BLOCKCHAIN AND ANTITRUST: NEW TECH MEETS OLD REGS

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I.   INTRODUCTION

Over the last several years, there has been much publicity surrounding the cryptocurrency Bitcoin, its wildly fluctuating value, and whether or not it is actually secure.[1] Further, there is vast deliberation in many public forums as to whether Bitcoin will be adopted widely enough to become mainstream globally so that its use will spread outside of its current predominant specialized use as an alternative asset investment for currency speculators and become accepted in small local cafes and large multinational banks alike.[2] Additionally, there are vast legal questions surrounding Bitcoin.[3] Although the debate concerning the use and adoption of Bitcoin beyond an alternative asset will likely continue for several years, the technology underlying Bitcoin is widely regarded as the next 'big thing' that will transform the operations of many businesses,

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[1] *See* Ryan Derousseau, *Bitcoin for Beginners: 3 Things to Know Before You Invest*, FORTUNE (Nov. 24, 2017), http://fortune.com/2017/11/24/bitcoin-cryptocurrency-investing/; David Meyer, *Bitcoin and Ethereum Prices Take a Hit After Another Cryptocurrency Was Hacked*, FORTUNE (Nov. 21, 2017), http://fortune.com/2017/11/21/bitcoin-price-ethereum-price-tether-hacked/; Lucinda Shen, *Bitcoin Just Surged Past $8,000. Here's What's Causing the Spike*, FORTUNE (Nov. 17, 2017), http://fortune.com/2017/11/17/ bitcoin-price-hard-fork-segwit2x/.

[2] *See* Riley McDermid, *The Real Estate Industry is Beginning to Use Bitcoin to Pay for Deals*, S.F. BUS. TIMES (Nov. 22, 2017), https://www.bizjournals.com/sanfrancisco/news/2017/11/22/real-estate-bitcoin-payment.html; Danielle Sabrina, *You Are Now Able to Use Cryptocurrencies in Person*, THE HUFFINGTON POST (Nov. 17, 2017), https://www.huffingtonpost.com/entry/you-are-now-able-to-use-cryptocurrencies-in-person_us_5a0ee51be4b0e30a95850609.

[3] *See* V. Gerard Comizio, *Virtual Currencies: Growing Regulatory Framework and Challenges in the Emerging Fintech Ecosystem*, 21 N.C. BANKING INST. 131, 132 (2017); Joshua J. Doguet, *The Nature of the Form: Legal and Regulatory Issues Surrounding the Bitcoin Digital Currency System*, 73 LA. L. REV. 1119, 1121, 1131–36 (Summer 2013).

both small and large.[4] This technology—called blockchain—has many applications that will likely impact the vast majority of industries from small agriculture businesses to the larger financial institutions in the world.[5] However, like Bitcoin, because of the relative newness of blockchain, many legal questions have not yet been answered by courts and are currently being debated by legal experts, scholars, and practitioners.[6]

This paper analyzes one potential antitrust issue, specifically the antitrust risks relating to horizontal agreements to not deal with particular firms when implementing blockchain as a means to assist with transactions among financial institutions and other parties.[7] This particular use of blockchain is highly relevant as many major financial institutions are already testing and implementing the utilization of blockchain in this area.[8]

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[4] *See* Clifton Leaf, *Believe the Hype: Here's the Actual Next Big Thing in Tech*, FORTUNE (Aug. 22, 2017), http://fortune.com/2017/08/22/blockchain-next-big-thing-tech/; *The next big thing*, THE ECONOMIST (May 9, 2015), https://www.economist.com/news/ special-report/21650295-or-it-next-big-thing; Rachel Wolfson, *Blockchain Technology's Next Big Superstar*, THE HUFFINGTON POST (Sept. 8, 2017), https://www.huffingtonpost.com/ entry/blockchain-technologys-next-big-superstar_ us_ 59b2bb45e4b0c50640cd66c2.

[5] *See* Clifton Leaf, *Believe the Hype: Here's the Actual Next Big Thing in Tech*, FORTUNE (Aug. 22, 2017), http://fortune.com/2017/08/22/blockchain-next-big-thing-tech/; *The next big thing*, THE ECONOMIST (May 9, 2015), https://www.economist.com/news/ special-report/21650295-or-it-next-big-thing; Rachel Wolfson, *Blockchain Technology's Next Big Superstar*, THE HUFFINGTON POST (Sept. 8, 2017), https://www. huffingtonpost.com/entry/blockchain-technologys-next-big-superstar_us_ 59b2bb45e4b0c50640cd66c2.

