of it will be a part of the development and acceptance process of integrating blockchain technology and digital currencies into our everyday lives.**

I hope that this article was educational and I am definitely curious to see where this all ends up.

Take care,

Ryan Coburn