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A Registered Investment Advisory Firm

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Cryptocurrency Q&A

With cryptocurrencies' meteoric rise, most notably bitcoin since late 2013, many investors have questioned whether cryptocurrencies should be considered a distinct and prudent asset class. Today the non-physical and encrypted online currency is categorized as both a unit of exchange and as a store of value. However, despite its shared characteristics with other common asset classes and appreciation of more than 20,000% over the last 5 years, many unique risk factors including volatility, future viability and uncertainty in regulation proves to be a headwind for potential long-term investors.[1]

This Q&A provides a high level understanding of the function of cryptocurrencies, the premise for the dramatic increase in price and why we believe they should not be considered as a viable and investable asset class.

Q1: What is a cryptocurrency?

A: Cryptocurrency is a digital currency that uses encryption and a public ledger to verify transactions. Unlike traditional fiat currencies like the dollar or yen, the currency is not regulated by a government and has no single party responsible for implementation or monitoring. This is part of the appeal for cryptocurrency, given its independence from government manipulation or impediment to transactions. Popular cryptocurrencies include, but are not limited to: bitcoin (BTC), litecoin and ethereum. There are more than 900 cryptocurrencies available over the internet with more being created daily.[2]

Q2: How can I get / trade bitcoin?

A: Bitcoins are "mined" similar to mining for gold; however, since the currency is not a physical product, the mining comes in the form of solving complex mathematical proofs. When the proofs are solved the "miner" is rewarded with bitcoin and the value is determined by the current exchange rate, just as the miner of gold would be after removing the element from the ground. As more participants (e.g. miners) enter this winner-take-all competitive landscape, the proofs become more difficult to solve and consequentially more difficult to extract. This concept helps self-regulate the amount of currency in the system. With over 80% of the total bitcoin supply already mined and the cryptocurrency as popular as ever, investors are looking for alternatives ways to gain exposure without investing in expensive computing systems. There are several avenues today to directly or indirectly invest in BTC including an open-end fund (The Bitcoin Investment Trust (OTC:GBTC)), BTC exchanges (Coinbase, Bitstamp, etc.) and even options and forwards contracts (LedgerX, KCoin, etc.). A few core problems persist through each of these platform options including dramatic premiums to the net asset value, liquidity, large bid-ask spreads and network hacks.

Q3: What determines cryptocurrency exchange rate?

A: Like any asset, supply and demand determine price. The key difference between a fiat currency and a cryptocurrency is in the factors backing supply and demand. On the demand side of the equation, the drivers for both the USD and BTC are similar and include interest rates and trust in the currency (ability to transact with it in the future). The supply side is much different. For fiat currency, the centralized government authority has the ability to affect supply by printing more dollars and supplying them to the market.

With BTC and other cryptocurrencies, there is no central authority to impact the supply; rather, there is a formula that allows a fixed quantity to be created over time. Eliminating those market manipulation factors was a founding principle of BTC's creation and propelled users to adapt the platform where a third party was incapable of

manipulating the market. Said another way, a large portion of the trust in BTC was developed by a distrust in central banks.

Q4: What asset class should bitcoin be classified as?

A: BTC strives to be a currency, used to facilitate transactions and be a medium of exchange for users around the world. However, ease of use and broad acceptance of BTC as a unit of exchange remain major headwinds. BTC transactions take around 10 minutes to be approved and have minimal exchange rate stability. Does this make BTC a commodity? While BTC shares similar supply and demand characteristics to commodities, not even regulatory bodies can agree on this today. In the United States, BTC is classified as property by the Internal Revenue Service (IRS), a commodity by the Commodity Futures Trading Commission (CFTC) and a currency by the Financial Crimes Enforcement Network (FinCEN).

Q5: What is the volatility associated with bitcoin?

A: The figure below shows BTC's volatility relative to other asset classes. Volatility, often used as a gauge of the associated risk of an asset's returns, shows that BTC has substantially more variability than other currencies and even asset classes such as equity.

