



A Case For Cryptocurrency:  
Commodity Money For The Next Industrial Revolution  
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## A Brief History of American Money

Throughout human history we have found ways to trade and barter with one another. As markets have become more complex so has the use of money and payment systems. A multitude of commodities have been used as mediums of exchange in different cultures, ranging from salt to beaver pelts to gold. Economist Murray Rothbard illustrates this in pre-revolution America.

“In the sparsely settled American colonies, money, as it always does, arose in the market as a useful and scarce commodity and began to serve as a general medium of exchange. Thus, beaver fur and wampum were used as money in the north for exchanges with the Indians, and fish and corn also served as money. Rice was used as money in South Carolina, and the most widespread use of commodity money was tobacco, which served as money in Virginia. The pound-of-tobacco was the currency unit in Virginia, with warehouse receipts in tobacco circulating as money backed 100 percent by the tobacco in the warehouse.”<sup>1</sup>

America's history with commodity money shows us that when there is a significant enough change in technology in the market, a change in money follows closely. The mechanical loom and steam power marked the first industrial revolution, which was paired with bimetallic money, mostly in the variety of silver and gold coins. Even though this was the case in most urban areas, the regions of rural America still trusted natural commodities as their medium of exchange.

The second industrial revolution was marked by the invention of the assembly line. This was paired with the gold standard, which limited the use of outside foreign currencies and silver as mediums of exchange. World War I and II changed the trajectory of this transition in currency as many countries left the gold standard to allow for the expansion of money and credit in order to pay for the war.

President Woodrow Wilson signed the Federal Reserve Act into law just before Christmas in 1913, paving the way for financial mayhem in the form of radical inflation and the accumulation of insurmountable debt for the nation. This laid the foundation for the gold standard to be abandoned entirely.

The third industrial revolution in the 1970's brought forth major contributions in technology with the development of the personal computer and the internet. Nixon abruptly ended the gold standard in 1971 making the US Dollar, the world's reserve currency, purely a fiat currency backed by no commodity. This was a new complex system of money and payments to match the technological advancements of this particular industrial revolution.

The 100-year experiment with central banking and fiat currency has been a turbulent expedition and now at a crucial inflection point. Taken from my white paper written in 2017, *The Great Disruption: How Fintech Will Transform Banking* the below excerpt illustrates just some of what fiat money and fraction reserve banking has done.

"Since the adoption of the fractional reserve and central banking system, unprecedented expansion of the money supply has contributed to systemic inflation and more severe economic cycles. According to the Consumer Price Index, inflation has increased 2,324 percent since the inception of the Federal Reserve in 1913. An item that cost \$100 in 1913 now costs \$2,324.30. This system gives central banks the ability to increase or decrease reserve requirements and interest rates to try to control an economy. What were once good intentions have set global economies on a merry-go-round of boom-and-bust economic cycles. Very few people are aware that central banks use their deposits in this manner and have this much control over our money and lives."<sup>2</sup>

The decline in banking trust has greatly accelerated since the US Dollar was fully decoupled from gold in 1971. Since then public trust in banking has eroded, with only 27 percent of Americans saying they have confidence in banks.<sup>3</sup> Twelve banks now control 70 percent of the banking assets and during that same time the banking industry dwindled from 15,000 banking options to less than 5,000.<sup>4</sup> The question becomes, will the current banking system and fiat money withstand the next industrial revolution we find ourselves in?

One of the greatest gifts of modern technology is the empowerment of individuals, pointing them towards the future by way of a return to valuing personal autonomy and the decentralization of power. Regardless of this occurring right before our eyes, the money and banking system refuses to adapt and meet the needs of consumers.

We are now at the start of the fourth industrial revolution, which has been marked by technological advancements in artificial intelligence and quantum computing. The sophistication of the digital era is transforming the market, and as a result, is clashing with the money of the third industrial revolution. Technology advancement tends to be the canary in the coal mine for humanity, new technological eras often give us warning that our governance and economic systems need change.

No institution is feeling the pressure more than the institutions that control our money and banking. It is during this time of friction that the medium of exchange usually adapts or changes. All signs point to cryptocurrency being the new money for the fourth industrial revolution. There is a significant shift in technology and human behavior taking place and we will get to watch this play out in real time.



