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Cryptocurrency: A Primer

Vivian A. Maese, Alan W. Avery, Benjamin A. Naftalis, Stephen P. Wink, and Yvette D. Valdez*

The authors discuss four key issues associated with cryptocurrency.

WHAT IS CRYPTOCURRENCY?

There is no one standard definition of cryptocurrency.[1] At the most basic level cryptocurrency—or digital currency or virtual currency—is a medium of exchange that functions like money (in that it can be exchanged for goods and services) but, unlike traditional currency, is untethered to, and independent from, national borders, central banks, sovereigns, or fiats. In other words, it

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[1] For instance, in 2012, the European Central Bank defined virtual currency as "a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community." European Central Bank, Virtual Currency Schemes 13 (October 2012), http://www.ecb.europa.eu/pub/pdf/other/virtualcurrencysch emes201210en.pdf. In 2013, the Financial Crimes Enforcement Network (FinCEN), a bureau of the US Treasury, defined virtual currency as "a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency." FinCEN, Department of the Treasury, Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies 1 (March 18, 2013), https://www.fincen.gov/statutes_regs/guidance/pdf/FIN-2013-G001.pdf. In 2014, the European Banking Authority defined virtual currency as "a digital representation of value that is neither issued by a central bank or a public authority, nor necessarily attached to a [fiat currency], but is accepted by natural or legal persons as a means of payment and can be transferred, stored or traded electronically." European Banking Authority, EBA Opinion on 'virtual currencies' 5 (July 4, 2014), http://www.eba.europa.eu/documents/10180/657547/EBAOp-2014-08+Opinion+on+Virtual+Currencies.pdf. In March 2014, the Internal Revenue Service concluded that bitcoins and other virtual currencies are "property" for tax purposes—not currency. I.R.S. Notice 84-9 (March 25, 2014), http://www.irs.gov/pub/irs-drop/n-14-21.pdf. In June 2015, the New York State Department of Financial Service's BitLicense defined virtual currency as "any type of digital unit that is used as a medium of exchange or a form of digitally stored value. Virtual Currency shall be broadly construed to include digital units of exchange that (i) have a centralized repository or administrator; (ii) are decentralized and have no centralized repository or administrator; or (iii) may be created or obtained by computing or manufacturing effort." N.Y. Comp. Codes R. & Regs. tit. 23, § 200.2(p) (2015) (hereinafter "BitLicense").

exists completely in the virtual world, traded on multiple global platforms. These currencies are designed to incorporate and exchange digital information through a process made possible by principles of cryptography, which makes transactions secure and verifiable. The most well-known cryptocurrency is bitcoin, which was created back in 2009 and which still dominates the virtual currency market today.[2]

WHY DOES CRYPTOCURRENCY MATTER?

Cryptocurrency is relevant to most businesses and financial firms. Over 100,000 merchants worldwide already accept bitcoin[3]—including Amazon-.com, Target, PayPal, eBay, Dell, and Home Depot—with anywhere from 80,000 to 220,000 transactions occurring per day, representing over $50 million in estimated daily volume.[4]

Cryptocurrencies allow for increased market efficiencies and reduced transaction costs. At base, cryptocurrency transactions are:

- Private—no personal information is required to complete a transaction;[5]
- Fast—they are settled almost instantaneously, unlike credit card transactions or wire transfers that require days;
- Irrevocable—because transactions are settled almost immediately, there are no resulting chargebacks or possibility for disputes between buyer and seller;
- Inexpensive—transaction costs are generally less than one percent if an intermediary is used, rather than the customary credit card processing fee of roughly 2.5 percent; and
- Global—neither buyer nor seller requires a bank account, and there are no currency transaction fees.

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[2] As of November 4, 2015, there were approximately 615 digital currencies available for trade online. CryptoCurrency Market Capitalizations, https://coinmarketcap.com/all/views/all/ (last visited Nov. 4, 2015).

[3] Anthony Cuthbertson, Bitcoin now accepted by 100,000 merchants worldwide, INTERNATIONAL BUSINESS TIMES, Feb. 4, 2015, http://www.ibtimes.co.uk/bitcoin-nowaccepted-by-100000-merchants-worldwide-1486613.

[4] Blockchain Info, Currency Stats: Bitcoin Currency Statistics, https://blockchain.info/stats (last visited Nov. 6, 2015).

[5] Of course, some personal information is needed to get actual currency (e.g., U.S. dollars, Euros, etc.) into or out of a given virtual currency network.

HOW DOES IT WORK?

The use and transfer of cryptocurrency is based upon a technology called "the blockchain protocol." The blockchain protocol is the basis for a public decentralized ledger that records all bitcoin transactions and removes the financial middleman, allowing transactions to be settled within minutes. Each transaction is verified and validated, resulting in ledger (or log) of these transactions that is public and transparent.[6] Further, the blockchain is secure and virtually impossible to hack because of its decentralized nature and the fact no entity controls it. The blockchain protocol is not limited to bitcoins.[7] In fact, nine of the largest investment banks have announced plans to develop common standards to expand the use of the blockchain technology across the financial services markets. The implication is clear: transactions will become faster, cheaper, safer, and more efficient.

WHAT SHOULD I THINK ABOUT?

Financial institutions, Fortune 100 companies, and well-funded startups are focused on cryptocurrency (specifically) and the underlying blockchain (generally) to capitalize on the economic utility of the technology.[8] These applications include (but are in no way limited to):

- Using the distributed ledger blockchain technology to issue and transfer the shares of privately held companies without the need for paper stock certificates;[9]
- Revolutionizing foreign currency trading;[10]
- Increasing payment speed and decreasing transaction costs;[11]
- Rethinking how to trade complex assets like derivatives, syndicated

[6] Blockchain Info, Homepage, https://blockchain.info/ (last visited Nov. 6, 2015).

[7] P2P Foundation, http://p2pfoundation.net/Blockchain (last visited Nov. 6, 2015).

[8] Philip Stafford, Blockchain initiative backed by 9 large investment banks, FINANCIAL TIMES, Sept. 15, 2015, http://www.ft.com/intl/cms/s/0/f358ed6c-5ae0-11e5-9846-de406ccb37f2.html#axzz3lpdt6mGB.

[9] John Detrixhe, Nasdaq Expects to be First Exchange Using Bitcoin Technology, BLOOMBERG BUSINESS, July 23, 2015, http://www.bloomberg.com/news/articles/2015-07-23/nasdaq-expects-to-be-first-exchange-to-use-bitcoin-technology.

[10] Nathanial Popper, Bitcoin Technology Piques Interest on Wall St., THE NEW YORK TIMES, Aug. 28, 2015, http://www.nytimes.com/2015/08/31/business/dealbook/bitcoin-technology-piques-interest-on-wall-st.html.

[11] *Id.*

loans and corporate bonds; and

- Redefining collateral management and other back office operations.