[6] *See generally* Comizio, *supra* note 3, at 141–59 (describing legal and regulatory initiatives in the United States); Elizabeth Sara Ross, *Nobody Puts Blockchain in a Corner: The Disruptive Role of Blockchain Technology in the Financial Services Industry and Current Regulatory Issues*, 25 CATH. U. J. L. & TECH. 353, 376–85 (2017) (describing United States and international regulation efforts).

[7] ABA Section of Antitrust Law, ANTITRUST LAW DEVELOPMENTS 490 (Jonathan I. Gleklen et al. eds., 7th ed. 2012).

[8] *See* Bernard Marr, *Practical Examples Of How Blockchains Are Used In Banking And The Financial Services Sector*, FORBES (Aug. 10, 2017), https://www.forbes.com/sites/

Further, the larger financial institutions have already joined together to implement this technology; thus, antitrust issues are already a concern.[9]

Specifically, Part II of this paper provides a background and general overview of blockchain and its technology, including an explanation of the components of blockchain, how this technology works, a discussion of how blockchain is currently used, how the use of this technology might shift over the coming years, and the industries that are most likely to utilize this technology.[10]

Part III will focus on one particular use of blockchain—payment and transfers of large sums of money between financial institutions, their clients, and other large organizations.[11] This part further discusses ways in which the financial industry has already begun experimenting with and implementing blockchain technology within this specific application, the benefits that blockchain affords this industry, and the likely wide-spread adoption of this technology in this industry through the collaboration of many global financial institutions.[12]

Next, Part IV raises specific antitrust issues and risks that are likely to arise from the collaboration of financial institutions using blockchain as a means to track, record, and audit payments between financial

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[9] *See* Jemima Kelly, *Exclusive: Blockchain Platform Developed by Banks to be Open-source*, REUTERS (Oct. 20, 2016, 6:45 AM), https://www.reuters.com/article/us-banks-blockchain-r3-exclusive/exclusive-blockchain-platform-developed-by-banks-to-be-open-source-idUSKCN12K17E.

[10] *See infra* Part II; *see also* Joshua Ashley Klayman & Dario de Martino, *The (Heart)beat Has Sounded: The World Economic Forum Places Blockchain Front and Center*, 22 WESTLAW J. SEC. LIT. & REG. 12, 2 (2016); Stuart D. Levi, *Blockchains offer revolutionary potential in fintech and beyond*, PRACTITIONER INSIGHTS COMMENTS 2017 WL 954702 (Mar. 13, 2017); Reggie O'Shields, *Smart Contracts: Legal Agreements for the Blockchain*, 21 N.C. BANKING INST. 177, 180–81 (2017).

[11] *See infra* Part III; *see also* Marr, *supra* note 8.

[12] *See infra* Part III; *see also* Marr, *supra* note 8.

institutions, their clients, and other large organizations.[13] Further, this part will provide an overview of the general analytical framework of antitrust law and discuss leading applicable cases from the United States Supreme Court.[14]

Part V concludes with a recommendation to minimize potential antitrust risks that financial institutions and/or large organizations might face that are currently using blockchain in this way or are considering this use.[15] This part outlines the United States Supreme Court's analysis of a joint venture's exclusion and/or expulsion of rivals by assessing four specific criteria, including specific examples of joint venture actions and/or characteristics that will decrease or increase a joint venture's exposure to antitrust risk.[16]

II.   BACKGROUND OF BLOCKCHAIN

A. The Components of Blockchain and How It Works

Blockchain is a technology containing a highly encrypted database that maintains numerous entries of information, similar to a digital ledger that tracks and records all of the transactions that have occurred, and are occurring, within that specific blockchain network.[17] Blockchain confirms the accuracy and authenticity of each transaction and encrypts each entry.[18] Thus, blockchain is essentially a continuous series of chronological blocks of information containing multiple specific individual transactions

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[13] *See infra* Part IV; *see also* EINER ELHAUGE & DAMIEN GERADIN, GLOBAL ANTITRUST LAW AND ECONOMICS 153 (2nd ed. 2011); ABA Section of Antitrust Law, *supra* note 7, at 490.

[14] *See infra* Part IV; *see also* ELHAUGE & GERADIN, *supra* note 13; ABA Section of Antitrust Law, *supra* note 7, at 490.

[15] *See* United States v. Terminal R.R. Ass'n of St. Louis, 224 U.S. 383, 397, 405 (1912).

[16] ABA Section of Antitrust Law, *supra* note 7, at 490–91.

[17] *See* Klayman, *supra* note 10, at 2–3; Levi, *supra* note 10; O'Shields, *supra* note 10, at 180–81.