Annualized Return Volatility					
	2012	2013	2014	2015	2016
Bitcoin / $	68.94%	164.82%	80.49%	60.20%	43.73%
€ / $	8.12%	7.25%	6.13%	12.03%	8.13%
Gold / $	14.52%	21.13%	14.39%	13.61%	15.47%
MSCI Emerging Markets Index	14.37%	13.18%	11.06%	15.90%	16.79%
S&P 500 Index	13.07%	11.05%	11.35%	15.46%	13.07%

Source: Bloomberg

The majority of this volatility occurred to the upside, clearly evident in the past performance of the asset class, but the associated volatility also occurred to the downside. One of the best examples of the limited downside protection occurred when China's largest BTC exchange stopped accepting Chinese yuan deposits, with the quoted price of BTC dropping nearly 50% overnight.[3] These violent price swings are one of our primary concerns for investors that are considering entering the asset class.

Q6: Why is bitcoin associated with the black market and other illicit activities? Can public perception be changed?

A: In short, this is not an association that is likely to be shed soon. BTC has historically and continues to be associated with these activities given the inherent properties as an anonymous and secure platform. The platform allows transaction recipients to never have their account assets seized due to complexities of pinpointing a precise location (web address) where the assets are actually stored. Shaking that reputation continues to be an uphill battle and without further improvements in transaction time and merchant acceptance, BTC may never be publicly accepted and will fail to be seen in the positive and trusted light that the majority of fiat currencies receive.

A driving force in the BTC exchange rate appreciation in 2011 was the growth of Silk Road, an online black market. The website facilitated illicit transactions across the globe by digitally connecting criminals. As the U.S. government finally brought down the site and its founder in 2013, the senate held a hearing on the virtual currency

titled, "Beyond Silk Road: Potential Risks, Threats, and Promises of Virtual Currencies". With a very modest tone to the hearing, BTC's value surged over 50% in the following 10 days.[4]

Q6: What is the future of cryptocurrencies?

A: As headlines continue to center around the appreciation in BTC, cryptocurrencies continue to strive for everyday viability. The shortcomings of BTC's code have given rise to many other competing cryptocurrencies that hope to capitalize on BTC's weaknesses. Cryptocurrencies such as Litecoin, Ethereum and Zcash all have similarities and differences to the original cryptocurrency. While BTC is the mainstream cryptocurrency and attracts the majority of investor capital in the space, any shift in popularity to a competing cryptocurrency could spur a precipitous drop in BTC's intrinsic value.

The largest technological advance supporting all cryptocurrencies, the blockchain, has sparked interest from many businesses and industries that see viability in the technology and hope to implement it to facilitate transactions in a more cost-effective manner. With businesses vying for market share in extremely competitive markets, we continue to see the exploration and adaptation of the technology for businesses to become cost leaders.

Q7: Are bitcoins, and more broadly cryptocurrencies, a fiduciary asset class?

A: In their present form, cryptocurrencies are not a fiduciary asset class. The elevated volatility, lack of merchant acceptance, uncertainty in future regulation, creation of better cryptocurrencies and explicit ties to illicit activities collectively skew the risk-return dynamic of BTC unfavorably for investors. A herd mentality has made many early adapters to the platform rich but, as a fiduciary, it would be nearly impossible to convey this as a good fit for a client's portfolio.

As a new phenomenon, cryptocurrencies have caught the attention of many investors. As new investment options appear sporadically, there are often more questions than answers. As it stands today, we do not believe this is a viable asset class for investors in their portfolio. However, as more questions have answers we will continue to review these investments options continuously over time, as we do with all asset classes, for their potential inclusion in a portfolio.

[1] Coindesk. "Bitcoin Price Index - Real-Time Bitcoin Price Charts." CoinDesk, 6 Sept. 2017, www.coindesk.com/price/

[2] Cryptocurrency Market Capitalization. "CryptoCurrency Market Capitalizations | CoinMarketCap." All CryptoCurrencies, 6 Sept. 2017, coinmarketcap.com/all/views/all

[3] Hern, Alex. "Bitcoin Plummets as China's Largest Exchange Blocks New Deposits." The Guardian, Guardian News and Media, 18 Dec. 2013. Web. 01 Sept. 2017, www.theguardian.com/technology/2013/dec/18/bitcoin-plummets-china-payment-processors-digital-cryptocurrency

[4] Phillips, John, and Matt Clinch. "Bitcoin Hits $750, up 107% in a Week." CNBC. CNBC, 24 Apr. 2014. Web. 01 Sept. 2017, https://www.cnbc.com/2013/11/18/bitcoin-surges-24-to-new-high-as-popularity-grows.html