## Recycled Wealth in A Technological Era Shift

Changes in technology also require a recycling or transfer of wealth within an economy. Those that took the risk to usher in the technological advancement are greatly rewarded for their accomplishment. Much of this transition has already taken place in the last 16 years. With the top five

largest market cap public companies all being technology companies from the prior industrial revolution, a transfer of trillions of dollars of wealth is expected in a short period of time.<sup>5</sup>

Even though money and banking has remained unchanged, incredible advances in financial technologies have emerged over the past five years. The market is finally starting to see its renaissance era with the emergence of financial technologies taking front row in the technology race in the last five years. Incredible advancements in lending, banking, insurance, payments, and many more. However, our money has remained relatively untouched during this technological revolution until 2008.

At the height of the financial crisis, an unknown individual under the pseudonym, Satoshi Nakamoto, issued a white paper titled, "Bitcoin: A Peer-to-Peer Payment System" on a little-known cryptography chat room.<sup>6</sup> This small whisper that has turned into the voice of millions wanting new mediums of exchange in our new technological era. They are expressing a desire to have a truly decentralized currency that aligns with the decentralized systems the internet has created. Such technology as the internet has paved the way for a currency that truly belongs to the people.

Cryptocurrency has defined that moment for this generation when it comes to money and our future banking system. In less than a decade since Satoshi Nakamoto authored the Bitcoin white paper, the cryptocurrency market has gone from zero to \$800 Billion at its peak.<sup>7</sup> There are now over 1,000 cryptocurrencies and over 8,000 accessible markets. Technology companies around the world are racing to embrace the use of cryptocurrency and their associated blockchain assets. The very technology they were built upon, the internet, is allowing them to pivot with the new industrial revolution instead of being left behind like their predecessors.

With great change comes great resistance. The entrenched third industrial revolution titans like JP Morgan and Berkshire Hathaway are making strong claims against cryptocurrencies as valid new mediums of exchange. However their influence over older generations like the Baby Boomers is not of significant consequence to the future of these technologies. The Baby Boomer generation has already started to transfer their wealth to their Generation X and Millennial children. When done this will be the exchange of \$30 Trillion in assets.<sup>8</sup> This means that the ultimate decision of what the next medium of exchange is will be decided by the younger generations. Unfortunately, Boomer heroes like Warren Buffet are repeating history by choosing to fight against the technology rather than embrace its adoption. As our brief historical review above made clear, this is most certainly a losing formula for the old guard.

"Bitcoin is fraud" Jamie Dimon, CEO of JP Morgan<sup>9</sup>

"In terms of cryptocurrencies, generally, I can almost say with certainty that they will come to a bad ending." Warren Buffet, CEO of Berkshire Hathaway<sup>10</sup>

Those closest to the technology of the fourth industrial revolution seem to better understand the future and embrace what value the new currency will bring to our society.

"If bitcoin ends up being the cyber equivalent of gold it has a great potential left, Bitcoin is mineable like gold, it's hard to mine, it's actually harder to mine than gold. And so in that sense it's more constrained," Peter Thiel, Founder of PayPal<sup>11</sup>

"In five years, if you try to use fiat currency they will laugh at you. Bitcoin and other cryptocurrencies will be so relevant there will be no reason to have the fiat currencies." Tim Draper, Partner at DFJ Capital<sup>12</sup>

Even as the major banking institutions fight to suppress cryptocurrency and blockchain technology in the market, they are openly accepting it poses a legitimate threat to their business models. The following statement was filed by Bank of America in a Securities Exchange Commission Report.

"... the widespread adoption of new technologies, including internet services, cryptocurrencies and payment systems, could require substantial expenditures to modify or adapt our existing products and services as we grow and develop our internet banking and mobile banking channel strategies in addition to remote connectivity solutions. We might not be successful in developing or introducing new products and services, integrating new products or services into our existing offerings, responding or adapting to changes in consumer behavior, preferences, spending, investing and/or saving habits, achieving market acceptance of our products and services, reducing costs in response to pressures to deliver products and services at lower prices or sufficiently developing and maintaining loyal customers."<sup>13</sup>