[18] *See* Klayman, *supra* note 10, at 2; Levis, *supra* note 10; O'Shields, *supra* note 10, at 180.

that are verified for accuracy by the majority of users of the technology network.[19] Further, blockchain maintains a high level of security so that past information blocks are not altered or changed once verified.[20] "Think of a global spreadsheet that is saved and runs on billions of computers around the world, where the data is universally verifiable and trackable."[21] And every new entry onto the spreadsheet "depends on a logical relationship to all" the previous entries on the spreadsheet.[22]

Many blockchains accept new entries from numerous parties; however, one party inserting a new entry into the blockchain does not change the blockchain until the majority of the parties accept this new entry.[23] Parties to the blockchain accept a new entry by running the new entry or transaction through a series of mathematical equations, which are called hashes.[24] Thus, when a new entry is created, the transactions comprising that block are hashed, which produces a unique result for that block.[25] Then, other nodes that are in that blockchain network use the same entries to create the same mathematical equations and confirm that the result for that block that was computed by the first party is correct.[26] If the other nodes' calculation produces a different result than the result of the first party, the entry is not confirmed because it contains either an

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[19] *See* Klayman, *supra* note 10, at 2.

[20] *See* O'Shields, *supra* note 10, at 187.

[21] Klayman, *supra* note 10, at 2.

[22] Andrew Meola, *The Growing List of Applications and Use Cases of Blockchain Technology in Business & Life*, BUS. INSIDER (Sept. 28, 2017, 4:46 PM), http://www.businessinsider. com/blockchain-technology-applications-use-cases-2017-9.

[23] *See* Portia Crowe, *There is a 'Game Changer' Technology on Wall Street and People Keep Confusing it with Bitcoin*, BUS. INSIDER (Mar. 5, 2016, 8:30 AM), http://www. businessinsider.com/what-is-blockchain-2016-3?op=1.

[24] *See id.*

[25] *See id.*

[26] *See id.*

error or fraud.[27] This need for a majority of acceptance increases the security of blockchain and eliminates any need for a central organization—like a government, an accounting firm, or a bank—to approve of each new entry and any subsequent transactions.[28]

Further, the security of blockchain systems is greatly increased because a hacker attempting to change past transactions in the chain or conduct other fraudulent activities would require controlling a majority of the devices or data points on the larger blockchain network.[29] Infiltrating and taking control of the majority of the network is an incredibly hard task and is also cost-prohibitive.[30]

The blockchain technology allows both individuals and organizations to make transactions among one another.[31] More importantly, blockchain provides verification of each transaction, including highly specific details of that transaction, and verification occurs almost immediately.[32] Further, users in the same blockchain network can engage in transactions directly with other users in the network, and because each transaction is screened for accuracy and corroborated by the blockchain network, there is no longer a need for a central authority to approve the transaction and its accuracy.[33]

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[27] *See id.*

[28] *See id.*

[29] *See* Levi, *supra* note 10.

[30] *See id.*

[31] *See* Klayman, *supra* note 10, at 2–3.

[32] *See id.* at 2; Levi, *supra* note 10.

[33] *See* Levi, *supra* note 10.

B.   Types of Blockchain

Blockchains are typically either public/permissionless or private/permissioned.[34] Public blockchains allow for any user to participate in the blockchain.[35] Thus, anyone can download and utilize the blockchain software, participate in the verification process and so forth.[36] Conversely, to gain access to a private blockchain, a party needs permission.[37] This permission is granted either through a pre-selection of the parties that may access the blockchain, approval by an administrative party, or satisfaction of certain requirements— for example compliance with anti-money laundering regulations.[38]

C.   The Current and Future Use of Blockchain

1.   Blockchain's Use in Industries Outside of Finance

The use of blockchain far exceeds its most known use— the technology underlying Bitcoin.[39] Blockchain, some argue, has the potential

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[34] *See* NORTON ROSE FULBRIGHT, UNLOCKING THE BLOCKCHAIN: A GLOBAL LEGAL AND REGULATORY GUIDE 20 (2016), http://www.nortonrosefulbright.com/ files/unlocking-the-blockchain-chapter-1-141574.pdf.

[35] *See* Ramesh Gopinath, *Checking the Ledger: Permissioned vs. Permissionless Blockchains*, IBM THINK BLOG (July 28, 2016), https://www.ibm.com/blogs/think/2016/07/checking-the-ledger-permissioned-vs-permissionless-blockchains/; Levi, *supra* note 10; *Unlocking the Blockchain: A Global Legal and Regulatory Guide*, *supra* note 34, at 20.

[36] *See Unlocking the Blockchain: A Global Legal and Regulatory Guide*, *supra* note 34, at 20.

