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**DO YOU NEED TO CARE ABOUT
BLOCKCHAIN AND**

Do You Need to Care about Blockchain and Cryptocurrencies? (Hint: Yes)

You surely have heard a lot of chatter about blockchain and cryptocurrencies over the last couple of years. You probably have more questions than answers on these topics. Indeed, the great John Oliver described cryptocurrencies during his must-watch segment on the topic last March as “[e]verything you don’t understand about money, combined with everything you don’t understand about computers.”¹

Some of your questions might include: How can money be created digitally, and how can digital holdings be protected from technological failure or hacking?² How and why is an infrastructure designed to support a virtual currency being hailed as a game changer by manufacturers, hospitals, financial services providers, and other industries?³ And are initial coin offerings (ICOs) really creating something of value, or will they go the way of Dutch tulip bulbs⁴ and Pets.com?⁵

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You might find it easier to simply ignore stories about cryptocurrencies and blockchain and pretend they don’t exist. This would be a mistake. Virtual currencies and the platforms on which they are built have the potential to transform industries and disrupt markets to an extent not seen since the internet revolution twenty years ago, or possibly even the industrial revolution of the late nineteenth and early twentieth centuries. Just like twenty years ago, there will be winners and losers, and it is impossible right now to separate the Pets.coms of the crypto-economy from the Googles, Amazons, and Facebooks. But just like AOL and Prodigy dial-up service evolved to each of us holding the full power of the internet in the palm of our hands, the crypto-economy will develop to improve payment systems, supply chains, the maintenance of records, and yes, even the delivery of legal services.

Now that we have established that we ignore the crypto-world at our peril, what, at a minimum, must you know about it? First and foremost, we need to delineate between three concepts that are sometimes used interchangeably, but which mean different things: (1) cryptocurrencies, such as Bitcoin and Ether; (2) the distributed-ledger technology on which cryptocurrency runs, such as the blockchain and Ethereum; and (3) crypto-tokens used in ICOs, which are used to raise capital for DLT (distributed-ledger technology) – and crypto-related ventures and usually are exchangeable for services, access, or some other form of cryptocurrency.⁶ Once we have a working knowledge of these concepts, we can start thinking about where these technologies are headed and how they will be regulated.

Cryptocurrencies

Our first mistake is thinking that Bitcoin and other cryptocurrencies originated the concept of a digital currency. Indeed, our global economy has been unmoored from the concept of a physical backing for money to some degree since the 1944 Bretton Woods Agreement,⁷ and completely since the “Nixon Shock” of 1971, which suspended the convertibility of the dollar into gold.⁸ The money that “sits” in our checking accounts, investment accounts, or wherever we choose to hold it, is really just a series of 0s and 1s. Ultimately, we are willing to trust that paper notes, and more recently electronic pay-

ments, are worth something because our governments’ laws, regulations, and central banks say they are. We are living in the era of fiat currency.⁹

Ten years ago, in the wake of the collapse of Lehman Brothers and when trust in governments and central banks was at its nadir, Satoshi Nakamoto¹⁰ sent a nine-page document, “The Bitcoin Whitepaper,”¹¹ to a cryptography listserv mostly made up of academics.¹² Satoshi’s cover email stated: “I’ve been working on a new electronic cash system that’s fully peer-to-peer, with no trusted third party.”¹³ In order for Bitcoin to have any chance of success, Satoshi had to create a decentralized currency that could be trusted to the same extent as a fiat currency.

Satoshi attempted to accomplish this goal in three ways: (1) the blockchain network on which Bitcoin exists, in which a “community of dedicated users”¹⁴ self-regulate the network to ensure that a single, chronological chain of blocks exists, thus solving the double-spending problem and ensuring that a single unit of Bitcoins can only be transferred once;¹⁵ (2) the incentive structure, in which users (“nodes” or “miners”) receive Bitcoins in return for verifying transactions and creating blocks on the network;¹⁶ and (3) the finite number of Bitcoins, which ensures that the cryptocurrency retains or even increases in value.¹⁷

In short, what makes cryptocurrencies special to initiated believers are the characteristics of: (1) disintermediation, with no reliance on a central entity like a bank or a broker to oversee the transaction; (2) no transaction costs, because with no banks or credit card companies taking a cut or sales tax charged, it increases efficiency and allows for micropayments; (3) immediacy, with transactions taking place instantaneously, or at least within hours, depending upon how quickly the miners are working; (4) access, including for those in less developed countries with corrupt governments or even the unbanked here in the United States; and (5) security, whereby the users maintain the system and the identities of the participants are secure.

