

BLOCKCHAIN-BASED SECURITIES OFFERINGS

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ABSTRACT

Blockchain technology has the potential to supplement the existing infrastructure for securities offerings. After examining the shortcomings of historical attempts, the article analyses the redeeming features of blockchain-based securities offerings including: lower overall cost structure, substantially reduced settlement cycle, counter-party risk and systemic risk reduction, and enhanced transparency, among others. The authors examine the tradeoffs between opportunities and risks of blockchain-based securities offerings.

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INTRODUCTION

One of blockchain technology's greatest potential applications lies in reforming the securities markets. Blockchain technology¹ allows securities offerings and stock transfers with all the characteristics of a physical stock transfer, yet the blockchain-enabled stock transfer is completely digitalized and virtual. The application of blockchain technology in securities offerings creates unprecedented transparency, legal certainty, and trust between the contract parties. The technology substantially reduces the settlement cycle. In the financial world, a global consensus record of information and transactions creates the much-needed transparency and, at the same time, opens global access to finance, including in areas of the world where the banking system — in contrast to a mobile telephone network — is not readily available.²

Leading technologists around the world have hailed blockchain technology as one of the most important technological innovations since the Internet.³

¹ A blockchain is a shared digital ledger or database that maintains a continuously growing list of transactions among participating parties regarding digital assets – together described as “blocks.” The linear and chronological order of transactions in a chain will be extended with another transaction link that is added to the block once such additional transactions are validated, verified and completed. The chain of transactions is distributed to a limitless number of participants, so called nodes, around the world in a public or private peer-to-peer network. The technology provides significant opportunities and applications in peer-to-peer interactions and transactions in a decentralized network where all participants are equal and verification and validation of each transaction is provided by all parties in the network through the blockchain technology.

² See, e.g., Michele Chandler, *Mobile Banking Takes Off in Nigeria*, STAN. GRAD. SCH. BUS. (Jan. 24, 2012), <https://www.gsb.stanford.edu/insights/mobile-banking-takes-nigeria>; Cade Metz, *Why Bitcoin Will Thrive First in the Developing World*, WIRED (Feb. 2, 2016, 8:00 AM), <https://www.wired.com/2016/02/why-bitcoin-will-thrive-first-in-the-developing-world/> (noting that in Nigeria, for example, banking transactions are readily executed over mobile phones because no infrastructure exists for consumer banking). Donations and aid to third world countries can finally be provided without the interference of suboptimal bureaucratic organizations that do not allocate the aid as intended by the donor.

³ Cognizant et al., *The Future of Financial Services: A Global Study of 500 Senior Banking and Insurance Executives by Cognizant, Marketforce and Pegasystems*, PEGASYSTEMS INC. (Jan. 2016) 6, 28-30, <https://www.pega.com/sites/pega.com/files/docs/2016/Jan/the-future-of-retail-financial-services-study.pdf>; John Naughton, *Is Blockchain the Most Important IT Invention of Our Age?*, THE GUARDIAN (Jan. 24, 2016, 4:00 PM), <https://www.theguardian.com/commentisfree/2016/jan/24/blockchain-bitcoin-technology-most-important-tech-invention-of-our-age-sir-mark-walport>; William Mougayar, *THE BUSINESS OF BLOCKCHAIN: PROMISE, PRACTICE, AND APPLICATION OF THE NEXT INTERNET TECHNOLOGY* (2016), excerpt reprinted in *The Blockchain Is the New Google*, TECHCRUNCH (May 11, 2016, 5:30 PM), <https://techcrunch.com/2016/05/11/the-blockchain-is-the-new-google/>; Michael Crosby et al., *BlockChain Technology: Beyond Bitcoin*, SUTARDIA CENTER FOR ENTREPRENEURSHIP & TECHNOLOGY TECHNICAL REPORT, 3 (2015), <http://scet.berkeley.edu/wp-content/uploads/BlockchainPaper.pdf>; Kyle Torpey, *Why the Bitcoin Blockchain Is the Biggest Thing Since the Internet*, NASDAQ: BITCOIN MAGAZINE (Apr. 19, 2016), <http://www.nasdaq.com/article/why-the-bitcoin-blockchain-is-the-biggest-thing-since-the-internet-cm608228>; Carrie Kirby, *Andreessen at Coin Summit: Bitcoin Today Is the Internet in 1994*, COINDESK (Mar. 25, 2014),

Blockchain technology is enabled by a distributed ledger that records transactions efficiently and in a verifiable and permanent way.⁴ Much of the media attention has centered on its use to support the issuance and trading of Bitcoin and other cryptocurrencies.⁵ This media attention is used to inform the average person about a complex topic, but this information skims the surface of the possibilities blockchain has to offer.

Existing forms of ledger structures applicable to securities offerings are subject to significant shortcomings: while for individual firms batch-processing is the norm, this model creates numerous dependencies, multi-day settlement times, unique operational risks, and duplicative costs. Legacy systems use multiple firms to trade the same securities utilize multiple ledgers, which increases operational risks and costs.

In December of 2015, Overstock.com (“OSTK”), a publicly traded online retailer based in Utah, offered its securities in a \$30 million private offering that utilized blockchain technology.⁶ The OSTK blockchain-enabled securities offering is a key precedent for future blockchain-enabled securities offerings. It also highlights the possibility of and demand for securities offerings that are outside of the traditional securities offering schemes available under the federal securities laws.

The OSTK offering provides important guidance for future use of blockchain technology in securities offering and highlights the need for upgrading the regulatory infrastructure to catch up with innovation. The OSTK offering suggests that several measures could help optimize the regulatory infrastructure for future securities offerings involving blockchain technology and crypto investments. These measures mainly pertain to agency cost involved in buying or selling shares of a company.

<http://www.coindesk.com/marc-andreessen-balaji-srinivasan-discuss-bitcoin/>; Dinis Guarda, *Over 50 Bitcoin and Blockchain Thoughts and Quotes You Need to Read*, TRADERSDNA (July 4, 2016), <http://www.tradersdna.com/bitcoin-and-blockchain/over-50-bitcoin-and-blockchain-thoughts-and-quotes-you-need-to-read/>; Rich Daly, *Blockchain: Wall Street’s Most Game-Changing Technology Advance Since the Internet*, FORBES (July 11, 2016), <https://www.forbes.com/sites/richdaly/2016/07/11/blockchain-wall-streets-most-game-changing-technology-advance-since-the-internet/#33987a154d87>.

⁴ Marco Iansiti & Karim R. Lakhani, *The Truth About Blockchain*, HARV. BUS. REV. (Jan.–Feb. 2017), <https://hbr.org/2017/01/the-truth-about-blockchain>.

