

**BITCOIN'S EFFECT ON INTERNET SAFETY - A GARTH BRUEN REPORT**





4.35

1.25%

375.88

2.78

5.62

6.25

5.95%

248.26

9.56

2.1

1.21

8.35%

698.33

4.58

8.1

2.50

1.20%

898.33

3.54

7.8

8.25

9.32%

282.80

2.1

9.4

6.35%

252.80

2.1

375.88

1.05%

# EXECUTIVE SUMMARY

Bitcoin is a virtual currency that can be traded online for certain goods or services, making it a very important concern for all consumers. Understanding what it is and why it can be dangerous involves a good grasp of financial systems, as well as technology and math.

Bitcoin is risky for some of the same reasons it can be appealing to certain users. It is true that Bitcoin can be more convenient because it cuts out intermediaries like banks or PayPal—but such institutions also protect consumers in many ways that Bitcoin does not. Primarily, conventional currencies are backed by real assets and managed by trusted professionals, while Bitcoin relies on volatile exchange markets and the oversight of peer-to-peer networks.

Many criminals are drawn to Bitcoin because it is decentralized and supposedly untraceable. It provides a venue for individuals to generate, transfer, launder, and steal illicit funds with much greater anonymity than is possible through traditional financial channels, meaning individuals and groups can engage in illegal buying and selling without leaving the kind of “paper trail” that they would if they used real currency. For example, Bitcoin is the currency of the underground website Silk Road, which is an open marketplace for illegal drugs.

While we know that some criminal elements have discovered the unique traits of this virtual currency, Bitcoin is now prevalent enough that it could have an impact on the financial services industry. The inherent uncertainty and extreme volatility of Bitcoin valuation creates the potential for a bubble that, if burst, could have severe economic implications. Because it is so easy to maneuver Bitcoins in a clandestine fashion, we can only hope that financial services companies provide clear and detailed information if

(or maybe when) Bitcoins find their way into more mainstream investment products.

Many questions remain about Bitcoin and the potential risks and rewards associated with its widespread use. Can it be used effectively with greater regulation? What safeguards can be emplaced to limit its abuse by criminal enterprises?

Because of Bitcoin's rising popularity, Digital Citizens need to be informed about the issues surrounding it and participate in the discussion about its potential pitfalls for individuals and the economy.

## WHAT IS BITCOIN?

*"Bitcoin is not real money. It's an online 'currency'—virtual tokens that can be exchanged for goods and services at places that accept it, the same way you'd give someone a dollar for a cookie. But unlike a dollar, a Bitcoin has no serial number or any possible mechanism that could be used to trace it back to a buyer or seller. This makes it attractive to drug dealers and/or privacy advocates." (Source: Sam Biddle, Lifehacker, 5/19/11)<sup>1</sup>*

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<sup>1</sup> <http://lifehacker.com/5803124/what-is-bitcoin>



By now you may have heard the term “Bitcoin” and simply chalked it up to something else in the news, which is poorly explained or understood. Bitcoin requires you to understand the financial system as well as technology and math. Bitcoins have come up recently in conjunction with Edward Snowden’s international flight<sup>2</sup> as a way of anonymously funding his escape across the globe through donations to WikiLeaks. You may be vaguely aware that Bitcoin is a virtual currency that is difficult to trace making it potentially attractive to those who wanted a currency for criminal purposes.

There are other critical differences between traditional currency and Bitcoin. One critical distinction: your bank is required to hold a percentage in actual cash and insure your deposit up to a certain value. Standard institutions or currencies are backed up by something: collateral, property holdings, other people’s debt liabilities, government, etc. This does not exist for Bitcoin.

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<sup>2</sup><http://www.thedailybeast.com/articles/2013/06/25/how-to-help-pay-for-snowden-s-getaway-without-being-caught-bitcoins.html>

There are economic arguments for and against Bitcoin. This report looks at the Internet safety pros and cons of this virtual currency. In this research, there are considerations of both the promise Bitcoin holds, as well as the concerns it creates.

