



Cryptocurrency and blockchain: Ready for prime time?

A special report by the Portfolio Advisory Group – U.S. Equities

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All values in U.S. dollars and priced as of September 7, 2017, market close, unless otherwise noted.

Disseminated: Sep 12, 2017 07:56ET ; Produced: Sep 11, 2017 14:20ET

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**Wealth
Management**

Cryptocurrency and blockchain: Ready for prime time?



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Bitcoin headlines change by the hour, and double-digit price movements are common place. Bitcoins appear to have become an eponym, when in reality, over 900 cryptocurrencies are in existence. *We do not recommend investing in cryptocurrencies*, because the usage, need, supply, governance, and valuation are all still unclear. However, the underlying blockchain technology is far more interesting, and many established corporations agree.

Bitcoin landed on the map by making headlines with the demise of Silk Road

A cryptocurrency is a digital currency using blockchain technology to record and verify transactions, and in its current form, receives no government oversight.

It all started in 2008. A programmer or group of programmers using the name Satoshi Nakamoto shared an idea for a currency named Bitcoin on an online message board. The idea behind Bitcoin was that it provided an exchange for trade that avoided interference from central banks and regulators.

Four years later, Bitcoins were used for transactions on the Silk Road online black market, which sold illegal goods and services. The site was shut down by the FBI in October 2013 and Bitcoins were seized by the U.S. government. Other versions of the website tried to launch, but were subsequently closed. However, the currency itself survived.

Scoring Bitcoins

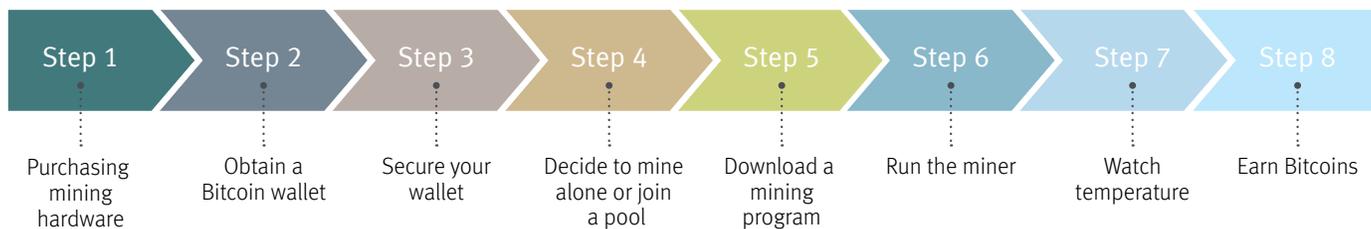
Only 21 million Bitcoins will ever be created, with the intent that no central authority can devalue the currency.

Anyone can buy a portion of a Bitcoin—they can be divided to the eighth of a decimal place. They can be purchased directly from an exchange with a bank account or Bitcoins and other cryptocurrencies can be traded on www.coinbase.com, a digital asset exchange company. Bitcoins can also be earned through the “mining” process as shown below. Mining is the process of verifying transactions and adding them to the public ledger, known as the blockchain.

The mining process

- **Step 1:** The mining hardware is inserted into the user’s computer for processing power.
- **Step 2:** Bitcoins are stored in digital wallets encrypted to protect the currency, and can be obtained from My Wallet, BitcoinQT, Armory, or Multibit websites.

The mining process



Source - Chart from the article [How to Mine Bitcoins](#) provided by [wikiHow](#), a wiki building the world’s largest and highest quality how-to manual, where you can find author credits and edit the wiki article. Content on wikiHow can be shared under a [Creative Commons License](#)

- **Step 3:** Secure the wallet via a two-factor authentication process and store it on a computer that doesn’t have internet access (or use a memory stick).
- **Step 4:** Mine alone or join an established pool and split the rewards.
- **Step 5:** Download from CGminer or CFGminer.
- **Step 6:** Run the miner.
- **Step 7:** Make sure your hardware doesn’t overheat.
- **Step 8:** Verify transactions and earn Bitcoins.