Institutions like Bank of America should be concerned, as data is already illustrating that Millennials and Baby Boomers are split on their views of investment. Only one in three Millennials are invested in stocks compared to approximately 50 percent of Baby Boomers. Thirty percent of Millennials prefer a \$1,000 investment in Bitcoin over a \$1,000 investment in government bonds. Forty-two percent of Millennials believe strongly that its likely most people will be using Bitcoin in 10-years, in contrast, forty-five percent of Baby Boomers disagreed with this statement.<sup>14</sup>

Technology has created a significant gap in wealth and assets amongst the living generations. Because of this, those most comfortable with cryptocurrency and blockchain technology will be the same individuals with the wealth. This is now a timing game of when wealth starts to transfer and where that wealth is allocated.

The aforementioned changes in technology, and the inevitable transfer of wealth leaves us with the crucial question; will the US Dollar be replaced by Bitcoin? Will the Initial Public Offering be surpassed by the Initial Coin Offering? To this we offer no answer, but history shows us to not so easily dismiss them as the financial institutions with power in our present age would like to see us do.



## The Commodity Money of the Digital Age

Now as we have made clear, commodity money served the first and second industrial revolution and fiat money came to rise in the in the third industrial revolution. The third industrial revolution brought us the internet and personal computer, which also transformed human behavior. These tools changed

how we communicate, conduct commerce, and broadened the reach of every individual in the world. It has empowered human beings unlike anything before in history. As Thomas Friedman stated, "the internet has flattened the world."<sup>15</sup> Now we must answer the question, will the currency of the fourth industrial revolution be commodity money or fiat money, or perhaps even a new definition of money?

Our quest to answer this question begins with defining the internet. The internet is a global system of interconnected computer networks using the Internet Protocol Suite to link devices. Distribution occurs through fiber optic cables, satellites, and mobile networks. At its core the internet is fully decentralized and not owned by any one individual. The internet serves as the raw material of the digital age and distribution allows for that raw material to be delivered for use globally.

Data becomes the core value of the internet and cost of the raw material. From the point of distribution, the individual can leverage the raw material of the internet to create a finished product that serves his or her means. Whether that be a blog, trading platform, or an e-commerce store.

It is not often positioned this way due mainly to a power struggle, but the internet has become the world's greatest commodity. Although intangible in nature it takes on the same characteristic of a commodity and should be treated as such. The discussion surrounding the classification of the internet as a commodity or a utility is often missed when surveying the function of the internet. Before we proceed, let's define a few keywords.

Commodity (Mises Institute): A commodity is a basic good, material, or product that is produced in very large quantities and is usually sold in raw or only partly processed form.<sup>16</sup>

Another important component of a commodity is fungibility.

Fungible (Mises Institute): Capable of mutual substitution in use or satisfaction of a contract. A commodity or service whose individual units are so similar that one unit of the same grade or quality is considered interchangeable with any other unit of the same grade or quality.<sup>17</sup>

The internet at its core level is produced in infinite quantity and distributed in its raw form through distribution infrastructure. The internet is using the same Protocol Suite globally thus making its raw material fully fungible in the marketplace. Distribution may alter the delivery of that raw material but at its core the raw material is identical in any form.

In 2017, The Economist, did a full feature article titled "The World's Most Valuable Resource is No Longer Oil, It's Data." The article goes on to state that data is the oil of the digital age. Data is certainly not dependent on the internet, but it is dependent on the internet for its collection, transmission and analysis, making it the key conduit in producing what the Economist claims to be the greatest resource in our age.<sup>18</sup>

Since the internet is not owned by anyone and fully decentralized there has never been an attempt to put an objective value to this commodity. The emergence of cryptocurrency is the first attempt at creating objective value for a medium of exchange backed by the utility of the internet. Dan Mahoney states, "note that money is still a good - the most marketable good. Money is valuable to the extent that others are willing to accept it in exchange. But, money itself must first have originated as a directly serviceable good before it could become an indirectly serviceable good."<sup>19</sup>

The famous Austrian Economist, Ludwig Van Mises, published his Regression Theorem of money in his popular book *The Theory of Money and Credit* in 1912. The Regression Theorem is captured in the following quote by Mises,