[37] *See id.*; Gopinath, *supra* note 35; Levi, *supra* note 10.

[38] *See* Gopinath, *supra* note 35; Praveen Jayachandran, *The Difference Between Public and Private Blockchain*, IBM BLOCKCHAIN BLOG (May 31, 2017), https://www.ibm.com/blogs/blockchain/2017/05/the-difference-between-public-and-private-blockchain/; *Unlocking the Blockchain: A Global Legal and Regulatory Guide*, *supra* note 34, at 20.

[39] *Unlocking the Blockchain: A Global Legal and Regulatory Guide*, *supra* note 34, at 15.

to impact nearly every industry.[40] For example, blockchain has already impacted large-scale data management by providing records management for businesses and governments that is more secure, yet simpler to use, than many other data management technologies.[41] Using blockchain technologies for data management provides permanent, accurate data which allows organizations to decrease the managerial cost of performing and complying with audits and government records, among other benefits.[42]

Further, blockchain allows for enhanced identity management "[b]y combining the decentralized blockchain principle with identity verification, a digital ID can be created that would act as a digital watermark which can be assigned to every online transaction of any asset."[43] Thus, the parties to a transaction are identifiable, which should decrease fraud and increase the ease of organizational compliance with governmental regulations that relate to properly identifying the other party to the transaction.[44]

2. Blockchain's Use in Finance

Blockchain has received much attention concerning its potential impact on the financial industry.[45] Further, key organizations within the

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[40] *See* Klayman, *supra* note 10, at 3–4; O'Shields, *supra* note 10, at 180–81; *21 Areas of Blockchain Application Beyond Financial Services,* MEDIUM (Mar. 13, 2017), https://medium.com/@LetsTalkPayments/21-areas-of-blockchain-application-beyond-financial-services-9a007f3db2f1.

[41] *See* Klayman, *supra* note 10, at 4; O'Shields, *supra* note 10, at 189–90; *21 Areas of Blockchain Application Beyond Financial Services, supra* note 40.

[42] *See* Klayman, *supra* note 10, at 2; *21 Areas of Blockchain Application Beyond Financial Services*, *supra* note 40.

[43] *21 Areas of Blockchain Application Beyond Financial Services*, *supra* note 40.

[44] *See* Klayman, *supra* note 10, at 3; O'Shields, *supra* note 10, at 180–81; *21 Areas of Blockchain Application Beyond Financial Services*, *supra* note 40.

[45] *See Blockchain in Financial Services,* PWC FIN. SERVS. INST. (last visited Mar. 10, 2018), https://www.pwc.com/us/en/financial-services/research-institute/blockchain.html; Marr, *supra* note 8; Alex Tapscott & Don Tapscott, *How Blockchain Is Changing Finance*,

industry see this technology as revolutionizing the industry, as evidenced by R3, a consortium of over seventy of the larger financial institutions in the world including banks, insurance companies, regulators, and fund managers.[46] R3 was created for the purpose of researching and developing blockchain technology and then implementing that technology throughout the financial industry globally.[47] Blockchain has and will continue to change, and potentially revolutionize, many applications within the finance industry, including transactions among financial institutions and other parties, the issuance of securities, the trading and settlement of stocks, and fraud prevention.[48] For example, in December 2016, Overstock.com, the online retailer, issued nearly two million dollars of stock that trades only on a blockchain platform.[49] Relatedly, experts in the stock market industry expect blockchain to enhance the stock market by reducing the amount of time between the clearing and the settlement of trades.[50] Although blockchain will likely impact many areas within the financial industry, the bulk of this paper is limited to an analysis and discussion of transactions between financial institutions and other parties, as this particular application is one of the likelier applications to have a large-scale impact.[51]

HARV. BUS. REV. (Mar. 1, 2017), https://hbr.org/2017/03/how-blockchain-is-changing-finance;.

[46] *See* Kelly, *supra* note 9.

[47] *See* ABOUT, R3, https://www.r3.com/about/ (last visited Mar. 10, 2018).

[48] *See* Klayman, *supra* note 10, at 2–4; Marr, *supra* note 8; Tapscott & Tapscott, *supra* note 45; *21 Areas of Blockchain Application Beyond Financial Services*, *supra* note 40.

[49] *See* Daniel DeConinck, *Overstock Completes First Public Stock Issuance Using Blockchain*, 36 REV. BANKING & FIN. L. 416, 424 (2017).

[50] *See* Klayman, *supra* note 10, at 3.

[51] *See* Klayman, *supra* note 10, at 3; Marr, *supra* note 8; Tapscott & Tapscott, *supra* note 45; *21 Areas of Blockchain Application Beyond Financial Services*, *supra* note 40.