Approximately 100,000 merchants accept Bitcoin worldwide, and the largest appear to be Overstock.com and Expedia.com. All of those merchants often can offer a “pay with Bitcoin” option under their payment information. People can also use Bitcoin at sites such as eGifter to purchase gift cards for places that don’t directly accept Bitcoins. Microsoft allows users to buy content with Bitcoin on Xbox and at the Windows Store.

The concept has paved the way for competing cryptocurrencies to emerge.

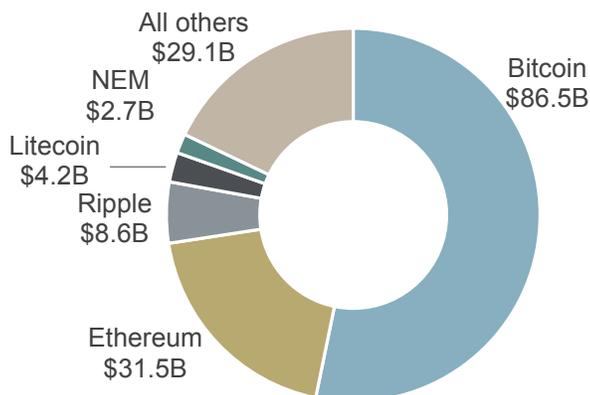
Imitation is the highest form of flattery

Bitcoin was the first cryptocurrency, and is still the largest, but is no longer the 800-pound gorilla, as there were more than 900 cryptocurrencies available over the internet as of July 2017.

The cryptocurrency that has peaked peoples’ interest is Ethereum, founded in 2013 by 23-year-old Vitalik Buterin, born in Moscow. The blockchain

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Market cap of leading cryptocurrencies



Source - RBC Wealth Management, [coinmarketcap.com](#); data through 9/7/17

network it runs on allows embedded complicated information, including “smart contracts” that turn contractual terms into computer code and govern how they are executed. Ethereum is garnering interest from major companies. Its platform is considered so useful that JPMorgan Chase & Co. (JPM), Microsoft Corporation (MSFT), and dozens of other companies have formed the Enterprise Ethereum Alliance to research its potential.

Growing pains and volatility

Lately, Bitcoin and the related cryptocurrencies have suffered growing pains similar to other industries in their infancy. The material price changes produce weekly headlines with double-digit movements in each direction. The exchange supporting the currency experienced a flash crash in mid-June 2017. Bitcoin “split” on August 1, 2017, and Bitcoin Cash was launched.

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Earlier this month, the Chinese government decided to crack down on the cryptocurrency market by declaring initial coin offerings illegal. An initial coin offering (ICO) is similar to an initial public offering, but in an ICO a company tries to raise funds through investors by releasing its own digital currency in exchange for another cryptocurrency, typically Bitcoin. Because this form of fundraising has drawn the attention of hackers, and in some instances they have stolen millions of dollars worth of digital currencies, the Securities and Exchange Commission (SEC) has begun to look at the offerings, as it believes ICOs are securities offerings and should be regulated by federal securities laws.

The rules are changing every day at a rapid pace for this developing concept.

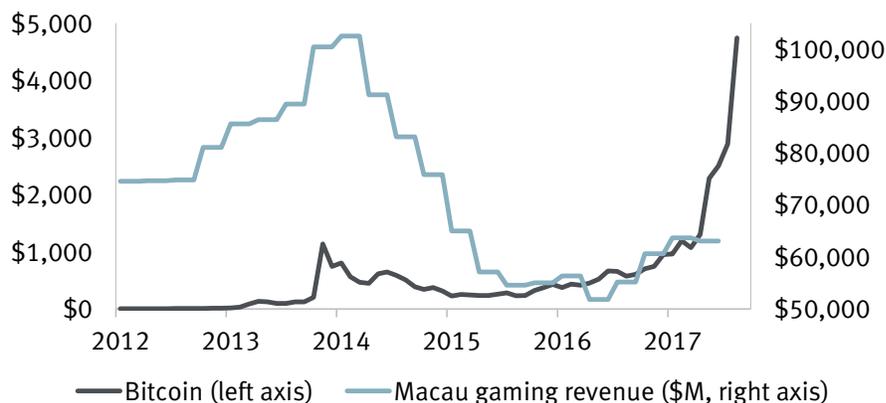
So, who has helped this unregulated, risky, and volatile asset reach bubble status?