⁵ Jen Wiczner, *Uber Co-Founder and E*Trade Alum Launch No-Fee Cryptocurrency Trading*, FORTUNE: THE LEDGER (July 25, 2018), <http://fortune.com/2018/07/25/cryptocurrency-bitcoin-free-trading-voyager/>; Nika Goddard, *How Does A Cryptocurrency Exchange Work*, BESTTECHIE (Aug. 17, 2018), <https://www.besttechie.com/how-does-a-cryptocurrency-exchange-work/>.

⁶ Overstock.com, Correspondence Regarding Amendment No. 1 to Registration Statement (Form S-3/A) (July 31, 2015), <https://www.sec.gov/Archives/edgar/data/1130713/000110465915055326/filename1.htm>. In the Overstock offering, there was an allowance for a certain number of digital shares to be issued and a certain amount of traditional shares to be issued. Not all possible digital shares were issued and therefore, they remain on the shelf to be taken down at a later date.

This article examines the existing blockchain-based securities offerings, reviews associated opportunities, and provides general guidance on possible optimization metrics that may be necessitated by the shortcomings of the existing regulatory infrastructure for securities offerings and the increasing market demand for securities/coin offerings that take place outside of the existing regulatory infrastructure.

I. OVERSTOCK BLOCKCHAIN SECURITIES OFFERING

The OSTK offering challenges traditional concepts of issuing and exchanging securities in the United States. Historically, public corporations have issued paper stock that would later be traded on the secondary market. Brokers would record sales and trades by hand every time they made a trade. This manual process evolved into virtual stock certificates and later electronic trading over the Internet. OSTK's offering is the first to trade partially over the blockchain, inaugurating a new era of securities offerings.

OSTK issued the first Securities and Exchange Commission ("SEC") registered "digital securities" that utilize blockchain technology. The OSTK offering illustrates the potential disruptiveness of blockchain technology to the (i) longstanding processes by which securities are offered and sold to the public in the U.S., and (ii) traditional roles played by those involved in the securities offering process e.g., underwriters, transfer agents, custodians, etc., including through disintermediation. Because the OSTK offering was conducted by a public company as part of a shelf registration,⁷ it creates a model illustrating the potential benefits of blockchain technology in securities offerings, and it highlights the numerous material regulatory gaps that exist in the U.S. Only by creating more legal certainty will blockchain security trading reach maturity.

In December of 2015, OSTK, a publicly traded online retailer based in Utah, completed an offering of securities on the Bitcoin blockchain [("digital securities")].⁸ Ultimately, the offering netted \$30 million, which, on the surface, would not traditionally justify the cost OSTK poured into the first-of-its-kind offering. However, OSTK had ulterior motives, chief of which was Medici

⁷ When a corporation seeks to utilize a shelf offering, they are looking to create the public securities, but offer them at a later date. These securities offered to the public can be new securities ("primary offering"), resales of outstanding ("secondary offering") or a combination of both with regards to a shelf offering. The securities being held for a later date are considered to be sitting on the shelf with the possibility of being taken down (offered) at any moment. This streamlines the process by allowing for multiple offerings under a single registration. SEC RULE 415 SEC Manual of Publicly Available Telephone Interpretations, Sec. Act Rule 415 (July 1997), https://www.sec.gov/interp/telephone/cftelinterp_rule415.pdf.

⁸ Overstock.com, *Overstock.com Launches Offering of World's First Cryptosecurity*, GLOBENEWSWIRE, (June 5, 2015), <https://www.globenewswire.com/news-release/2015/06/05/742576/10137582/en/Overstock-com-Launches-Offering-of-World-s-First-Cryptosecurity.html>.

Ventures (“Medici”), OSTK’s wholly-owned subsidiary and proprietor of technology centred around the blockchain. Medici’s t0.com (“t0”) software, named for the instant settlement and clearing, compared with the industry standard of three days (T+3), provides the technology needed to complete an offering of securities on the blockchain. By completing its own public shelf offering, OSTK had a use case for the t0 technology, attested to the quality by showing they were willing to use their own products, and publicly documented the process.⁹

The legal mechanisms in the OSTK offering are highly innovative. OSTK blockchain shares trade on a registered alternative trading system (“ATS”), and only one broker-dealer has access to trade the shares. Each purchaser of OSTK shares is required to open an online brokerage account with a broker-dealer subscriber to t0 that was licensed to trade securities.¹⁰ Keystone Capital Corporation is the sole broker-dealer authorized to provide investors with access to the Series A Preferred shares through the PRO Securities ATS (“PRO”).¹¹ At the time of the first OSTK trade, the broker would be responsible for all “know your customer” rules and regulations.¹² The core difference between the OSTK offering and a traditional securities offering is that the purchaser of OSTK must hold the record directly and, as beneficial owner of the securities, can not delegate the authority to hold the securities to the broker, e.g. the securities were held directly and not in the “street name”^{13,14}

t0 is the software being used to run PRO. PRO currently operates under a waiver from the SEC, which permits the trading of blockchain securities. At the start of the issuance, only accredited investors¹⁵ were allowed to trade over the platform. Many in the brokerage industry hope these digital securities will eventually be offered over a public exchange as opposed to strictly on an ATS because of the ATS exclusivity.

ATSs were designed specifically for institutional investors to liquidate their interests. In 1998, the SEC adopted Regulation ATS in an effort to drive market

⁹ About fifteen years ago, OSTK shares were allegedly subject to an illegal “out-of-the-box short” whereby an investment bank lent out shares that didn’t exist so that its clients may short OSTK. The result is unfair manipulation driving the price of the stock down. This tactic is only possible because it takes three days to settle a trade. By eliminating the window between trade and settlement, the blockchain eliminates out-of-the-box shorting.

¹⁰ Overstock.com, *supra* note 6.

¹¹ Overstock.com, Prospectus (Form 424B2) 5 (Aug. 9, 2018).

¹² Overstock.com, *supra* note 6.

¹³ Street name traditionally refers to when a broker is shown as the owner of the security for the posting purposes as opposed to the beneficial owner.

¹⁴ Overstock.com, Annual Report (Form 10-K) (Mar. 15, 2018).