## WHEN WERE BITCOINS CREATED?

*“Bitcoin was created in 2009 by a person or group that goes by the name Satoshi Nakamoto. A 2008 paper written by Nakamoto proposed the creation of a “peer-to-peer electronic cash system” that would allow online payments to be sent directly from one party to another without going through a financial institution. Instead of a trusted third party like a bank, Bitcoin creates trust through a cryptographic system.” (Source: Sarah E. Needleman and Spencer E. Ante, The Wall Street Journal, May 8, 2013)<sup>3</sup>*

## BITCOIN – BY THE NUMBERS

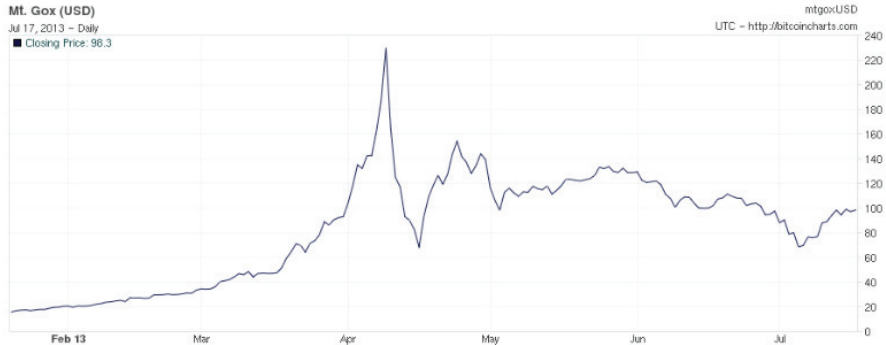
To find the value of Bitcoins, look at <https://mtgox.com/> where, at the time of this writing, Bitcoin was trading at \$98.3/ Bitcoin. Bitcoin’s value soared to more than \$200 against the dollar in April. This after it started 2013 worth about \$20.

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<sup>3</sup> <http://blogs.wsj.com/digits/2013/05/08/a-bitcoin-primer-what-you-need-to-know-about-the-new-virtual-currency/>

This spring all of the Bitcoins in circulation skyrocketed in value- worth now more than \$1.1 billion dollars.<sup>4</sup>

[Link to this chart - Larger chart](#)



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[Load raw data](#)

*This chart tracks the price of Bitcoins versus the U.S. Dollar (USD) over the last six months. It shows just how volatile the virtual currency has been in recent months (Source: Mt. Gox via bitcoincharts.com, <http://bitcoincharts.com/charts/mtgoxUSD#rg60ztgSzm1g10zm2g25zv>)*

## WHERE CAN I FIND/USE BITCOINS?

Perhaps you are also wondering, “Where do Bitcoins have value?” The answer:

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<sup>4</sup> <http://www.washingtonpost.com/blogs/wonkblog/wp/2013/06/17/can-bitcoin-make-peace-with-washington/>

<sup>5</sup> <http://bitcoinwatch.com/>

mostly through Bitcoin exchanges (and there are dozens<sup>5</sup>), which offer cash for your Bitcoins or other products. According to WIRED, the Bitcoin exchange market is highly volatile and littered with failures.<sup>6</sup> In fact, the assets of the largest exchange were seized by the U.S. government for failing to properly declare themselves as a Money Services Business (MSBs).<sup>7</sup>

Forbes columnist Kashmir Hill tried living exclusively on Bitcoins for one week. It is safe to say she ended the week hungry. She also found a community incredibly excited about the about the currency's potential. Part of the reason for the fervor was the way people could use Bitcoin:

*"Bitcoin is like digitally paying in cash, in that you can move money online from one person to another person without using an intermediary like a bank, a credit agency, a PayPal, or a Western Union, and you can do so without attaching your identity to the payment. It's like having your own email server and creating a different address for every message you send out."* (Source: Kashmir Hill, Forbes, May 9, 2013)<sup>8</sup>

The currency is finding an audience in the small-business community as well. The Wall Street Journal reported:

*"Some merchants say they favor the virtual currency over cash because Bitcoin transactions can be completed quickly via the Internet."*

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<sup>6</sup><http://www.wired.co.uk/news/archive/2013-04/26/large-bitcoin-exchanges-attacks>

<sup>7</sup><http://gawker.com/feds-seize-assets-of-worlds-largest-bitcoin-exchange-506790294>

<sup>8</sup><http://www.forbes.com/sites/kashmirhill/2013/05/09/25-things-i-learned-about-bitcoin-from-living-on-it-for-a-week/>



*“Cash is a pain,” says Aaron Rollins, a cosmetic surgeon in Beverly Hills, Calif., whose patients sometimes prefer to pay in cash—even though his procedures cost at least \$3,000. ‘I got to count [cash] and bring it to the bank.’ A patient requested to pay for a procedure with Bitcoin a few months ago, he says, and a handful of others have since done the same. ‘I looked into it and thought this is kind of cool,’ Dr. Rollins says. ‘I like being high-tech.’”* (Source: Sarah E. Needleman, The Wall Street Journal, June 26, 2013, 2013)<sup>9</sup>