The Chinese investor has a unique interest in Bitcoin

Bloomberg.com suggests the majority of Bitcoin traders are Chinese buyers. According to the Bloomberg.com article *Through Rally or Crash, Here’s Why Bitcoin Buyers Are Nervous About China*, 98% of Bitcoin trading in the last half of 2016 was the yuan (data from bitcoinity.org).

News out of China has continued with reports (*The Wall Street Journal*, September 11, 2017) the government plans to shut down Bitcoin exchanges.

Bitcoin versus Macau gaming revenue



Source - Bloomberg, RBC Wealth Management; data through 8/31/17

RBC Global Asset Management reports that conversion between China's currency and cryptocurrency would no longer be allowed.

The timing of the initial stages of the bubble coincides almost perfectly with the decline of another market the Chinese have enthusiastically participated—Macau. In 2014 and 2015, the Chinese government focused on cleaning up corruption, which meant cracking down and punishing high rollers in Macau, and the gross gaming dollars declined substantially through less money wagered and visitation.

However, the chart above shows that money was potentially diverted to the fairly new asset class—Bitcoin.

Blockchain is the underlying technology to cryptocurrency and is considered transformative

Cryptocurrency appears too early and volatile for most investors right now, but we believe blockchain technology, the backbone technology for cryptocurrency, is worth exploring.

Blockchain is a digital ledger (also called the shared ledger). This means that not only does one entity see particular information, but several entities can see the same information. An example might be that not only does your bank have your home address, but your credit card company does as well. When that information needs to change (in this example, you move to a new home), one party makes the change, but all parties that can see the information must validate it and agree to change it. This information is added to existing information and forms a block. This completes the transaction.

The technology on which the currency has been built is seeing legitimate interest from large institutions as it has the potential to save substantial money and time for many mature, archaic, and duplicitous institutions. Supporters of the technology believe it will improve efficiency with clearing and settling transactions and reduce costs. The technology can accommodate smart contracts, where the deal or payment may only be accepted on specific terms or events. A seismic change to the settlement process with updated technology likely has implications in banking, insurance, payment processing, and health care—all complicated industries begging for more efficiencies and cost savings.

Digital Asset Holdings is a software company focused on building a distributed ledger for the financial services industry, with a JPMorgan veteran as CEO and 15 strategic investors from major banks and other corporations.

Cryptocurrency too volatile, blockchain more compelling

If someone wants to invest in cryptocurrencies, *which we don't recommend*, he or she can own the currency outright or invest in Bitcoin Investment Trust (GBTC) that was created in 2013 and trades over-the-counter (OTC). However, we would not recommend purchasing GBTC at this time as the trust historically trades at a premium to its net asset value (NAV).

Currently, there are no U.S. listed exchanged-traded funds (ETFs) that use Bitcoin as their primary investment objective. Notably, the SEC rejected

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the registration of a Bitcoin-backed ETF submitted by the Winklevoss twins earlier this year due to the lack of oversight and regulation in the primary Bitcoin market, but it is exploring the idea again.

While no products exist today, the ETFs that are expected to launch using Bitcoin futures should be approached with a high level of caution. Remember, futures contracts do not provide the performance of the spot market they seek to track. Rather, futures contracts provide performance on the expected value of the spot market sometime in the future. Any fund using Bitcoin futures will not track the price of Bitcoin directly. We will need to wait and see how Bitcoin ETFs perform in the real world, but we recommend avoiding any Bitcoin ETF at the outset until we can truly gauge the risks of the Bitcoin futures market.

There are three tangential plays where cryptocurrency is simply “gravy” and not material to earnings.