Some of the dangers of cryptocurrencies include: (1) no protection from a government agency like the FDIC protecting coin holdings, so if one’s coins are held on an exchange that is hacked, they can be stolen; (2) exchange fees charged by many virtual currency exchanges, which are anathema to the spirit of cryptocurrencies; (3) use of resources by the mining process, which creates barriers to entry and has negative environmental externalities; and (4) volatility of the cryptocurrency market, which has impeded their use as a payment system.

Distributed-ledger Technology (DLT)

DLT is the generic term for a decentralized, immutable, automated network in which anonymous or pseudonymous users verify, record, and broadcast digital transactions contemporaneous with their occurrence.¹⁸ The DLT on which Bitcoin operates is the blockchain; the DLT for Ether is the Ethereum network. Both DLT networks support other crypto-coins and other uses, but they operate on the same basic architecture and assumption: a “shift from hierarchical to more community-based forms of governance” in which the users, rather than central banks or government, maintain the system and verify its trustworthiness.¹⁹ This, of course, was Satoshi’s original intent: a “system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party.”²⁰

Blockchain technology originated to support a cryptocurrency, Bitcoin, but it has myriad uses across different sectors of our economy that are only just starting to be realized. Of course, many DLTs are being built on the blockchain or Ethereum networks but are private, not public. The financial sector has been one of the most aggressive in pursuing DLT-related solutions in order to streamline payments and improve financial products and services, which is ironic given the original intent behind Satoshi’s whitepaper.²¹

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The manufacturing sector is also using DLTs to improve effectiveness in the delivery of and payment for goods.²² Traditional supply chains are labor-intensive, inefficient, and ripe for human error. However, a supply chain that incorporates blockchain technology to measure key data points during manufacture and shipment and record them on to an immutable network can elide many of these inefficiencies. Instead of relying on traditional concepts of acceptance and rejection under the Uniform Commercial Code, the buyer and seller can negotiate terms in advance that require certain conditions to be met along the supply chain. If all of the preset conditions, each of which has been pre-scripted by coders on to the DLT being shared by the parties, are met, then the contract between buyer and seller can automatically execute upon final delivery, with no human inspection of the goods necessary. Such so-called “smart contracts” have the potential to disrupt not only the industries in which they are employed, but also the traditional legal framework surrounding such industries.²³

Crypto-tokens Used in ICOs

The year 2017 saw cryptocurrencies increasingly used as a means of raising capital for blockchain- or crypto-related business ventures through the ICO. In ICOs, which are somewhat of a hybrid between an initial public offering and a crowdfunding campaign,²⁴ promoters create virtual coins or tokens and sell them to investors in return for either fiat currency or cryptocurrency. Investors are told that the tokens later can be exchanged to access the digital platform being built or to use the software being created, or perhaps for some appreciated amount of cryptocurrency.²⁵

ICOs typically start with a white paper describing the business plan and a presale through a Simple Agreement for Future Tokens (SAFT).²⁶ The SAFT (which derives its name from the Simple Agreement for Future Equity, or SAFE, used in crowdfunding offerings), is then often used in another round of token presales at a lesser discount to accredited investors.²⁷ This process has been designed to comply with the federal and state securities laws in the absence of clear guidance from regulators. Of course, this assumes that the entrepreneurs offering the tokens have an interest in complying with the securities laws; not all of them do.

There is no doubt that the ICO market went through a period of irrational exuberance in 2017 and early 2018. Over \$5.6 billion was raised in the ICO market in 2017; that figure was exceeded in the first quarter of 2018 alone.²⁸ The ICO market settled down somewhat beginning in the second quarter of 2018; one reason for the cooling of the crypto-token market might be the statements from regulators and initial enforcement actions that have primarily targeted bad actors in the field.

Regulatory Outlook

The answer is no longer whether, but when and how regulation of cryptocurrencies will occur. The Securities and Exchange Commission (SEC) has shied away from virtual currencies themselves, but has begun to actively regulate the ICO markets. In many circumstances, the tokens used in ICOs will be considered securities under the traditional *Howey* test,²⁹ meaning that exchanges trading in such tokens are in violation of federal securities laws if the tokens are not registered with the SEC or subject to an exemption.³⁰ Because the Commodities Futures Trading Commission (CFTC) treats cryptocurrencies as commodities,³¹ it has taken the position that it has the authority to regulate markets offering cryptocurrency derivatives products, just as it has the ability to oversee markets trading in futures contracts pertaining to more traditional commodities like oil, gas, and minerals.³² Other federal agencies, as well as some state regulatory authorities, have begun to play a regulatory role as well.

Many in the crypto-community stand firm against any regulation by government entities, recalling the original libertarian principles underlying the creation of Bitcoin and the blockchain. Others, however, who seek to bring cryptocurrencies, and particularly the ICO market, into the mainstream,

understand that regulation makes the market more predictable for both entrepreneurs and investors.