¹⁵ 17 C.F.R. § 230.501(a)(6) (2019). (An accredited investor is an individual that has income in excess of 200,000 in each of the last two years or \$300,000 in joint income with one’s spouse with the anticipation of reaching the same income in the future. An individual will also be considered an accredited investor if their net worth exceeds \$1 million. *Id.* § 230.501(a)(5)).

innovation as well as protect investors. By registering as an ATS, the trading system would operate under an exemption to Section 5 of the Securities and Exchange Act of 1934.¹⁶ Traditionally, large investment banks have created ATSs (Goldman Sachs—SIGMA X, Credit Suisse—CrossFinder, Deutsche Bank—SuperX, etc.) for the purpose of executing large block orders and thus creating liquidity in the market.¹⁷

Registering as an ATS means broker-dealer laws and regulations apply, not exchange laws and regulations.¹⁸ The general process involves registering as a broker-dealer and filing a Form ATS with the SEC.¹⁹ By filing a Form ATS with the SEC, the ATS is giving general notice of its operations as required under the law.²⁰ ATS laws and regulations are set out and enforced by the SEC and the Financial Industry Regulatory Authority.²¹ Compliance requirements include fees,²² consumer protection,²³ examination,²⁴ and books and records.²⁵ ATS compliance costs are typically cost prohibitive for startups.

Traditionally, the only trades required to be posted are other trades on exchanges.²⁶ ATS's are regulated under 15 U.S.C. § 78e, exempting them from NMS disclosure rules.²⁷ By creating an ATS that trades securities over blockchain, there is no latency in price discovery, which has traditionally been a criticism of the ATS system. This is because every trade is posted to a public ledger to which everyone has access. This allows others in the community to see the quantity of the amounts being traded without necessarily seeing what was given as consideration. An ATS system was used to execute the first registered security offering.

OSTK began the process of the first public blockchain equity offering in March of 2014 with the announcement of creating its subsidiary Medici.²⁸ In June

¹⁶ 15 U.S.C. § 78(e) (2019).

¹⁷ If an institution would like to divest itself of an investment that they hold a large ownership in (say 20% of a public corporation), they cannot go to the normal market and flood the market with sell orders. If they did this, the market for that stock would substantially drop because supply is increasing. Therefore, institutions will trade in dark pools to avoid identity disclosure and posting of the transaction volume and price.

¹⁸ 17 C.F.R. § 242.301 (2019).

¹⁹ *Id.* § 242.301(b)(1).

²⁰ *Id.* § 242.301(b)(2)(i).

²¹ *Id.* § 242.301(b)(7).

²² *Id.* § 242.301(b)(4).

²³ *Id.* § 240.15c3-3.

²⁴ ATS's are subject to examination by FINRA to assure complete compliance measures are being met.

²⁵ The books and records requirements require the maintaining and preservation of books and records by the ATS. 17 C.F.R. § 240.17a-3.

²⁶ *Id.* § 242.601(a).

²⁷ 15 U.S.C. § 78e (2019).

²⁸ Press Release, Overstock.com, *Blockchain Pioneer Medici Ventures Invests in Factom, Inc.*, OVERSTOCK.COM, (Feb. 7, 2017), <http://investors.overstock.com/phoenix.zhtml?c=131091&p=irol-newsArticle&ID=2243816> [<https://perma.cc/42CU-9J2J>].

and July of 2015, OSTK completed the private offering of two crypto-bonds pursuant to rule 506(c) of Regulation D. Through a Regulation D offering, OSTK issued \$25 million in bonds over t0, which marked the first time a security was traded over the blockchain. OSTK executives view this as a stepping-stone to being able to trade securities over the blockchain.

After a successful digital bond trade, OSTK shifted its sights to trading stock of its company over the blockchain. In anticipation of its first stock security trade, OSTK filed a shelf registration statement on its Form S-3 in April of 2015.²⁹ In the following months, OSTK worked with the SEC to assure regulatory compliance with all securities offering laws. In December of 2015 the S-3 was declared effective for the crypto-security, a class of Series A stock identical to the common stock, traded on the public exchange except for a preferential right to an annual dividend of 1% of the subscription price. OSTK was allowed to issue up to \$500 million in securities, but limited the portion allowed to be traded as digital securities.³⁰

In March 2016, the company announced its intention to offer the first public offering of registered securities using blockchain technology. In December 2016, OSTK completed a seasoned equity offering³¹ of \$10.9 million, which included \$1.9 million of digital securities. In the end, fifty-five investors bought 126,565 Series A blockchain shares at \$15.67 per share, which were traded over t0.³² By allowing for these securities to be traded over the blockchain, the SEC endorsed the possibility that trades could be mathematically validated through a decentralized, publicly available system. This also provides a model for other trading systems to enable trading of digital securities.

The securities offered on PRO differ from the other secondary market blockchain-based providers in that the PRO platform is offered to the public and the LINQ is private. In October of 2015, NASDAQ launched its LINQ project as part of Nasdaq private market group, which is seen as a management tool for private offerings. In December 2015, NASDAQ LINQ completed the first private company security transaction, which was seen as a step forward for the industry. Because these are private offerings, the public will never have the opportunity to interact with the system.

²⁹ See Overstock.com, Inc., Registration Statement (Form S-3) (April 24, 2015).

³⁰ *Id.*

³¹ A seasoned equity offering (“SEO”) refers to a subsequent issuance of shares at par by a publicly traded company. During an SEO, the company is looking to raise money from investors by selling additional shares. By issuing additional shares, the company is able to pay down debt, fund operations, recapitalize the business, increase working capital or generate cash to acquire another corporation.

³² Michael del Castillo, *Overstock Just Closed its First Day of Trading*, COINDESK, (Dec. 19, 2016, 4:57 PM), <https://www.coindesk.com/overstock-first-day-blockchain-stock-trading>.

Although the OSTK offering was the first public offering, other companies had created other security instruments to trade prior to the OSTK offering. One of the earliest adopters in the digital securities space was Symbiont. In August 2015, Symbiont was the first company to create a use case involving debt instruments, syndicated instruments, and private equity.³³

In 2015, the OSTK blockchain offering³⁴ was followed by the launch of LINQ, a blockchain-based market for the issuance and trading of privately placed securities.³⁵ LINQ was seen as a data management tool that could be used to verify ownership changes. In contrast to LINQ-based offerings, the OSTK offering was intended to support trading of securities which were part of a registered offering, and potentially in a broader market not limited to “accredited investors” or “qualified purchasers” of privately placed securities.³⁶ To effect its offering, OSTK implemented a marginally more advanced process requiring that investors purchase the securities through a broker-dealer and trade the securities through an ATS; however, the structure in other important respects was otherwise materially similar to the structure utilized to purchase and trade privately placed securities through LINQ.

Although the OSTK offering provides many valuable lessons on what it takes to modernize the existing market and trading infrastructure, it really is only an early vision of what it will take to develop a fully modernized trading system. For instance, all existing broker-dealer customer agreements include provisions that allow the broker-dealer to share the identity of the customer. Ideally, the privacy of the individual would be contained.