III.   THE IMPACT OF BLOCKCHAIN ON TRANSACTIONS BETWEEN FINANCIAL INSTITUTIONS AND OTHER PARTIES

The Impact of Blockchain on Transactions between Financial Institutions and Other PartiesEvery day, trillions of dollars are transferred among financial institutions and other parties for various financial services.[52] The number of parties involved in these transactions reaches the billions.[53] Importantly, in 2014, it is estimated that financial institutions collected well over one trillion dollars in fees for processing payments and other related transfers among customers of the banks, including small and large organizations and individuals.[54] These fees are likely needed to cover many necessary administrative activities performed by individuals within the current financial system for processing payments and transferring funds.[55]

The development and implementation of blockchain throughout the financial industry will likely have numerous benefits for all participants in the industry, including financial institutions, businesses, and individuals, as blockchain would likely eliminate many, if not all, of the currently necessary intermediaries and administrative activities when banks process payments and transfer funds.[56] Currently, financial institutions are rife with numerous costly activities that also often add long delays that disrupt the transfer of funds.[57] Further, these activities are not completely secure which allows for fraudulent activities to take place and also increases the

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[52] *See* Marr, *supra* note 8.

[53] *See id.*

[54] *See High Tech Meets Low Finance*, THE ECONOMIST: BUTTONWOOD BLOG, (Mar. 10, 2016), http://www.economist.com/news/finance-and-economics/21694531-all-money -spent-technology-banking-not-efficient-high-tech-meets-low.

[55] *See* Tapscott & Tapscott, *supra* note 45.

[56] *See* Marr, *supra* note 8.

[57] *See id.*

cost of related activities, such as fraud prevention.[58] Thus, financial institutions implementing blockchain as a digital ledger that would keep track of, protect, and self-audit the transfer of funds for activities like payment processing would significantly decrease costs and increase security and efficiency.[59] Although blockchain is not completely secure from fraudulent activities, it stands as a marked improvement to the current security used by many financial institutions.[60]

To best implement and use blockchain within this application, financial institutions and organizations will have to join together to implement this technology through a joint venture, or a similar construct, as instant electronic communication of information among the parties through the blockchain is likely necessary for the parties to fully reap the benefits of blockchain.[61] Thus, organizations will likely create or join groups like the R3 consortium,[62] or take part in highly a concerted activity like that of the largest banks in Europe, which recently implemented in unison the same system of blockchain technology to better facilitate international trade.[63]

Agreements among competitors, like HSBC and Rabobank, two of Europe's largest banks, raise some interesting potential antitrust issues and risks.[64] For example, an issue arises when two or more competitors

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[58] *See id.*

[59] *See* Klayman, *supra* note 10, at 2–3.

[60] *See id.*; O'Shields, *supra* note 10, at 179–80, 184; Tapscott & Tapscott, *supra* note 45; *21 Areas of Blockchain Application Beyond Financial Services*, *supra* note 40.

[61] *See* Klayman, *supra* note 10, at 1; O'Shields, *supra* note 10, at 183; Tapscott & Tapscott, *supra* note 45.

[62] ABOUT, R3, *supra* note 47.

[63] Arjun Kharpal, *Blockchain technology is moving into the financial mainstream with IBM and seven European banks*, CNBC (June 26, 2017, 6:02 PM), https://www.cnbc.com/2017/06/26/ibm-building-blockchain-for-seven-major-banks-trade-finance.html.

[64] *See id.*; *see also* ELHAUGE & GERADIN, *supra* note 13, at 73–75, 153–54; ABA Section of Antitrust Law, *supra* note 7, at 490–91.

agree to not deal with or allow the participation of other competitors in the formation of joint venture with the purpose of implementing blockchain technology.[65]

IV.   ANTITRUST RISKS AND ISSUES: HORIZONTAL AGREEMENTS NOT TO DEAL WITH PARTICULAR FIRMS

A joint venture comprised of unrelated competitors that excludes other competitors and/or refuses to provide access to the joint venture's facilities to other competitors is challengeable under Section 1 of the Sherman Act, as an illegal restraint of trade, or under Section 2 of the Sherman Act as a conspiracy or attempt to monopolize.[66] Generally, when competitors enter into a horizontal agreement to boycott or not deal with another competitor, this boycott is *per se* illegal under the Sherman Act.[67] However, when competitors join together in a joint venture or productive collaboration, the *per se* rule for boycotts typically does not apply; instead, courts apply a more nuanced analysis.[68] Specifically, when competitors joined in a productive collaboration decide to boycott a competitor by refusing to allow that competitor access to the productive collaboration, courts often apply the rule of reason;[69] thus, this conduct is only considered illegal when the effect of the boycott is an unreasonable restraint of trade.[70] Courts applying the rule of reason standard consider if the agreement among competitors has any "plausible procompetitive justification."[71] If such a justification is plausible, the plaintiff is required to prove that the agreement's result in an anticompetitive effect, which the plaintiff can prove by offering direct evidence or inferring the

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[65] *See supra* note 64.