"The theory of the value of money as such can trace back the objective exchange value of money only to that point where it ceases to be the value of money and becomes merely the value of a commodity.... If in this way we continually go farther and farther back we must eventually arrive at a point where we no longer find any component in the objective exchange value of money that arises from valuations based on the function of money as a common medium of exchange; where the value of money is nothing other than the value of an object that is useful in some other way than as money.... Before it was usual to acquire goods in the market, not for personal consumption, but simply in order to exchange them again for the goods that were really wanted, each individual commodity was only accredited with that value given by the subjective valuations based on its direct utility."<sup>20</sup>

Many have used the Regression Theorem to argue against fiat currency and cryptocurrency. There is disagreement on whether cryptocurrency meets the criteria of the Regression Theorem and if it should be considered money. Many of the arguments however have fallen short because they do not rightly apply the Regression Theorem and reach a commodity level for the currency in question.

At its core the internet is used to transfer data globally, which gives the internet value as a commodity. One of the most valuable ways in which the internet is used is transmitting data tied to money. 92 percent of money is non-physical now, making the transmission of financial data extremely valuable.<sup>21</sup> Payment systems like PayPal and Venmo have completely changed the way we conduct trade. The foundation of most cryptocurrencies are payment systems tied to a unit of account, which has paved the way for the indirect exchange of the commodity in the marketplace. It is the payment system, or otherwise stated as the transfer of transaction data that gives value to the cryptocurrency unit of account. Jeff Tucker outlines this well, saying;

"Bitcoin is both a payment system and a money. The payment system is the source of value, while the accounting unit merely expresses that value in terms of price. The unity of money and payment is its most unusual feature, and the one that most commentators have had trouble wrapping their heads around.

We are all used to thinking of currency as separate from payment systems. This thinking is a reflection of the technological limitations of history. There is the dollar and there are credit cards. There is the euro and there is PayPal. There is the yen and there are wire services. In each case, money transfer relies on third-party service providers. In order to use them, you need to establish what is called a "trust relationship" with them, which is to say that the institution arranging the deal has to believe that you are going to pay."<sup>22</sup>

What Jeff Tucker is precisely describing is how we believe we are going to view money in the future. Cryptocurrencies reflect a unit of account that is backed by an innovative payment system, which fundamentally is the transfer of transaction data through a decentralized network - the internet.



As a result, cryptocurrency is an indirect value of the internet, coupled with scarcity principles to create sound commodity money. Just as the internet was an evolution of a commodity, so is cryptocurrency an evolution of money. With an infinite digital commodity there needs to be a basis for a digital asset to be formed within that framework that captures the objective value of the commodity, yet simultaneously creates the scarcity and stability of sound money. The base direct value of the commodity is the cost to access the internet so that the user can utilize the indirect value of the cryptocurrency unit of account and payment system.

Defining and defending the internet as a digital commodity sets the foundation for sound commodity money that fits within the framework of Mises Regression Theorem. For many this might be a nuance but for the broader philosophical foundation it is key to the validity of the asset class as a whole. Defining and defending the internet as a commodity is an important distinction to not be overlooked. The recent onslaught of attacks from the US Government's efforts to classify the internet as a utility (deceptively called "Net Neutrality") would compromise the very basis for having sound commodity money through cryptocurrency. Continuing to make sure the internet is truly decentralized and rightfully defined as a commodity is crucial in making sure the future of money is secure.

For this reason, we believe we must protect the internet like we do any other commodity. The Bretton Woods system taught us that governments and centralized planners are unable to manage commodities effectively and that pricing of commodities is best left to the open market. It is in our best interest, and the interest of those inheriting and producing the next generation of wealth, to take this matter seriously. For the first time in modern history we are creating money that truly belongs to the individual, void of centralized planners and government control or manipulation. From ancient Rome to the modern day United States, we have been unable to keep this manipulation from happening. However we now find ourselves uniquely positioned to build a system that can surpass the ineffectiveness of centralized monetary systems and actually give money back to the individual.

"If the American people ever allow private banks to control the issue of their currency, first by inflation, then by deflation, the banks and corporations that will grow up around them will deprive the people of all property until their children wake up homeless on the continent their Fathers conquered. I believe that banking institutions are more dangerous to our liberties than standing armies. The issuing power should be taken from the banks and restored to the people, to whom it properly belongs." – Thomas Jefferson



## The Cryptography Wars

An equally important topic to understand when discussing the asset class of blockchain and cryptocurrency is the invention of computer encryption. Advancements in cryptography in the modern

era have been vital to advancing and protecting society. The internet brought us seamless decentralized communication globally and encryption gave us the ability to communicate over that network freely and privately.