As the hazy regulatory picture begins to clear, it becomes more apparent that cryptocurrencies and blockchain technology are not going anywhere. These technologies may or may not change the world, as many believe. But we owe it to ourselves and our clients to familiarize ourselves with the basics.

- ¹ *Last Week Tonight with John Oliver* (Mar. 11, 2018), available at <https://www.youtube.com/watch?v=g6iDZspbRMg>.
- ² For background on the most infamous and costly hack of a cryptocurrency exchange, see Robert McMillan, *The Inside Story of Mt. Gox, Bitcoin's \$460 Million Disaster*, WIRED (Mar. 3, 2014), available at <https://www.wired.com/2014/03/bitcoin-exchange/>.
- ³ See, e.g., Blythe Masters, *The Revolution Beyond Bitcoin*, THE ECONOMIST, available at <http://www.theworldin.com/article/10635/revolution-beyond-bitcoin?srsc=scr/tw/te/bl/ed/theworldin2016>.
- ⁴ Arjun Kharpal, *CME's Plan for Bitcoin Futures Mirrors Moment Just Before the 1637 Tulip Bubble Crash, UBS Says*, CNBC (Nov. 2, 2017), available at <https://www.cnbc.com/2017/11/02/bitcoin-futures-mirror-1637-tulip-bubble-crash-ubs.html>. The rise and fall of the market for tulip bulbs in the Netherlands in the 1630s is widely considered the first speculative bubble. See generally Anne Goldgar, *TULIPMANIA: MONEY, HONOR AND KNOWLEDGE IN THE DUTCH GOLDEN AGE* (2007).
- ⁵ *Is Bitcoin the New Pets.com? The Crypto Crash of 2018 is Now Worse than the Dotcom Bust*, BLOOMBERG (Sept. 12, 2018), available at <http://fortune.com/2018/09/12/bitcoin-cryptocurrency-crash-dotcom-bubble/>. Pets.com, which infamously purchased a 30-second ad during the 2000 Super Bowl, is often held out as the poster child for the many failed internet startups of the late 1990s and early 2000s.
- ⁶ See generally Kevin Werbach, *Blockchain Isn't a Revolution*, MEDIUM (June 18, 2018), available at <https://medium.com/s/story/blockchain-isnt-a-revolution-it-s-two-big-innovations-and-one-promising-idea-988fca6b0fca>.
- ⁷ This agreement established a system of fixed exchange rates in which all currencies were tied to the U.S. dollar, which, at the time, was backed by gold. For a recent detailed treatment of the Bretton Woods conference, see generally Benn Steil, *THE BATTLE OF BRETON WOODS: JOHN MAYNARD KEYNES, HARRY DEXTER WHITE, AND THE MAKING OF A NEW WORLD ORDER* (2013).
- ⁸ See Roger Lowenstein, *The Nixon Shock*, BLOOMBERG BUSINESS WEEK (Aug. 4, 2011), available at <https://www.bloomberg.com/news/articles/2011-08-04/the-nixon-shock> (revisiting the events surrounding President Nixon's decision on its fortieth anniversary). “Fiat” is a Latin term meaning “it shall be.” See Fiat Money, Investopedia, <https://www.investopedia.com/video/play/fiat-money/> (last accessed Oct. 22, 2018).
- ⁹ The true identity of Satoshi, including whether he/she is a single person or multiple people, has never been determined.
- ¹⁰ Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, (2008), available at <https://bitcoin.org/bitcoin.pdf>.
- ¹¹ Nathaniel Popper, *BITCOIN AND THE INSIDE STORY OF THE MISFITS AND MILLIONAIRES TRYING TO REINVENT MONEY* 20 (2015).
- ¹² Paul Vigna & Michael J. Casey, *THE AGE OF CRYPTOCURRENCIES: HOW BITCOIN & DIGITAL MONEY ARE CHALLENGING THE GLOBAL ECONOMIC ORDER* 41 (2015).
- ¹³ *Id.* at 77.
- ¹⁴ Andreas M. Antonopoulos, *Bitcoin Security Model: Trust by Computation*, (Feb. 20, 2014), available at <http://radar.oreilly.com/2014/02/bitcoin-security-model-trust-by-computation.html> (arguing that “Bitcoin fundamentally inverts the trust mechanism of a distributed system” because it “implements a trust model of trust by computation”); Popper, *supra* note 12, at 100.
- ¹⁵ To prevent the devaluation of the currency, Satoshi set the time schedule for the release of Bitcoins in the code. Each block was worth 50 Bitcoins in the first four years. That was halved to 25 Bitcoins in 2012, halved again in 2016, and then will be halved every four years after that. That means the supply of Bitcoins will expire in 2041 and be capped at 21 million Bitcoins. As of November 11, 2018, approximately 17.37 million Bitcoins have been mined, or 82.7% of the total that will ever be available. See Bitcoin Block Reward Halving Countdown, <http://www.bitcoinblockhalf.com/> (last accessed Nov. 11, 2018).
- ¹⁶ Malcolm Campbell-Verduyn & Marcel Goguen, *A Digital Revolution Back to the Future: Blockchain Technology and Financial Governance*, 37 NO. 9 BANKING & FIN. SERVICES POL'Y REP. 1, 1 (2018).
- ¹⁷ *Id.*
- ¹⁸ Satoshi, *supra* note 11, at 1; see also Adam Krellenstein, *Distributed Ledgers, Not Tokens, Are the True Heirs to Satoshi's Vision*, COINDESK (Oct. 23, 2018), available at <https://www.coindesk.com/distributed-ledgers-not-tokens-are-the-true-heirs-to-satoshis-vision/>.
- ¹⁹ Masters, *supra* note 3; see also Paul Vigna, *The Newest Bank Blockchain: Will This Be the Breakthrough?*, WALL ST. J. (Feb. 28, 2017), available at <https://www.wsj.com/articles/the-newest-bank-blockchain-will-this-be-the-breakthrough-1488285211>.