II. BLOCKCHAIN TECHNOLOGY IN SECURITIES OFFERINGS

Blockchain technology offers a number of attractive features to potential issuers of securities. Benefits to issuers, and to those who process trades in the offering after-market, include lower issuing, operating, and administrative costs. The OSTK offering provides a prominent example of the tradeoffs between the benefits and risks associated with blockchain-based securities offerings.

Several large securities trading and brokerage institutions have already started to experiment with trading over the blockchain. These institutions include BTL energy, Barclays, and a joint project between IBM and Northern Trust.³⁷

³³ SquareTwo Financial Corp., Annual Report (Form 10-K) (April 25, 2016).

³⁴ Overstock.com, *supra* note 8.

³⁵ Press Release, Nasdaq, *Nasdaq Linq Enables First-Ever Private Securities Issuance Documented with Blockchain Technology*, NASDAQ, (Dec. 20, 2015), <http://ir.nasdaq.com/news-releases/news-release-details/nasdaq-linq-enables-first-ever-private-securities-issuance>.

³⁶ Overstock.com, Annual Report, *supra* note 14.

³⁷ *E.g.*, Enerchain and BTL energy trading platform, Barclays derivative trading, Northern Trust / IBM joint fund administration project, 28-bank SWIFT real-time account reconciliation project, etc.

Several other industry groups have been established to date to develop and launch blockchain-based initiatives that are potentially relevant to the securities industry (e.g., R3, EEA, etc.). Each entity has taken a different approach to the issuance of securities over the blockchain; however, none of these trades have been subject to SEC or CFTC regulation. The existing projects also are not subject to an environment in which the prices must be posted real-time to a public (retail) market.

A. Cost Reduction

Blockchain technology is strategically positioned to disrupt the traditional securities issuance method because of its cost-saving properties.³⁸ The steadily rising cost of securities issuances³⁹ results in corporations' efforts to seek technology-driven opportunities for cost savings.

Blockchain technology allows corporations to eliminate costs associated with human errors in record keeping. Blockchain eliminates the possibility of transactions being misreported due to human error that can cause irreparable harm. By eliminating any accounting error or need for an accuracy review, the agency cost of transactions drops significantly, benefitting the corporation's overall cost of issuing securities.

³⁸ Corporations can use two types of blockchains. The first is a public blockchain. A public blockchain allows anyone to have access to the network. By allowing anyone access, transactions are readily reviewable by anyone in the network. This includes government or private party who would like access to company financials. In the event a corporation does not want these records to be publicly available, they can create a private blockchain. A private blockchain requires a system of governance to access. Therefore, access to transaction records can be screened by the corporation. Embracing private blockchains allows enterprises to experiment with the technology in a transitional period. Given the uncertainties and cost associated with technology upgrades and change, most corporations are apprehensive about the adoption of blockchain technology as a whole. By setting companies up on private blockchains, companies can experiment with the technology which allows them to be better positioned when mass adoption occurs while keeping cost relatively low.

³⁹ Issuing publicly traded securities is a milestone for any corporation. Many considerations such as timing, number of shares offered, and pricing are carefully considered in making the determination. If successful, massive amounts of cash can be raised to further operations and drive corporate growth. In other cases, if an IPO is unsuccessful, share price will be in freefall immediately after. The Benefits that come from being a publicly traded corporation are numerous and extensive. Some of the major benefits include easy access to capital, exit strategy for private equity firms and improvement in debt financing terms. All of these benefits go towards increasing value for pre-IPO shareholders. There are however great agency costs associated with going public. In traditional corporate practice, the board of directors determine whether and when to hold an IPO. This will be determined by a formal resolution of the board and will require a high number of approval votes determined in the articles of incorporation. After approval, teams of bankers, accountants and lawyers are retained to facilitate the transition. These agents start the tedious process of creating a prospectus, getting SEC approval, finalizing financials, due diligence investigation and determining offering size and price. All of this work is reviewed at multiple levels, which increases the agency transaction cost exponentially.

Blockchain technology may help remedy certain core shortcomings of legacy systems. For individual firms in legacy systems batch-processing is the norm, but this model creates numerous dependencies, multi-day settlement times, unique operational risks, and duplicative costs, among other shortcomings.

Trading the same securities across multiple firms requires multiple ledgers in legacy systems, which increases operational risks and costs. Blockchain technology enables a single, fully transparent ledger that provides cost reduction and counter-party risk reduction. In particular, credit risk is reduced because cash (if selling) or the securities (if purchasing) are in the account for verification shortly after the trade (which could be seconds, if not fractions of a second), because the settlement cycle is substantially reduced. Moreover, it is possible that reconciliation errors associated with trading are greatly reduced.

Finally, the OSTK offering highlights several features that enable agency cost removal in securities offerings at an unprecedented level. In the first OSTK transaction, the individuals did not hold the stock in the street name. Having the stock not held in street name cuts out unnecessary agency cost, which will be passed on to the beneficial owner. Traditionally, when someone holds stock in street name, the physical paper stock is held at the Depository Trust Corporation (DTC). The broker acts as the individual owner's agent by keeping record of the beneficial owner's ownership. In the OSTK case the individual is the direct owner of the stock, and no third party ever holds the stock. By establishing a system that makes the DTC obsolete, agency costs could potentially be cut, and clarity surrounding ownership would increase.

Another agent that could be eliminated by the blockchain-based trading system is the transfer agent.⁴⁰ In blockchain-based trading models, transfer agents are not needed because every task they perform can be automated through coding. For example, one core function transfer agents perform is maintaining the holding record. This is not necessary because all trades are automatically recorded on the blockchain by design.

B. Proof of Ownership

In the securities trading context, blockchain could provide indisputable proof of current ownership of "digital securities," any transaction in those shares, and the resulting changes in ownership of the shares, in a form that is available to multiple securities market participants (e.g., investors, brokers, regulators).

One of the key features of using blockchain technology is the elimination of the double spending problem. Every time a digital asset is traded, each buyer will be assured that he or she is being given the asset and that no other individual has a

⁴⁰ U.S. SEC, TRANSFER AGENTS (April 28, 2016), <https://www.sec.gov/divisions/marketreg/mrtransfer.shtml>. ("Transfer agents record changes of ownership, maintain the issuer's security holder records, cancel and issue certificates, and distribute dividends.")

claim to that same asset. Theoretically, the double spending problem has not been completely eradicated. There is the possibility that a group or syndicate could gain 51% control over the network and would therefore be able to reverse transactions and create a private blockchain, which the market could only limitedly discern as not real. To date, no one has ever had control over 51% of a decentralized network.