However, there are three tangential plays where cryptocurrency is simply “gravy” and not material to earnings:

- **CBOE Holdings, Inc.** (CBOE) announced on August 2, 2017, that it had entered into an exclusive agreement with Gemini Trust Company to use Gemini’s Bitcoin market data for Bitcoin derivatives and indices to explore Bitcoin derivatives pending regulatory review, which could occur in Q4 2017 or early 2018. CBOE is in the Guided Portfolio: All Cap Growth, and we recommend buying CBOE shares based on the company’s own merit, regardless of the Bitcoin optionality.
- **Advanced Micro Devices Inc.** (AMD) makes computer chips on graphics cards to generate new cryptocurrency units, specifically with Ethereum. RBC Capital Markets suggests AMD’s graphics processing units (GPUs) are the “gold standard” today for mining Ethereum, but believes NVIDIA Corporation (NVDA) could release a new product that may be better. We recommend holding current positions of AMD at this level of valuation.
- **NVIDIA**, similar to AMD, makes chips that are used by cryptocurrency “miners” which RBC Capital Markets estimates could add greater than \$250M to revenue this year. We recommend holding current positions of NVDA at this level of valuation.

There are no public pure plays, but blockchain leaders within established business models make the most sense when evaluating an investment connected to the theme. Blockchain is not quantifiable to the following business models:

- **Microsoft:** In 2015, Microsoft and Ripple, a company that defines itself as connecting banks, payment providers, digital asset exchanges, and corporations to send money globally with blockchain technology, began working together on Microsoft’s “blockchain as a service” product. Microsoft claims customers can develop, test, and deploy blockchain applications with Azure. We recommend holding current positions of Microsoft or initiating positions as Azure provides a catalyst.
- **IBM** is participating in blockchain and partnering with SecureKey Technologies, a private company based in Toronto. IBM is working to develop enterprise solutions that capitalize on the blockchain technology. We recommend holding IBM at this time, but wouldn’t put new money to work until revenues and EPS return to growth.

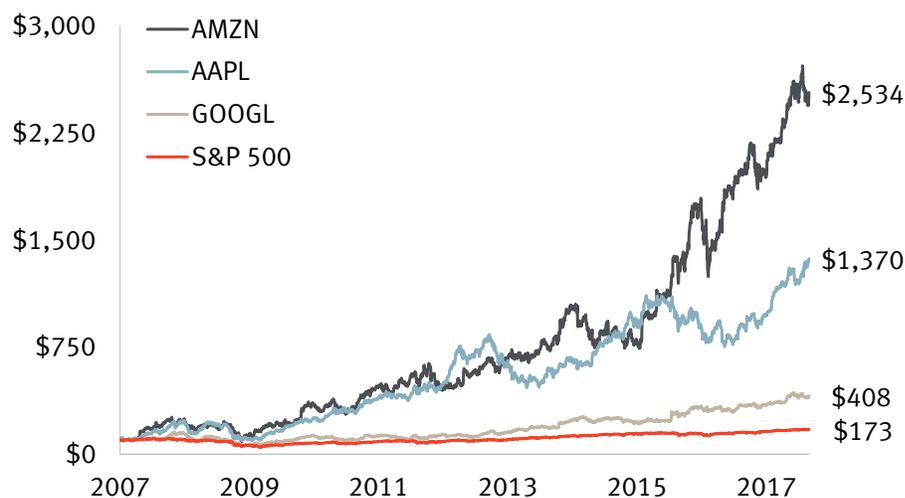
- **Broadridge Financial Solutions (BR)** is building a first iteration of a blockchain platform for proxies, as the company manages 85% of North American proxy voting and 50% in the rest of the world.

Not prime time ready

A potential investor should question a currency not controlled by a government which seems to be controlled, in some ways, like the Wild West.

The time has come to understand cryptocurrency and blockchain as the market has become substantial, but it's not necessarily time to buy. The market is undergoing continual and rapid change. Speculative and euphoric bubbles and market corrections are part of the lifecycle of new technologies. A potential investor should question a currency not controlled by a government which seems to be controlled, in some ways, like the Wild West. Valuation has no precedent, and the ultimate use is still questionable. As maturity and certainty evolve, we believe money can still be made. Even 10–15 years after Apple Inc. (AAPL), Amazon.com, Inc. (AMZN), and Alphabet Inc. (GOOGL) came into existence, investors have still made multiples of their investment and materially outperformed the S&P 500.

Growth of \$100 since 2007



Source - Bloomberg, RBC Wealth Management; data through 8/31/17

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