[66] *See* ABA Section of Antitrust Law, *supra* note 7, at 490.

[67] *See* ELHAUGE & GERADIN, *supra* note 13, at 153.

[68] *See id.* at 153–54.

[69] *See id.* at 74–75.

[70] *See id.*

[71] *Id.* at 75.

anticompetitive effect by providing the defendant's high market share.[72] If the plaintiff proves this effect, the defendant then is required to provide a procompetitive benefit of the agreement.[73] And if the defendant provides "persuasive justification for [the agreement],"[74] the plaintiff then can show that a "reasonable less restrictive alternative exists."[75] If the plaintiff shows this, the plaintiff wins.[76] However, if the plaintiff does not, the court then weighs the procompetitive and anticompetitive effects.[77] Similarly, courts often apply the rule of reason to situations in which a competitor was expelled from a productive collaboration.[78]

A. Relevant Leading Cases

Several leading United States Supreme Court cases address the issue of agreements among competitors not to deal with other competitors. In *United States v. Terminal Railroad Association of St. Louis*, fourteen railroad companies in St. Louis created a joint venture for the purpose of purchasing and operating railroad terminals.[79] The joint venture allowed other companies outside of the joint venture to utilize the joint venture's terminals if the other companies paid a similar amount of money for their use that the members of the joint venture paid.[80] The topographical layout of St. Louis was such that anyone attempting to transport via railroad in or through St. Louis required the use of the

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[72] *See id.*

[73] *See id.*

[74] *Id.* at 223 (quoting United States v. Brown Univ*., 5 F.3d 658, 679 (3d Cir. 1993)).

[75] *Id.*

[76] *See id.* at 75.

[77] *See id.*

[78] *See id.* at 153–54.

[79] *See* United States v. Terminal R. R. Ass'n of St. Louis, 224 U.S. 383, 391, 398 (1912).

[80] *See id.* at 399–400.

terminals owned by the joint venture.[81] Although other companies could technically utilize the joint venture's terminals, the joint venture, due to the unique layout of the city, held the power to discriminate because without the use of its terminals, other companies could not operate in St. Louis.[82] Further, there were charges that the joint venture discriminated against other companies.[83] As a result, the Supreme Court ruled that the joint venture's practice of often not allowing other railroad companies outside of the joint venture to use the terminals violated the Sherman Act.[84] The Court emphasized that its holding was heavily impacted by the topographical constraints of St. Louis and noted that typically competitors may lawfully combine to purchase and operate terminals, even when excluding other competitors.[85] Interestingly, the Court noted that the joint venture "would not be an illegal restraint . . . if it were what is claimed for it, a proper terminal association acting as the impartial agent of every line which is under compulsion to use its instrumentalities."[86]

Many years later, in *Associated Press v. United States*, the Supreme Court again addressed this issue.[87] In that case, approximately twelve hundred newspapers in over twenty-five cities established a joint venture to disseminate the news it gathered among the members of the joint venture.[88] This joint venture maintained a very large market share as Associated Press members comprised over eighty percent of the newspaper circulation in the United States.[89] The joint venture did not

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[81] *See id.* at 397.

[82] *See id.* at 397, 399–400.

[83] *See id.* at 394–96.

[84] *See id.* at 409.

[85] *See id.* at 405.

[86] *Id.* at 410.

[87] *See* Associated Press v. United States, 326 U.S. 1, 4–8 (1945).

[88] *See* ELHAUGE & GERADIN, *supra* note 13, at 166.

[89] *See id.*

allow for members to provide news to non-members and also provided members of competing applicants the ability to veto a non-member's application of membership.[90] The Court held that these bylaws were illegal as they restrained trade and critically "limit[ed] the opportunity of any new paper to enter these cities."[91] Further, the Court, using very broad language with potentially large antitrust implications, stated that any joint venture which reduces the opportunity of other competitors to engage in buying or selling of "the things in which the groups compete" is an unlawful combination.[92]

The Supreme Court addressed the issue of expulsion from a joint venture in *Northwest Wholesale Stationers, Inc. v. Pacific Stationery and Printing Co.*[93] In that case, a joint venture was formed as a buying cooperative for several retail stores; however, one of the members of the joint venture was expelled for failing to abide by the joint venture's bylaws.[94] The Court first addressed the proper standard to address this expulsion.[95] The Court concluded that the expulsion did not provide evidence that the joint venture maintained an anticompetitive motivation nor was it evidence of a high probability of an anticompetitive effect resulting from the expulsion.[96] Further, the Court found that "[u]nless the cooperative possesses market power or exclusive access to an element essential to effective competition, the conclusion that expulsion is virtually always likely to have an anticompetitive effect is not warranted."[97] Thus, if the joint venture does not possess market power or exclusive access to a

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[90] *See Associated Press*, 326 U.S. at 9–10.