## WHO USES BITCOIN?

Bitcoin’s boosters go beyond just geeks and gangsters. Much has been made recently of Cameron and Tyler Winklevoss’s investment in Bitcoin<sup>10</sup>, but why are they doing this? To say the court-awarded<sup>11</sup> “Facebook founders” are investing in Bitcoin is a bit of a misnomer. The Winklevoss Bitcoin Trust is intended to be holding an entity of Bitcoins that others can invest in.<sup>12</sup> Third parties could fund the purchase of Bitcoins without engaging in the transactions directly. Ultimately, this is using other people’s money to trade Bitcoins for a fee, not really in creating any new infrastructure for the currency.

*“While 26 percent of Bitcoiners rake in \$150,000 or more in annual income, the biggest group, 52 percent, makes less than \$50,000, according to findings visualized Friday on the Quantcast’s I.Q. blog. Bitcoin users are overwhelmingly male — 88*

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<sup>9</sup> <http://online.wsj.com/article/SB10001424127887323300004578559941389131384.html>

<sup>10</sup> [http://seattletimes.com/html/business/technology/2021338483\\_winklevossbitcoin.xml.html](http://seattletimes.com/html/business/technology/2021338483_winklevossbitcoin.xml.html)

<sup>11</sup> <http://www.foxnews.com/tech/2011/05/13/winklevoss-twins-sued-facebook-fortunes/>

<sup>12</sup> <http://www.sec.gov/Archives/edgar/data/1579346/000119312513279830/d562329ds1.html>



percent. *The biggest age group is 25-34.*" (Source: Jordan Novet, Gigaom, April 22, 2013)<sup>13</sup>

## WHY SHOULD I BUY BITCOINS?

Bitcoins are recorded in a ledger, which is shared throughout the network. This is part of the appeal that has drawn libertarians and gold enthusiasts to Bitcoin. They see Bitcoin as being immune to government interference as well as out of reach of banks that might seize traditional currencies.

It is often said that Bitcoin *"has no central authority,"* but this is not exactly true. *"The Network"* and its shared transaction ledger are the central authority. This Network is made up of the nodes and operators, which run the software to create Bitcoins (*"mining"*) and collaboratively accept additions to the Bitcoin block along with the ledger. The various operators on the network must agree to the same algorithm and the validity of the ledger.

While potentially cryptic, this is not so different from the way a real bank works with multiple accounts and branches. Institutions constantly reconcile the holdings into a single record at the end of each day. Just like banks, Bitcoin has policies, except they are the products of a democratic agreement forged in online discussions as opposed to those from a team of managers, shareholders,

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<sup>13</sup> <http://gigaom.com/2013/04/22/who-uses-bitcoins-its-not-exactly-the-hedge-fund-set/>; Original Source material from Quantcast, April 19, 2013, <https://www.quantcast.com/inside-quantcast/2013/04/who-uses-bitcoins/>

or a board of directors. So, while Bitcoiners may claim an anti-institutional model, they create their own institution in parallel.

What is the difference between Bitcoin and PayPal? PayPal is not currency; it is a transaction system for moving currency.

Martin Harrigan, the developer of QuantaBytes, an online tool designed to help regular people decipher the ledger, tells Digital Citizens: *“Bitcoins themselves are trackable in the sense that the public ledger shows the exact moment each Bitcoin was mined, and each subsequent transaction that it was involved in.”* Harrigan adds that Bitcoin strengths lie in its *“frictionless transfers, low transactions costs, (and) decentralization.”*

## WHY SHOULD I BE CONCERNED ABOUT BITCOINS?

Search “Bitcoin” and “anonymous” and you will find those who claim it leaves no tracks. It’s just not true. Mr. Harrigan and partner Fergal Reid show in their research Bitcoin is not anonymous.<sup>14</sup> However, Harrigan says the Bitcoin ledger “does not record the real-world identities of the owner of the Bitcoins at each stage. So, while you can see the movements of Bitcoins, you cannot always see who is responsible for those movements.”