C. Reduced Settlement Cycle

The regulators may benefit through direct access to real-time trading information and real-time information without delay. Today the settlement cycle for most transactions is based on a T+2 regime in which there is a two-day delay before any settlement needs to be recoded. In the vision of the technology's potential, settlement could be instantly posted to the ledger and perfectly recorded each time. By shifting to trading securities on a distributive ledger, a T+0 settlement schedule may be possible at some point. Settlement may be accomplished in seconds, not days.

Settlement within T+0 has many positive implications. Most importantly, any settlement that takes less than 10 seconds, if ever achieved in any setting, removes counterparty risk and with it systemic risk entirely. Arguably the entire regulatory infrastructure that has been tailored to address counterparty and systemic risk would need to be reformed if settlement finality could be increased to the seconds range with blockchain technology. Settlement within 10 seconds would remove the need for most systemic risk regulation and counterparty risk-based regulation.

Another benefit of blockchain is the ability to drastically reduce the cost of the settlement infrastructure. Traditionally, settlement disputes involved going to court and going through the motion practice. Yet, more than 90% of cases are settled by the parties individually or by way of another alternative dispute resolution mechanism. In every step of the settlement cycle, there are agency fees including filing fees, mediator, arbitrator, and attorney fees. Traditionally, mediators and arbitrators are treated by the courts as cost-saving measures, but their fees still further inflate the agency transactional cost. Blockchain presents a unique opportunity to reduce or eliminate these transactional costs entirely. These transaction costs are eliminated by use of immutable ledger technology or greatly reduced by the availability of oracles.

Transaction costs can be eliminated by blockchain because each token or tokenized piece of property has a unique value that requires proof of ownership through: 1. counter-party and other forms of risk reduction (relative to trading of issued securities), 2. increased investor (and potentially regulator) transparency, and 3. transnational ("boundary-less") trading.

D. Impact on Traditional Market-Participants

A public offering of securities involves numerous market-participants, beyond simple investors who purchase the securities being issued. These “traditional” market-participants include, among others, underwriters, syndicate firms, transfer agents, custodians, and DTC/Cede & Co.

The potential cost-reductions for issuers and other effects of blockchain-based offerings could affect these actors in different ways: they may be forced to reduce their respective roles, cease providing the services they have traditionally offered, or construct their own blockchain platforms (i.e., innovate) to support blockchain-based offerings.

Some examples of potentially affected roles include: underwriters;⁴¹ syndicates; exchanges; market-making; transfer agents;⁴² custodians; and DTC/Cede & Co.⁴³ Moreover, several examples illustrate potentially affected functions “After the Trade”: 1. trading / execution; 2. trade settlement; 3. trade confirmations; 4. corporate actions (e.g., dividends); 5. securities custody; and 6. reporting (to the SEC / public).

The OSTK offering highlights blockchain technology’s impact on the role played by DTC/Cede & Co. Traditionally, when someone holds stock in street name, the physical paper stock is held at the Depository Trust Corporation (DTC). The broker acts as the individual owner’s agent by keeping record of the beneficial owner’s ownership. In the OSTK case the individual is the direct owner of the stock, and no third party holds the stock. Accordingly, the OSTK offering demonstrates that DTC’s role in securities offerings can be called into question.

In traditional securities offerings, transfer agents record and change the securities ownership, maintain issuers security holding records, cancel and issue certificates, and distribute dividends.⁴⁴ In blockchain-based trading models, transfer agents will be needed much less or potentially not at all because every task transfer agents may perform can be automated through coding. For example, one core function transfer agents perform is maintaining the holding record. This is not necessary because all trades are recorded on the blockchain.

Instant settlement systems provided by blockchain technology change business practices. For instance, the t+3 system allows for a grace period before settlement is required. Without this grace period in a blockchain-based settlement

⁴¹ Craig Calcaterra, Wulf A. Kaal, & Vadhindran K. Rao, *Decentralized Underwriting*, (Jun. 13, 2019) (unpublished paper, SSRN), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3396542.

⁴² See, e.g., SEC Concept Release No. 34-76743 (December 22, 2015).

⁴³ E.g., book-entry system is eliminated; the ledger itself exists to evidence the shares and ownership of the shares. If all trading activity were done through the blockchain their role would disappear.

⁴⁴ U.S. SEC, TRANSFER AGENTS, *supra* note 40.

system, institutional investors will no longer be able to lend their idle shares to investors to cover short positions.

Another business practice affected by blockchain technology is the net-and-compress model utilized by post-trade service providers.⁴⁵ This “net-and-compress” model is used for large investors and means that not every trade needs to be processed.⁴⁶ According to some estimates, if every trade needed to be processed, providers would need to process an additional 2.9 million orders a day.⁴⁷ Instantaneous clearing and settlement may at some point in the future be accomplished by blockchain technology. Net-and-compress may then no longer be needed as all trades will be processed in a timely fashion.

III. CHALLENGES FOR EXISTING BLOCKCHAIN-BASED OFFERINGS

The OSTK offering provides several insights regarding missing elements of blockchain-based offerings. Neither the OSTK offering nor any of the LINQ-based offerings were structured to support widespread ownership or trading of securities through blockchain. For example, no major exchange or inter-dealer market permits, or will permit in the foreseeable future, trading of securities issued through blockchain. In this regard, the OSTK offering, because it was a public company as part of a shelf registration, is an effective vehicle for illustrating the potential benefits of blockchain technology in securities offerings, and for highlighting the numerous material regulatory gaps that must be overcome before blockchain-based public offerings of securities can be implemented in the U.S.

The OSTK offering also illustrates the potential disruptiveness of blockchain technology to the (i) longstanding processes by which securities are offered and sold to the public in the U.S., and (ii) traditional roles played by those involved in the securities offering process (e.g., underwriters, transfer agents, custodians, etc.), including through disintermediation.

A. Limited Liquidity

Several additional risks are associated with the limited trading and associated limited material liquidity that results from a blockchain-based offering involving only one broker. The unique risks that result from the OSTK offering structure include following: 1. limited opportunities for price discovery, 2. no

⁴⁵ Anna Irrera, 5 Problems with Using Blockchain To Speed Up Share Trading, MARKETWATCH (Feb. 22, 2016, 12:44 PM), <https://www.marketwatch.com/story/5-problems-with-using-blockchain-to-speed-up-share-trading-2016-02-22>.

⁴⁶ *Id.*

⁴⁷ Michael Mainelli & Alistair Milne, The Impact and Potential of Blockchain on the Securities Transaction Lifecycle 28 (SWIFT Institute Working Paper No. 2015-007, 2016), <https://swiftinstitute.org/research/the-impact-and-potential-on-the-securities-transaction-lifecycle/>.

market-making (e.g., fewer sellers in an appreciating market, and fewer purchasers in a declining market, etc.), 3. limited opportunities for short-selling (and, relatedly, for stock loan/stock borrowing), which helps in price discovery, 4. limitations on an investment manager's or broker's ability to discharge its best execution obligations, 5. no "print" to a tape or national exchange, which means that there are perpetual questions regarding the market value of the "digital securities" in a limited trading environment, and 6. potential limitations on fiduciary and nominee account structures, which could limit the ability of investors to use tax-deferred accounts (e.g., 401(k)s, IRAs, etc.) to purchase "digital securities."

