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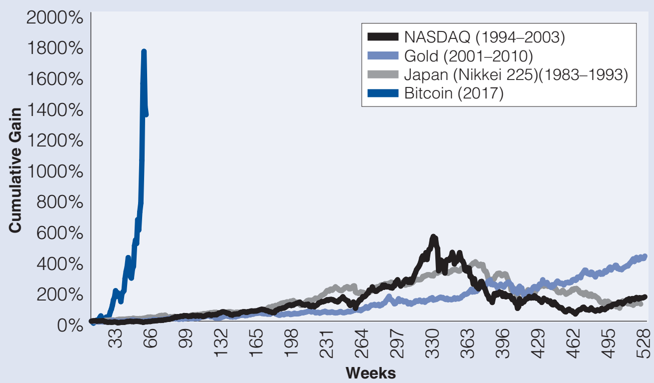
Betting on Bitcoin

INVESTMENT OR GAMBLE?

More and more investors are asking if they should jump on the bitcoin bandwagon and buy a coin or two. Before we weigh in with our advice, we want to make sure you're informed about what bitcoin is and what it is not.

For many bitcoin aficionados, the story begins May 22, 2010, when a Florida-based programmer named Laszlo Hanyecz exchanged 10,000 bitcoins for two pizzas in what was one of the first retail bitcoin transactions. Those 10,000 bitcoins were worth just $30 at the time. May 22 is now celebrated as Bitcoin Pizza Day by the currency's fans, and while the pizza is long gone, the bitcoin frenzy has exploded. In fact, at recent prices (about $14,000 per bitcoin as of Dec. 31, 2017), Lazlo's 10,000 bitcoins would now be worth more than $140 million. (Suffice it to say, that was a life-changing pizza delivery for Laszlo—let's hope he enjoyed it!)

Bitcoin More Manic Than Prior Manias



Source: Bloomberg. Data as of 12/28/2017.

Seriously, What Is Bitcoin?

The response to this increasingly common question, "What is bitcoin?" is usually a mixture of technobabble and hyperbole that leaves the questioner even more confused than before. We'll try to clear it up.

Without getting too technical (please see our list of additional resources for a deeper dive), bitcoin is a form of online currency that is not controlled or regulated by any institution. So it is not backed by any government and there is no bank overseeing the flow of transactions. In the words of outgoing Federal Reserve Chair Janet Yellen, bitcoin is a "highly speculative asset" that "doesn't constitute legal tender," "plays a very small role in the payment system" and "is not a stable store of value." The key word here is "speculative"—right now, bitcoin's promise is substantially greater than its substance.

Bitcoin, like many other ***cryptocurrencies***, is a decentralized, self-sustaining payment system where all transactions occur directly between parties (peer-to-peer), with no financial institution acting as middle-man to accept or reject the exchange of virtual "coins." No application or approval is required to open an account; anyone can create an ***address***, a mix of numbers and letters signifying your place on the bitcoin network.

Think of this as a digital safe instead of a bank account—you maintain control of your deposit and no third party (bank) can lend it out. A private key called a ***wallet*** provides the only verification needed to access this safe. If you keep that key secret (and remember it!), your coins are yours and yours alone and they remain "safe." (Safe in theory; in fact, many bitcoin holders have been victims of crypto-crime, but that's another story entirely.)

While the public address (your digital safe) designates where to send and receive coins, it has no connection to any identifying information, since no application was required to open it. This anonymity offers a major selling point for criminals and libertarians alike, and is also one of bitcoin's major drawbacks—lose, forget or accidently share that private key (or get hacked) and you'll not only be out of luck, but also out of bitcoins. There is no "reset password" option or fraud protection plan, no customer service to help you regain access to your account or recover your stolen coins.

You may have heard that this payment network is secure. In one sense, yes. Transactions cannot be forged, copied, edited or rolled back. A verifiable and immutable transaction mechanism is built into the network's recordkeeping. This brings us to the technology that underpins this entire enterprise as well as the systems behind other cryptocurrencies and what we view as the more meaningful long-term technological breakthrough: Blockchain.

The Blockchain

Blockchain, also known as a ***distributed ledger***, is a continuously updated public history of every transaction. Like an accountant's ledger, every bitcoin that changes hands is recorded in the bitcoin blockchain. But instead of trusting an accountant to verify every exchange on a single ledger, new transactions are grouped together in ***blocks*** and encrypted using complex mathematics before being ***distributed*** to the entire network.