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<sup>14</sup><http://anonymity-in-bitcoin.blogspot.com/2011/07/bitcoin-is-not-anonymous.html>

In a report titled *“How Bitcoin Lets You Spy on Careless Companies”*, Wired Magazine reported: *“because all transactions are recorded publicly on the Bitcoin peer-to-peer network, once you know the Bitcoin address of the person you’re paying, it’s possible to track all other payments made to that address.”* (Source: Robert McMillian, Wired, June 5, 2013)<sup>15</sup>

While the ledger is transparent, Bitcoin does allow for a stealthy, secretive exchange of money. Other research shows there is tremendous potential for secret use. Inherent paper trails within most transactions make it difficult to move large amounts of money and remain undetected. Evan Soltas writes in a recent column for Bloomberg View:

*“It would be almost impossible for states to detect certain crimes. One of the major alleged uses of Bitcoin — though, of course, one can never truly know — is buying illicit drugs. Bitcoin’s cryptography makes it uniquely able to facilitate money laundering, insider trading, fraud, and bribery. The transactions would be untraceable, and the money doesn’t ever have to return to the bank, where the financial crime might have been detected.”* (Source: Evan Soltas, Bloomberg View, April 5, 2013)<sup>16</sup>

And Mr. Soltas’s concerns are not lost on the FBI. In a report that was originally classified before being leaked to a reporter, the Bureau’s research indicated, *“cyber criminals will treat Bitcoin as another payment option alongside more*

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<sup>15</sup>[http://www.wired.com/wiredenterprise/2013/06/bitcoin\\_retail](http://www.wired.com/wiredenterprise/2013/06/bitcoin_retail)

<sup>16</sup><http://www.bloomberg.com/news/2013-04-05/bitcoin-really-is-an-existential-threat-to-the-modern-liberal-state.html>

*traditional and established virtual currencies.” Furthermore, the FBI defines Bitcoin as “A decentralized, peer-to-peer (P2P) network-based virtual currency — provides a venue for individuals to generate, transfer, launder, and steal illicit funds with some anonymity.”<sup>17</sup>*

Online gambling has been illegal in the United States for some time and it is enforced by blocking transactions through U.S. institutions and to U.S. persons. But, gambling transactions with Bitcoin get around this restriction. Bitcoin is the currency of the underground website Silk Road, which is an open marketplace for illegal drugs.<sup>18</sup> The Drug Enforcement Agency (DEA) recently seized Bitcoins from a Silk Road drug dealer.<sup>19</sup> So the idea that criminals are trying to use it is no longer just a theory, but a full-fledged reality.

After federal prosecutors filed charges against the creators of Liberty Reserve, many reporters lined up waiting for law enforcement to chase after Bitcoin next. Liberty Reserve was a digital currency service, which allowed customers to make anonymous monetary transactions online. Federal law enforcement officials say Liberty Reserve may be the largest money laundering case in U.S. history. This past May, seven people were indicted for their roles in making Liberty Reserve what prosecutors call the “bank of choice for the criminal underworld.” (Source: Schuyler Velasco, The Christian Science Monitor).<sup>20</sup> But it will be difficult to prove Bitcoin’s managers, traders, and users are part of a vast criminal enterprise. Perhaps the greatest challenge facing both law enforcement and regulators: who do you

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<sup>17</sup> [http://www.wired.com/images\\_blogs/threatlevel/2012/05/Bitcoin-FBI.pdf](http://www.wired.com/images_blogs/threatlevel/2012/05/Bitcoin-FBI.pdf)

<sup>18</sup> <http://www.wired.co.uk/news/archive/2013-02/01/silk-road-crackdown>

<sup>19</sup> <http://gizmodo.com/drug-enforcement-agency-seizes-first-bitcoins-from-silk-595189571>

<sup>20</sup> [http://www.csmonitor.com/Business/2013/0529/Liberty-Reserve-money-laundering-case-five-questions-answered/What-is-Liberty-Reserve\)](http://www.csmonitor.com/Business/2013/0529/Liberty-Reserve-money-laundering-case-five-questions-answered/What-is-Liberty-Reserve)

question when trying to pursue the minds behind Bitcoin?

The next Bitcoin controversy could be generated by the success or failure of Bitcoin-related financial services. In April, Ars Technica asked representatives from three major investment banks – Goldman Sachs, JP Morgan Chase, and Credit Suisse – if they had any Bitcoin holdings. Goldman Sachs wouldn't comment, the other two did not respond. In May, a Commissioner for the Commodity Futures Trading Commission (CFTC) told the Financial Times that Bitcoin "is for sure something we need to explore." There are some who say that such instruments could stabilize what has been a very volatile market. That might make Bitcoin less appealing to both tech geeks and criminal elements. Of course, it could also be the creation of a bubble that, if burst, would wreak havoc on the U.S. financial system.





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