(Continued on page 18)

Photo Ops



New Admittee Reception

On November 5th, the Knoxville Barristers & New Lawyers Section hosted a reception for bar admittees who were sworn in by the Supreme Court earlier that day. The event was sponsored by Pugh CPA's.

DO YOU NEED TO CARE ABOUT BLOCKCHAIN AND CRYPTO-CURRENCIES? (HINT: YES)

(Continued from page 17)

- ²² Eddie van der Walt, *Blockchain Tech Coming to Commodity Markets*, *Blythe Masters Says*, BLOOMBERG (Oct. 8, 2018), available at <https://www.bloomberg.com/news/articles/2018-10-09/blockchain-tech-coming-to-commodity-markets-masters-tells-lme> (stating that there are "tens if not hundreds" of projects are underway to improve "notoriously complex and inefficient" supply chains).
- ²³ See, e.g., Carla L. Reyes, *Conceptualizing Cryptolaw*, 96 NEB. L. REV. 384, 397-99 (2017).
- ²⁴ Paul Vigna, et al, *What Crypto Downturn? ICO Fundraising Surges in 2018*, WALL ST. J. (July 1, 2018), available at <https://www.wsj.com/articles/what-crypto-downturn-ico-fundraising-surges-in-2018-1530466008>.
- ²⁵ Gideon Litchfield, *The Problem with ICOs is That They're Called ICOs*, MIT TECHNOLOGY REVIEW (April 23, 2018), available at <https://www.technologyreview.com/s/610764/the-problem-with-icos-is-that-theyre-called-icos/>.
- ²⁶ See The SAFT Project (<https://saftproject.com/>), a website that bills itself as "a forum for the discussion of a compliant framework for token sales" with a goal "[t]o develop an industry standard that protects the interests of network creators, investors, and users."
- ²⁷ Jenny E. Cieplak & Conner Griffith, *Cryptocurrency and Initial Coin Offerings: Despite a Plethora of Regulators, Gaps Remain*, 37 NO. 4 BANKING & FIN. SERVICES POL'Y REP. 1 (2018).
- ²⁸ David Floyd, *\$6.3 Billion: 2018 ICO Funding Has Passed 2017's Total*, COINDESK (Apr. 19, 2018), available at <https://www.coindesk.com/6-3-billion-2018-ico-funding-already-outpaced-2017/>.
- ²⁹ U.S. Securities and Exchange Commission, *Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO*, Release No. 81207, 2017 WL 7184670 (July 25, 2017) (determining that the tokens used were securities under the four-part test of *SEC v. W.J. Howey Co.*, 328 U.S. 293, 299-300 (1946)); *United States v. Zaslavskiy*, 2018 WL 4346339 (E.D.N.Y. Sept. 11, 2018).
- ³⁰ U.S. Securities and Exchange Commission, Divisions of Enforcement and Trading and Markets, *Statement on Potentially Unlawful Online Platforms for Trading Digital Assets*, Release No. 2018-28, (Mar. 7, 2018), <https://www.sec.gov/news/public-statement/enforcement-tm-statement-potentially-unlawful-online-platforms-trading>.
- ³¹ *CFTC v. McDonnell*, 287 F. Supp. 3d 213 (E.D.N.Y. 2018); *In re Coinflip, Inc.*, CFTC Docket No. 15-29, 2015 WL 5535736, (Sept. 17, 2015).
- ³² *In re BFXNA Inc. d/b/a Bitfinex, Respondent*, CFTC Docket No. 16-19 (June 2, 2016).

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