Designated bitcoin "miners" then use powerful computers to decrypt the complex math problems for each new block, which can only be solved using the previous blocks. Newly verified blocks are then added to the ever-growing blockchain, which periodically has its difficulty to decrypt increased to match the level of computing power focused on mining. This helps maintain a steady rate of block generation. Since the entire network has a complete and verified copy of the ledger, this system is self-sustaining and extremely resilient to hacking. Miners are rewarded for their efforts with newly generated bitcoins (currently 12.5 bitcoin per block; the rate is set to be cut in half every 210,000 blocks—approximately every four years—so in 2020 it will be just 6.25 bitcoin per block).

Many of the largest companies in the world are taking a close look at blockchain technology and its potential to improve their own security, processing, documentation and reporting (a discrete application that has nothing to do with cryptocurrencies). For example, Vanguard recently announced plans to use blockchain technology to run its index funds more efficiently and with lower costs. A key concept here: Blockchain technology is used by the bitcoin network, but it has many separate possible functions that are just now being explored. So while bitcoin's future is uncertain, the technology underpinning it is already starting to impact and change how companies operate—for the better, if you ask us.

Bitcoin and Its Risks

The blockchain technology behind bitcoin is revolutionary, but hardly flawless. While blockchain use appears likely to become more pervasive in global commerce, that doesn't mean that creating, trading and ultimately using bitcoin as currency through the

Shoulder a Pickaxe and Start Mining?

IN TERMS OF GETTING IN ON THE BITCOIN CRAZE without buying some outright, there is the mining option. However, like the real-world practice from which it takes a name, it's not so easy as heading for the hills with a pickaxe and hoping to find precious gems lying about. As mentioned above, since more and more people and companies are devoting resources to mining bitcoin, it has become commensurately difficult to decrypt. This means it takes an ever-greater amount of computing power to mine each coin, which means larger, more expensive computers (or bigger networks of more basic computers), and an increasing amount of energy to run those machines.

The requirements for mining new bitcoin have already surpassed the resources most individuals can muster, which is why services that network smaller computers have become more popular—you link your computer to do the calculations as part of a network in exchange for fractional shares of any bitcoins created (after those who established the network take their cut). Of course, linking a computer up to a strange network carries its own cybersecurity risks.

Mining bitcoin may hold some appeal to computer-literate do-it-yourselfers who can afford to set up an expensive, dedicated rig, but the topic falls outside the scope of this piece and Adviser Investments' expertise. If the idea holds appeal, please see the additional resources section of this report to learn more about how it works and the opportunities and risks involved.

blockchain is guaranteed to replace the dollar, euro, yen or British pound.

Even though blockchain technology makes each individual bitcoin secure, most bitcoin buyers use centralized exchanges such as Coinbase to buy, hold and ultimately sell digital currencies. And these exchanges are vulnerable. Because they are not banks, they are untested and unregulated. Many are essentially new startups without the IT security budget of major financial institutions. If you store your private key at an exchange and the exchange is compromised, well, there goes your bitcoin. It's not an idle risk; exchanges have been hacked in the past.

Bitcoin was designed to facilitate commerce on the internet, but most owners of bitcoin today are not actually using it to buy or sell goods or services, especially as its price skyrockets. And while the distributed and decentralized nature of bitcoin's blockchain has its advantages, there are also drawbacks. Consider that the bitcoin system can handle seven to 10 transactions a second. That sounds impressive until you realize that Visa's network handles 60,000 transactions a second.

Bitcoin itself may evolve into a more stable store of value, though the need for transparency, regulation, liquidity and scale will likely usher in the kind of intermediaries bitcoin was designed to avoid: Sovereign governments, major financial institutions, security regulations and regulators, and traceable and taxable transaction transparency. The regulatory battle is already underway: The Internal Revenue Service views bitcoin and cryptocurrencies as property, and expects you to report and pay taxes on any profits made through their use or trade.