In 1976, Whitfield Diffie and Martin Hellman released a white paper titled "New Directions in Cryptography". In this white paper they laid out the concept for public key cryptography. They did not know it at the time, but their work laid the foundation for cryptocurrency decades later. Public key cryptography is an encryption technique that uses a paired public and private key or asymmetric key algorithm for secure data communication. A message sender uses a recipient's public key to encrypt a message. To decrypt the sender's message, only the recipient's private key may be used.<sup>23</sup> It's a simple concept, but it is backed by highly complex mathematics.

Public Key Cryptography allowed individuals to communicate privately through a decentralized network that was not monitored nor regulated. This advancement in encryption was ground breaking for society but a major threat to the power of the State. Thus, a type of cryptography war emerged between the State and private technologists.

In the last half century, the FBI, NSA, and Congress have taken every angle they can to bypass encryption and have access to private communications. They have leveraged legislation and the power of the justice department to investigate cryptographers, and have even gone as far as launching their own encryption tool known as the clipper chip. The State has proven that it will do everything in its power to ensure private communications are accessible to them, even if it means betraying its own citizens.

The internet and public key cryptography had to occur simultaneously for there to be the technological advancements we have seen in society. This allows the commodity to be free of intervention by the state, allowing it to grow and prosper in the market. Even with highly sophisticated encryption, the individual is dealing with high levels of censorship and confiscation. The market has continued to move forward as the technologists continue to stay one step ahead of the State.

Cryptocurrency owes its existence to the brave pioneers of cryptography and privacy. They had the foresight to know that the internet was an advancement that had to be protected from those that want to censor and control. It showed that decentralized systems can work and lit a spark to the idea that our money and banking system could follow a similar decentralized and private system.

The ongoing battle between the State and technologists is simply another bread crumb illustrating the friction between technological eras, and the idea that private citizens are pushing back against centralized authorities.



## The Central Banking Conundrum

As we stand at the inflection point of the next industrial revolution, the global economy is facing great turmoil. The global markets and governments are entering a stage of insolvency based on the unprecedented debt levels, combined with declining growth rates. At this point, the debt trap has been set and there is no turning back.

The current global debt is \$230 Trillion with debt per capita at \$30,000.<sup>24</sup> The global debt-to-GDP ratio is 313 with no signs of GDP growth increasing. Global GDP growth rate has gone from 4.3 percent in 1961 to 2.5 percent in 2016.<sup>25</sup> Major industrial countries are showing the weakest recoveries in modern history as central banks scramble to leverage all their monetary tools to improve the current state of the global economy.

What makes this cycle much different than past cycles is the standard monetary tools of central banking are no longer working to control or stimulate the economy. The greatest of these phenomenons is the amount of negative yield debt being issued. Multiple rounds of quantitative easing after the 2008 global recession did little for world economic growth, so central banks turned to their next tool, interest rates. When zero rates were no longer effective central banks pushed further into negative interest rates. At its peak there was more than \$13 Trillion in negative yield debt globally. The percentage of public negative yielding debt has gone from 1 percent in 2014 to now over 20 percent of GDP today.<sup>26</sup>

The central banks leveraged negative interest rates to promote spending and liquidity in the market and deter institutions and individuals from saving. Unfortunately, it had the opposite effect and increased savings rates in areas with high levels of negative interest rates, thus, penalizing fiscally responsible savers.<sup>27</sup> This illustrated for the world the inadequacy and lunacy of what the central banking systems has become.

With negative interest rates having no real impact on stimulating the economy, the next logical step for central banks is to buy equities and alternative assets. A study published by The Official Monetary and Financial Institutions Forum states that Central Banks own over \$14 Trillion in public equities and other assets. This helps to explain the unprecedented stock rally during a sluggish economic recovery. Investors are pouring into the equity markets to obtain a decent return while central banks double down and buy equities to further boost up the equities market. The OMFIF report also addresses another issue for Central Banks when interest rates are driven to negative levels.