B. Technology Risk

Technology-based risks of blockchain-based offerings are significant. Technology-based risks include risks from the design and functioning of the code and from third-party intrusions. Such risks are generally not present in a traditional offering. The relative unsophistication of the regulators and the lack of regulators' understanding of the technology could result in an overreaction, which in turn could precipitate creating new or expanding existing regulations. Similarly, limited customer/investor understanding of the technology creates risks associated with the use of the technology in an offering context. Such risks cannot really be quantified, and they undermine the evolution of blockchain-based offerings.

IV. OVERCOMING REGULATORY UNCERTAINTY

Issuers of a blockchain-based offering face several federal securities law issues and associated regulatory uncertainty. According to a recent survey, the number one concern of businesses entering the blockchain ecosystem involves regulatory uncertainty.⁴⁸

For example, if a business would like to release a token tied to a certain asset, it may run into security law issues on whether or not registration is required. In today's regulatory climate, early adopters are left trying to apply traditional law to innovation and are unable to acquire a level of comfortable certainty. As a result, there is a chilling effect over the industry - legacy businesses are weary to adopt because of regulatory uncertainty.

The OSTK offering helps to identify specific state and federal law/regulation challenges, including: 1. the lack of recognition of "digital" securities under any state's current corporation law (but, as mentioned above, this gap is being addressed in Delaware), 2. the lack of recognition of "digital"

⁴⁸ *Navigate regulatory uncertainty: watch but don't wait*, PWC GLOBAL <https://www.pwc.com/gx/en/issues/blockchain/blockchain-in-business/navigate-regulatory-uncertainty.html>.

securities under any state's current commercial law,⁴⁹ which is relevant for margin/pledging securities as collateral, 3. legal uncertainty regarding finality of "settlement" in blockchain-based offering transactions, 4. operation and functioning of ATS, and 5. the operation/functioning of broker-dealers.

Regulatory challenges associated with blockchain-based offerings may be addressed in part by revising several federal securities law provisions to allow: (i) recognition of "digital securities," (ii) broad-based trading of equity-equivalent "digital securities," and (iii) margining of "digital securities."

The combined effect of regulatory risks associated with blockchain-based offerings can be estimated by considering the following factors: 1. SEC has not identified or developed any blockchain-specific offering disclosure standards, or provided guidance; 2. SEC has not identified or developed any retail investor-protection measures unique/particular to blockchain-based offerings; 3. It is not clear that the current form of SEC and FINRA record-retention rules applicable to broker-dealers, or the SEC record-retention rules applicable to investment managers, currently include records relating to the ownership, trading, or custody of "digital securities;" 4. Structure avoids risk-mitigation roles performed by third-parties involved in "ordinary" offering: potential/actual loss of access to market/offering expertise for transactions that do not involve an underwriter/investment banker; 5. Potential application of "money-transfer" regulations to the persons operating the blockchain; 6. Rule 144 is potentially unavailable to issuer "affiliates" and those who purchase from them (Rule 144 allows for the resale of restricted and control securities if a number of conditions are met); 7. Settlement-related issues (e.g., no practical ability to correct trade errors because of same-day/near-instant settlement versus T+3 / T+2 structure. In most cases, settlement occurs in T+2 or T+3. This delay in the settlement cycle leads to trading violations that could otherwise be avoided); 8. Netting risk for brokers; 9. Limited (if any) Section 13 reporting (Under the Securities and Exchange Act of 1934, if any person or group owns 5% or more of the issued or outstanding section 13 securities, such beneficial ownership must be reported on a schedule 13D/13G.); 10. Names of holders are potentially discoverable under Delaware and other states' laws; and 11. Potential IRS uncertainty regarding classification of securities as "common stock."

A. SEC

The SEC has started to evaluate the application of blockchain technology in the financial services industry. In November 2015, Commissioner Stein commented on blockchain's potential for tracing securities lending, repo, margin financing, and

⁴⁹ Under each state's codification of UCC, The Uniform Law Commission is currently working on integrating blockchain-based provisions into the UCC and its commentary.

monitoring systemic risk.⁵⁰ Commissioner Stein cautioned, however, that as blockchain becomes more fluent in the market, “regulators need to be in a position to lead, harnessing its benefits and responding quickly to potential weaknesses.”⁵¹ With these comments, individuals who followed the SEC’s stance on cryptocurrency were hopeful of early regulatory adoption to determine how this technology would be treated under the law.

Despite this early cautioning and call for action, the SEC has not yet addressed core issues pertaining to the recognition of blockchain technology applications in finance. Guidance is especially needed regarding the recognition and application of crypto-currencies, tokens as securities, and decentralized autonomous organizations (DAOs) as investment advisers, among many other issues pertaining to blockchain applications or derivatives that are applied in finance.

SEC recognition of the most basic crypto-currency features is uncertain. In early 2016, in a significant setback for crypto-currencies and the crypto-currency industry, the SEC rejected the Winklevoss twins’ application to establish an exchange-traded fund (ETF) that was intended to invest in Bitcoin exclusively.⁵² To allow individuals to invest in Bitcoin without creating a Bitcoin wallet, the proposed ETF had been intended to serve as a dollar-denominated proxy pegged to the price of Bitcoin.⁵³ In rejecting the application, the SEC reasoned that, because of the unregulated nature of Bitcoin, the proposed fund was susceptible to fraud.⁵⁴ The SEC’s decision regarding the Bitcoin ETF reflects its distrust toward the crypto asset class as a whole, especially toward funds attempting to trade digital currencies.

The SEC’s assessment pertaining to ETFs can be distinguished from private investment funds created via the Ethereum smart contracting on Melonport. Melonport offers technology-operated and regulated funds.⁵⁵ Most importantly, private investment funds on Melonport would be actively trading a more diverse

⁵⁰ Kara M. Stein, Commissioner, U.S. SEC, Remarks at the Harvard Law School Fidelity Guest Lecture Series: Surfing the Wave: Technology, Innovation, and Competition (Nov. 9, 2015), <https://www.sec.gov/news/speech/surfing-wave-technology-innovation-and-competition-remarks-harvard-law-schools-fidelity>; FINANCIAL STABILITY OVERSIGHT COUNCIL: ANNUAL REPORT 2016 (June 21, 2016), <https://www.treasury.gov/initiatives/fsoc/studies-reports/Documents/FSOC%202016%20Annual%20Report.pdf>.