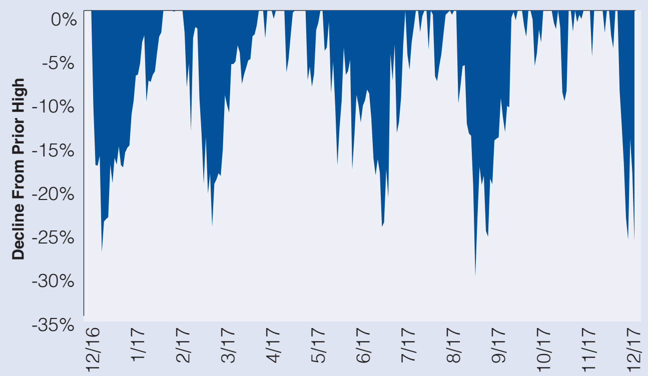
In the meantime, bitcoin does not pay interest or dividends, nor does it entitle you to any profits from any kind of business—like gold, bitcoin has no intrinsic value. While stock and bond prices are supported by underlying cash flows, there's nothing fundamental supporting bitcoin's price aside from what the next buyer is willing to pay for it.

Competition is another risk. Bitcoin was the first and most popular cryptocurrency, but the barriers to entry are very low when it comes to creating alternatives. We've already seen many new cryptocurrency networks emerge. These various "currencies" provide alternative means of exchange and incentives to use them. The cryptocurrency market is in its very early stages; the risks and uncertainties are high, and the entire space, bitcoin included, looks and feels like a textbook market mania to us.

Bitcoin's Big Price Gains…

Source: Bloomberg. Data as of 12/28/2017.

…Came With Big Drawdowns



Source: Bloomberg. Data as of 12/28/2017.

Should You Invest in Bitcoin?

In our view, buying bitcoin is more of a wager than an investment. Currently, we'd bet on blockchain technology long-term, but not bitcoin.

The current bitcoin brouhaha exhibits all the classic signs of buyers who are willing to pay any amount just because prices have been rising rapidly, and a fear of missing out clouds better judgment. The "greater fool theory" suggests that, at some point, someone will be left holding a bag full of virtual bitcoins and the "smart money" will have exited. Then the price will collapse, without warning.

We've seen this pattern before. In 2000, the technology bubble inflated on the promise of vast riches for any "dot-com" company involved with the rapidly expanding

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Internet. Before the bubble burst, tech stocks of all stripes, from little unknowns to giants like Cisco Systems, had been swept up in the mania. Investors who believed prices would only continue to rise got badly burned.

Not too many years later, investors leapt with both feet into a housing market with soaring prices fed by low interest rates, easy lending terms and a public fascination with the "flippers" who were buying property and unloading it at higher prices just months later. The housing bubble burst and helped send the U.S. into the Great Recession.

The biggest difference between what we believe is a bitcoin bubble and the prior tech-stock and housing bubbles is one of scale. Because bitcoin is still a relatively small market, its comeuppance will not cause a broad market tsunami or economic disaster. But it will be extremely painful for those who were unable to resist the siren call for quick, easy riches.

Bitcoin's stratospheric 2017 rise was not smooth sailing, as white-knuckled speculators endured five declines—or drawdowns—during the calendar year when the coins' price fell 25% or more. As the charts on the previous page show, the price gains were meteoric and losses severe. Ask yourself: Do you have the stomach for this kind of risk with your hard-earned money?

Our Bitcoin Advice

Don't buy bitcoin simply because everyone else seems to be doing so. It's certainly a compelling story, but one we think is worth watching from the sidelines.

That said, if you simply *must* own some bitcoin, we advise that you spend only as much as you can afford to lose. While bitcoin may prove to be a worthwhile investment in the future, it looks more like a speculative gamble today. And we would never recommend gambling with your life savings.

Bitcoin enthusiasts won't let Laszlo Hanyecz forget the day he traded 10,000 coins for two pizzas. We hope you don't come to rue the day you jumped on the bitcoin bandwagon.

Additional Resources

Books

Digital Gold: Bitcoin and the Inside Story of the Misfits and Millionaires Trying to Reinvent Money. Nathaniel Popper, a business and technology reporter for *The New York Times*, outlines the history of bitcoin and the colorful tech evangelists behind its rise.

Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond. Cryptocurrency insiders Chris Burniske and Jack Tatar provide a guide to investing in bitcoin and the hundreds of other cryptoassets that have come in its wake.

Audio

Hash Power: A Documentary on Blockchains & Cryptocurrencies. A three-part audio documentary about blockchain and cryptocurrencies featuring some of the industry's prominent figures. (www.investorfieldguide.com/hashpower)

Online Coursework:

"Bitcoin and Cryptocurrency Technologies." A free, 11-week online video course moderated by Princeton computer science professor Arvind Narayanan. (www.coursera.org/learn/cryptocurrency)