“One of the reasons for the move into equities reflects central banks’ efforts to compensate for lost revenue on their reserves, caused by sharp falls in interest rates driven by official institutions’ own efforts to repair the financial crisis. According to OMFIF calculations, based partly on extrapolations from published central bank data, central banks around the world have foregone \$200bn to \$250bn in interest income as a result of the fall in bond yields in recent

years. This has been partly offset by reduced payments of interest on the liabilities side of their balance sheets.” OMFIF<sup>28</sup>

Bank of America strategist, Michael Hartnett, added the following detail to the current Central Banking reality.<sup>29</sup>

Risk assets are now supported by the new “Keynesian Put”, the expectation that fiscal measures will be deployed to combat any renewed weakness in the economy/markets (independently of any larger political projects). But asset prices remain primarily supported by excess monetary abundance across the world:

1. There have been 667 interest rate cuts by global central banks since Lehman;
2. G7 central bank governors Yellen, Kuroda, Draghi, Carney & Poloz have been in their current posts for a collective 17 years, yet only one (Yellen in Dec’15) has actually hiked interest rates during this time;
3. Central banks own \$25tn of financial assets (a sum larger than GDP of US + Japan, and up \$12tn since Lehman);
4. There are currently \$12.3tn of negative yielding global bonds (28% of total);
5. There is currently \$8tn of negative yielding sovereign debt (54% of total).

The current market conditions are illustrating the inadequacy of a central banking system. The longer lower interest rates ensue the more liabilities will increase. This is what has attributed to the global pension system being \$70 Trillion underfunded.<sup>30</sup> However, increasing interest rates will result in an already weak economy going into a deep recession, if not worse. The purchasing of assets serves only as a band aid and ultimately misallocates resources that create asset mis-pricing. It is inevitable that the central banks will eventually have to unwind their balance sheets, which will create pressure in the market forcing equity sell offs and interest rate increases. The debt trap has been set and history has taught us that the radical devaluation of currency and/or inflation come next to deal with such a problem.

The current system is stagnant and gone through its intended cycle. The replacement of a monetary system aligns with the technological changes and the inadequacies of our current system to deal with those changes. Centralized systems are naturally more vulnerable than decentralized and distributed systems, precisely because they are centralized and possess a single point of weakness. This is especially true with the current centralized financial system, which has left the entire market at risk.

If central banks fail to deliver what they promise to deliver, then the entire market will fail. This reality is what lays a secure foundation for decentralized cryptocurrencies. It is not surprising that Satoshi Nakamoto released the Bitcoin white paper only months after watching some of the largest financial systems in the world fail overnight. At a time of financial uncertainty, it is our conviction that blockchain and cryptocurrency assets are and will become extremely valuable assets to protect wealth.



## A Case for Cryptocurrency Portfolio Allocation

This point in history is one that investors should take seriously. The greatest transfer of wealth in our lifetime is taking place, which is certainly something all investors should hedge against. For this reason, every investor should be allocating some percentage of their portfolio to cryptocurrency and blockchain assets.

The great part about a hedge against the traditional market is the attractive dynamics of the cryptocurrency and blockchain market. Cryptocurrency and blockchain assets are unlike any asset in the marketplace and take on some of the most positive features of many other assets. Cryptocurrency and blockchain assets are a hybrid investment class taking on three distinct investment characteristics.

1. **Technology Returns:** Technology stocks have been some of the highest performing assets in the last decade and are a great allocation to increase returns in a portfolio. Cryptocurrency and blockchain assets are heavily entrenched in technology and drive unlevered returns that exceed what can be reached with publicly traded technology stocks.
2. **High Liquidity:** Cryptocurrency and blockchain assets trade technically like currencies and many have liquidity that exceeds the highest traded public companies. The cryptocurrency and blockchain asset class is a 24/7 market with high levels of liquidity.
3. **Low Correlation:** Due to the decentralized nature of cryptocurrency and blockchain assets they are not connected to broader macroeconomic movements nor other assets. In cases where currencies or economies collapse, the value of cryptocurrency and blockchain assets are sold at a premium. Cryptocurrency and blockchain assets are one of the few remaining assets non-correlated to the complex financial system.