⁵¹ Stein, *supra* note 50.

⁵² Russell Brandom, *The SEC Just Handed Bitcoin a Huge Setback*, THE VERGE (Mar. 10, 2017, 4:10 PM), <http://www.theverge.com/2017/3/10/14883350/sec-bitcoin-etf-order-winklevoss-denied>.

⁵³ *Id.*

⁵⁴ Self-Regulatory Organizations; Bats BZX Exchange, Inc.; Order Disapproving a Proposed Rule Change, as Modified by Amendments No. 1 and 2, to BZX Rule 14.11(e)(4), Commodity-Based Trust Shares, to List and Trade Shares Issued by the Winklevoss Bitcoin Trust, Exchange Act Release No. 34-80206 (Mar. 10, 2017), <https://www.sec.gov/rules/sro/batsbzx/2017/34-80206.pdf>.

⁵⁵ MELONPORT, <https://melonport.com/> (last visited June 25, 2019).

array of crypto currencies, not just Bitcoin. Moreover, the audience of a Melonport-type fund is much more limited and curtails the risk to investors.

By contrast, the Bitcoin ETF application that was denied by the SEC would have been offered to a much broader investor group, reinforcing the fears described by the SEC.⁵⁶ In the private investment fund space, the investors are typically more sophisticated because they are required to be accredited investors.⁵⁷ Still, the SEC's denial of Bitcoin ETF raises the question as to whether crypto currencies will be able to rid themselves of the negative connotations that come with the space and open themselves up to the general public.

B. State Law

Many states have started to amend their corporate and blue-sky laws to incorporate blockchain technology.

Most notably, Delaware amended the Delaware General Corporate Law (DGCL) in 2017 to use “distributed electronic networks or databases” to create and maintain corporate records.⁵⁸ Delaware general corporate law has recognized “distributed electronic networks or databases” as a valid form of maintaining corporate records.⁵⁹ This law forces a corporation using a distributed ledger to retain business records “provided that the records so kept can be converted into clearly legible paper form within a reasonable time, and, with respect to the stock ledger, that the records so kept (i) can be used to prepare the list of stockholders specified in §§ 219 and 220 of this title, (ii) record the information specified in §§ 156, 159, 217(a) and 218 of this title, and (iii) record transfers of stock as governed by Article 8 of subtitle I of Title 6.”⁶⁰

Arizona passed what they call a “Blockchain Bill” into law, which provides specific regulations for electronic signatures, blockchain, and smart contracts.

Wyoming and North Dakota both appear to have changed their trust law to allow custody⁶¹ solutions for digital assets.⁶² For example, Wyoming has allowed

⁵⁶ Self-Regulatory Organizations, *supra* note 55.

⁵⁷ 17 C.F.R. § 230.501(a)(6) (2019). To be considered an accredited investor an individual must be a natural person whose income exceeds \$200,000 in each of the two most recent years (or \$300,000 in joint income with a person's spouse) and who reasonably expects to reach the same income level in the current year.

⁵⁸ DEL. CODE ANN. tit. 8 § 224 (2017).

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ Under the Wyoming law, custodial service refers to the “safekeeping and management of customers' currency and digital assets through the exercise of fiduciary and trust powers under this section as a custodian and includes fund administration and execution of customers instructions.” WYO. STAT. ANN. § 34-29-104 (2019).

⁶² *Id.*; N.D. CENT. CODE ANN. § 47-36-01 (2017).

banks to be the custodians of different digital assets as long as they comply with all federal regulations concerning custody matters.⁶³

The state of Vermont adopted a more prudent approach. The state report “Blockchain Technology: Opportunities and Risk”⁶⁴ considered that “at present, the costs and challenges associated with the use of blockchain technology for Vermont’s public recordkeeping outweigh the identifiable benefits.”⁶⁵ The report also emphasized the relevance of recognizing blockchain technology, which would determine “a ‘first mover’ advantage with the potential to bring economic activity surrounding the development of blockchain technology to Vermont,” remarking the uncertainty around such potential as “difficult to quantify and challenging to capture due to the nature of the technology.”⁶⁶ For the moment, Vermont has recognized the possibility of using blockchain in the context of a trial under specific conditions.⁶⁷

Several pending legislative proposals may increase the recognition of blockchain technology under existing law.⁶⁸ In early 2017, legislators throughout the United States introduced legislation to explore virtual currency and blockchain technology. While some states are evaluating opportunities for the technology to boost the local economy, other states are implementing specific use cases.⁶⁹

⁶³ WYO. STAT. ANN. § 34-29-104 (2019).

⁶⁴ James Condos, William H. Sorrell, & Susan L. Donegan, *Blockchain Technology: Opportunities and Risk* Pg. 3 (2016), <http://legislature.vermont.gov/assets/Legislative-Reports/blockchain-technology-report-final.pdf>.

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *See* VT. STAT. ANN. tit. 12, § 1913 (2019) (defining “blockchain technology” as “a mathematically secured, chronological, and decentralized consensus ledger or database, whether maintained via Internet interaction, peer-to-peer network, or otherwise”).

⁶⁸ In 2018 alone, 18 US states introduced legislation to adopt blockchain technology in some way. Heather Morton, *Blockchain State Legislation*, NAT’L CONF. ST. LEGISLATORS (Mar. 28, 2019), <http://www.ncsl.org/research/financial-services-and-commerce/the-fundamentals-of-risk-management-and-insurance-viewed-through-the-lens-of-emerging-technology-webinar.aspx#2018Legis>.

⁶⁹ *See, e.g.*, H.R. 120, 100th Gen. Assemb., Reg. Sess. (Ill. 2017) (creating a Legislative Blockchain and Distributed Ledger Task Force to “study how and if [s]tate, county, and municipal governments can benefit from a transition to a blockchain”); H.B. 436 2017 Leg., Reg. Sess. (N.H. 2017) (amending New Hampshire’s Licensing of Money Transmitters statute to specifically address virtual currency issues by defining virtual currency as “a digital representation of value that can be digitally traded and functions as a medium of exchange, a unit of account, or a store of value but does not have legal tender status as recognized by the United States government”); H.B. 1481, 2017 Leg., Reg. Sess. (Haw. 2017) (establishing “a working group consisting of representation from the public and private sectors to examine, educate, and promote best practices for enabling blockchain technology to benefit local industries, residents, and the State of Hawaii.”); S.B. 59, 2017 Gen. Assemb., Reg. Sess. (Vt. 2017) (focusing on the need “to amend and establish laws pertaining to consumer litigation funding companies; licensed lenders; money servicers; debt adjusters; and loan servicers” by adding a definition of virtual currency to the state’s money services statute (8 V.S.A. § 2500 et seq.): “stored value that (A) can be a medium of exchange, a unit of account, or a store of value; (B) has an equivalent value in money or acts as a substitute for money; (C) may be centralized

For example, some states, such as Arizona, have attempted unsuccessfully to pass a bill allowing for the payment of taxes in Bitcoin.⁷⁰ Others states, such as Illinois, have started initiatives to “collaborate to explore innovations presented by blockchain and distributed ledger technology.”⁷¹ By states testing the technology to see what works and what doesn’t, more use cases are being created. Ideally, states will be able to learn from each other and adopt working models that help streamline their processes.