[91] *Id.* at 13.

[92] *Id.* at 15.

[93] *See* Nw. Wholesale Stationers, Inc. v. Pac. Stationery & Printing Co., 472 U.S. 284, 284, 286–87 (1985).

[94] *See id.* at 286—87.

[95] *See id.* at 289–90.

[96] *See id.* at 296–98.

[97] *Id.* at 296.

competitively necessary element of the business, courts must apply the rule of reason analysis.[98] "The decision to apply the *per se* rule turns on 'whether the practice facially appears to be one that would always or almost always tend to restrict competition and decrease output . . . or instead one designed to 'increase economic efficiency and render markets more, rather than less, competitive.'"[99] Further, the Supreme Court stated that group boycotts frequently garner *per se* invalidation from courts;[100] yet, the Supreme Court plainly stated that there is much uncertainty and confusion among all the courts concerning the precise types of joint venture activity that garner *per se* invalidation.[101] Additionally, the Court stated that in many cases that the Court has ruled were *per se* invalid, the boycott typically denied access to an element that was necessary for the company to compete and the joint venture held a "dominant position" in the market.[102] Moreover, "the possibility of countervailing procompetitive effects [was] remote."[103] Finally, the Supreme Court ruled that the lower court's decision to eschew *per se* analysis was correct.[104]

Since *Northwest Wholesale Stationers, Inc.*, cases involving a joint venture denying a non-member competitor membership to the joint venture or access to the joint venture's facilities have largely eschewed a *per se* analysis in favor of a rule of reason analysis.[105] Further, there appears to be some conflict and confusion among the lower courts concerning the holding from *Northwest Wholesale Stationers, Inc.*[106] Specifically, whether a

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[98] *See id.* at 296–97.

[99] *Id.* at 289–90 (quoting Broad. Music, Inc. v. Columbia Broad. Sys., Inc., 441 U.S. 1, 19–20 (1979)).

[100] *See id.* at 293.

[101] *See id.* at 294.

[102] *Id.*

[103] *Id.*

[104] *See id.* at 298.

[105] *See* ABA Section of Antitrust Law, *supra* note 7, at 492.

[106] *See id.* at 492–93.

finding of market power or exclusive access to a component that is necessary for the competitor to compete may be adequate in and of itself for a court to rule that the denial of membership or expulsion from the joint venture is *per se* illegal,[107] or whether this finding is just "a necessary precondition" for a court to find that such actions are *per se* illegal.[108] Additionally, when courts have analyzed the competitive justifications provided by the joint venture for denying a non-member competitor membership to the joint venture or to the joint venture's facilities, many courts have recognized as valid the justification that the non-member is seeking to benefit from the joint ventures without participating in the initial or on-going risks and expenses associated with the joint venture.[109]

Thus, in summary, the Supreme Court analyzes a joint venture's exclusion and/or expulsion of rivals by assessing several criteria including:

> (1) the degree to which access is essential to effective competition; (2) the nature and scope of the joint venture's power in the relevant market; (3) the degree to which the benefits of the venture can be duplicated by nonparticipants in some other fashion, such as the formation of a similar joint enterprise; and (4) the business reasons for the refusal to grant access.[110]

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[107] *See id.*

[108] *Id.* at 492.

[109] *See id.* at 493.

[110] *Id.* at 490–91.

V.   ADVICE TO FINANCIAL INSTITUTIONS CONSIDERING A HORIZONTAL AGREEMENT/JOINT VENTURE WITH THE PURPOSE OF USING BLOCKCHAIN FOR THE TRANSFER OF FUNDS

A.   What if the Joint Venture Closes Membership? Moreover, What are the Antitrust Risks if the Joint Venture Utilizes a Permissioned Blockchain?