Put another way, Cryptocurrency and blockchain assets are a hybrid of technology and currency investments that are non-correlated to broader macroeconomic trends. The assets trade technically like a currency but their underlying value is driven by the technology and its acceptance. Returns are competitive with alternative assets and exceed those returns on an unlevered basis. This truly does make cryptocurrency and blockchain assets unlike any other asset in the world.

In comparison to traditional assets, the cryptocurrency and blockchain asset class is a promising alternative that is backed by sound technology that can spur growth and remains free from the single point weakness of the current centralized financial system.

Although in its infancy, Cryptocurrency is the fastest growing asset class in the world. It is also returning the best risk adjusted returns in the market. When using the Sortino Ratio to compare risk adjusted returns, Bitcoin has been the best performing asset class by significant levels over traditional assets in the past five years. Sortino Ratio is a better measurement for risk adjusted returns since it is not penalizing the asset for upward volatility, only downward volatility. In the last year all major cryptocurrencies have drastically outperformed the S&P 500 and Gold on a risk adjusted return basis.<sup>31</sup>

Equally as important to risk adjusted returns is the low correlation cryptocurrency has to other asset classes. Bitcoin and other cryptocurrencies have very low correlations to other commodities, equities, bonds, and real estate.<sup>32</sup> This asset class is truly unique in its ability to stand on its own, and the low correlation illustrates the decentralized nature of the asset class.

Given the systemic risk and highly correlated nature of the global capital markets, the non-correlated, high unlevered risk adjusted returns, and liquidity, make cryptocurrency and blockchain assets an important portfolio allocation going forward. The level of allocation depends on the individuals comfort with the asset class and the outlook of the overall economy. As the global economy sputters to try to control what is likely uncontrollable, there truly is no better time than the present to capitalize on the emergence of a new asset class and currency.

Based on the current long-term trend and overall investment thesis a long position on a basket of cryptocurrency and blockchain assets is the best position for the foreseeable future. This is based on cryptocurrency and blockchain assets as a replacement for traditional assets in the market. Investors should average in overtime and the position size should increase in alignment with the overall market size, as the transfer of wealth from traditional assets to cryptocurrency and blockchain assets continues to inevitably occur.

Cryptocurrency and blockchain assets are delivering new technology for more stable currencies, faster payments systems, and more efficient governance structures for allocating capital to assets. Over time this advancement of technology and economic philosophy will start to shift from traditional assets to cryptocurrency and blockchain assets. As we have stated, this marks the greatest transfer of wealth of our lifetime as we transition into the fourth industrial revolution.

We are still in the early days of this transition, with the Cryptocurrency market still sitting below \$1 Trillion; however, the potential of the broader market is substantial with the value of gold, narrow money, and stock markets over \$100 Trillion.<sup>33</sup>

Gold - \$7.7 Trillion Market Cap

Narrow Money - \$36.8 Trillion Market Cap

Stock Markets - \$73 Trillion Market Cap

There is already evidence that this is taking place as retail investors are leaving the gold market for cryptocurrency and blockchain assets. The cryptocurrency and blockchain market is trading more than 350 percent in trading volume over the largest Gold ETF.<sup>34</sup> As payment systems become more robust and the token market matures the replacement of narrow money and traditional public markets will also ensue. The long-term trend is in its early stages and the market signals are showing fast and rapid adoption.

The private equity markets are another good precursor of how this transfer of wealth will take place. In 2017, Initial Coin Offerings (ICO's) have outpaced funding of early stage venture capital illustrating its efficiency to raise capital for technology start-ups.<sup>35</sup> This showed a significant transfer of wealth away

from traditional investment vehicles. We believe the market will maintain this pace of adoption as it continues to mature.

This is just the start of what the fourth industrial revolution is going to bring to the market but now is the time to recognize what history has taught us and start to embrace the inevitable changes that are coming. Specifically, the change in our currency and how that will impact the future banking, payments, and assets. This is an exciting time to be alive and witness a transformative time in human history ushered in by technological advancement. As a society we must do our best to embrace this change and mold it in a way that leaves humanity better off. That can start now with everyone by allocating a percentage of capital to blockchain and cryptocurrency assets. This is the future and will bring great freedom and liberty to the world.



S O P H I A

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