C. SROs

A number of national and other regulatory bodies have initiated a review of technology-based practices relating directly or indirectly to the securities and commodities trading industry. Those include: 1. FINRA,⁷² 2. NASDAQ / NYSE and other exchanges (proxy PoC project in Estonia, LINQ, etc.),⁷³ 3. CFTC / NFA / CME / exchanges-SROs (e.g., LabCFTC initiative),⁷⁴ and 4. GAO (report on Financial Technology (April 2017)).⁷⁵

The perspectives introduced by various SROs are closely aligned with those of the SEC. Most SRO perspectives acknowledge the clear purpose of the technology but raise security concerns. These security issues exist for a multitude of reasons, ranging from asymmetries of knowledge to fear of not following the SEC’s lead.

SROs have been strategically positioned where they have some regulatory authority, but they are still beholden to the SEC. SROs are also in a unique position to help educate the SEC in becoming more crypto friendly. For example, NASDAQ could provide use cases on how they have successfully helped implement the technology in their trading systems while still maintaining investor protection. By

or decentralized; and (D) can be exchanged for money or other convertible virtual currency”); S.B. 5264, 2017 Leg., Reg. Sess. (Wash. 2017) (seeking to amend Washington’s Uniform Controlled Substances Act to restrict the use of virtual currency for the purposes of marijuana sale and distribution by prohibiting “[a] marijuana producer, processor, or retail outlet” from paying with “or accept[ing] virtual currency for the purchase or sale of marijuana or any marijuana product[s]”); H.B. 2216, 53rd Leg. 1st Reg. Sess. (Ariz. 2017).

⁷⁰ H.B. 1091, 53rd Leg. 2nd Reg. Sess. (Ariz. 2018).

⁷¹ *Blockchain in Illinois*, ILL. DEP’T. INNOVATION & TECH., <https://www2.illinois.gov/sites/doit/pages/BlockChainInitiative.aspx>.

⁷² *Distributed Ledger Technology: Implications of Blockchain for the Securities Industry*, FIN. INDUSTRY REG. AUTHORITY, http://www.finra.org/sites/default/files/FINRA_Blockchain_Report.pdf (Jan. 2017).

⁷³ *Nasdaq successfully completes blockchain test in Estonia*, REUTERS, <https://www.reuters.com/article/nasdaq-blockchain-idUSL1N1FA1XK> (Jan. 23, 2017).

⁷⁴ *LabCFTC Overview*, U.S. COMMODITY FUTURES TRADING COMMISSION, <https://www.cftc.gov/LabCFTC/Overview/index.htm>.

⁷⁵ U.S. GOV’T ACCOUNTABILITY OFF., GAO-17-361, FINANCIAL TECHNOLOGY: INFORMATION ON SUBSECTORS AND REGULATORY OVERSIGHT (2017).

slowly showing successful use cases, the SEC will be more comfortable taking a stance on how these instruments should be treated.

CONCLUSION AND OUTLOOK

Our analysis in this paper suggests that Blockchain technology has the potential to support cheaper and more reliable public offerings that could make the U.S. capital markets more accessible to companies and could possibly lead to more public offerings and listings. However, the far more important objective should be the development of a legal and regulatory regime to support widespread trading of securities offered through a blockchain-based process – one that would satisfy broad public demand for the issuer’s securities.

Blockchain presents unique and potentially significant profit opportunities for multiple parties, including developers and the consortia or companies that operate platforms on which blockchain could operate.

Blockchain has the potential to support cheaper and more reliable public offerings, as referenced further above. In this sense, blockchain could potentially make the U.S. capital markets – the largest public pool of capital in the world -- more accessible to companies, which would possibly lead to more public offerings and listings.

Regulators and quasi-regulatory bodies have begun to assess the impact of blockchain on the securities offering process, including with respect to the development of new or revised laws and regulations and to the roles of the parties involved in traditional offerings.

The utilization of blockchain as a more efficient and reliable public offering medium will almost certainly require modifying many of the (i) regulations applicable to the offering process, (ii) processes by which securities are offered to the public and settled and administered in the after-market, and (iii) roles and responsibilities among market-participants (e.g., underwriters, brokers (in distribution), DTC, and Cede & Co.) that have developed over decades to effect public offerings.

Ultimately, using blockchain technology to support trading by retail investors of “digital securities” on a widespread basis (including, for example, to allow margining of “digital securities”) will be the linchpin of the survivability and evolution of blockchain-based securities offerings. Without retail investor access, the technology may remain marginalized in the offering process.

Several factors suggest that blockchain-based securities offerings may be here to stay: 1. trading of privately-issued “digital securities” (e.g., through LINQ) has been accomplished and proven, and 2. the potentially significant reduction in administrative and operational/processing costs associated with issuing and trading securities (e.g., from STP) has been analyzed extensively.

Yet, other factors highlight the need for enhanced scrutiny of blockchain-based securities offerings. Other than in relation to “unicorns,” there is not likely to be broad-based (retail) interest in privately placed “digital securities,” or securities that trade on a single, non-scalable ATS. Hence, capital-raising opportunities for private companies likely would not be materially increased despite the validation of blockchain technology as a means of cost-effectively supporting securities offerings.

Consequently, the far more important objective should be the development of a legal and regulatory regime to support widespread trading of securities offered through a blockchain-based process – one that would satisfy broad public demand for the issuer’s securities. With legal support and certainty, broad-based trading of “digital securities” would provide liquidity to market-participants and investors, attracting more investors and capital.

Governmental endorsement and guidance on crypto investments in the United States are essential for future securities offerings involving crypto currencies and blockchain technology, in the existing regulatory infrastructure and beyond. As the market for crypto investment grows, the regulatory gap between the existing regulatory infrastructure and crypto securities investment will inevitably increase further.

Development of blockchain-based processes, in any case, will take several years if not decades, so the most likely circumstance is that legacy and blockchain-based securities issuance, trading, settlement, and related systems and processes will have to co-exist side-by-side for the foreseeable future.