The initial push for blockchain technology involved largely 'open-source' and permissionless or public blockchain technology, which means that this technology is completely free and available for use by any person or organization that wants to access it.[111] The highly publicized digital currency Bitcoin is an open-sourced technology.[112] Although the initial blockchain developments were open-sourced and public, there have been recent blockchain developments that were permissioned, meaning that they are not freely available to the public as one needs permission to utilize that specific blockchain.[113]

Further, it is likely that large financial institutions will enter into a joint venture with one another to gain access to blockchain technology that is used as a digital ledger.[114] As stated previously regarding agreements among competitors, like HSBC and Rabobank, a joint venture of this type would likely necessitate limited access to the blockchain given the highly sensitive information and large monetary value at stake.[115] Thus, potential antitrust issues arise when a blockchain joint venture only allows members of the joint venture access to the digital ledger blockchain, but not to a

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[111] *See* Cade Metz, *The Bitcoin Schism Shows the Genius of Open Source*, WIRED (Aug. 19, 2015, 10:00 AM), https://www.wired.com/2015/08/Bitcoin-schism-shows-genius-open-source/.

[112] *See id.*

[113] *See* Jayachandran, *supra* note 38.

[114] *See* ABOUT, R3, *supra* note 47; Kelly, *supra* note 9.

[115] *See* Gopinath, *supra* note 35; Jayachandran, *supra* note 38; Levi, *supra* note 10.

non-member competitor who seeks access to the permissioned blockchain.[116]

    1. The Degree To Which Access Is Essential To Effective Competition

In *Terminal Railroad Association of St. Louis*, the Supreme Court emphasized that in an ordinary competitive environment, the Court would have ruled that the joint venture formed by the competing railroads to operate and control specific railroad terminals was legal;[117] however, it was "impossible for any railroad company to pass through, or even enter St. Louis … without using the facilities entirely controlled by the terminal company."[118] Thus, access to the facilities was essential for other companies to compete.[119]

Thus, the antitrust risks decrease for a member of a joint venture utilizing a permissioned blockchain when access is not necessary for rivals to effectively compete.[120] Financial institutions currently have the ability to transfer and receive funds and properly track, record, and audit those transfers.[121] Further, a joint venture such as this would not "reduce their competitor's opportunity" to provide financial transfers between financial institutions and keep proper records of those transfers, as competitors currently have the ability to engage in performing these types of transfers and the resulting recording-keeping without any blockchain technology.[122] Finally, as the Supreme Court in *Terminal Railroad Association of St. Louis* stated: "[i]t cannot be controverted that, in ordinary circumstances, a

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[116] *See Unlocking the Blockchain: A Global Legal and Regulatory Guide, supra* note 34, at 31, 33.

[117] *See* United States v. Terminal R.R. Ass'n of St. Louis, 224 U.S. 383, 405 (1912).

[118] *Id.* at 397.

[119] *See id.*

[120] *See id.*

[121] *See* Gopinath, *supra* note 35; Jayachandran, *supra* note 38; Kelly, *supra* note 9; Levi, *supra* note 10.

[122] Associated Press v. United States, 326 U.S. 1, 15 (1945).

number of independent companies might combine for the purpose of controlling or acquiring terminals for their common but exclusive use. In such cases other companies might be admitted upon terms or excluded altogether."[123]

On the other hand, the antitrust risks increase as access to the permissioned blockchain becomes necessary for non-members to compete.[124] Such may be the case when access to a blockchain developed by large joint ventures, like R3, becomes so prevalent and impactful that companies that are not members of the joint venture cannot effectively compete unless they have access.[125] In *Terminal Railroad Association of St. Louis*, the Court instructed that the joint venture be dissolved unless its members reorganized the joint venture allowing for "admission of any existing or future railroad to joint ownership and control of the combined terminal properties, upon such just and reasonable terms as shall place such applying company upon a plane of equality in respect of benefits and burdens with the present proprietary companies."[126] Further, the Court required that the reorganized joint venture allow any other company that chose not to become a part of the joint venture the use of the joint venture's facilities so long as the other company complied with justified terms.[127] Similarly, if a joint venture's blockchain technology becomes essential to competition, a joint venture, to lessen the antitrust risks, may want to open its membership and allow reasonable access to its technology for non-members on fair, reasonable, and non-discriminatory terms.[128]

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[123] *Terminal R.R. Ass'n of St. Louis*, 224 U.S. at 405.

[124] *See id.* at 397.

[125] *See id.*

[126] *Id.* at 411.

[127] *See id.*

[128] *See id.*

2. The Nature and Scope of the Joint Venture's Power in the Relevant Market

The formation of joint ventures revolving around blockchain technology will likely involve the establishment of bylaws for their members.[129] Generally, bylaws are necessary for the successful operation of any joint venture, especially when that venture is comprised of competitors; however, *Associated Press* clearly established that some bylaws violate antitrust laws.[130]

In *Associated Press*, the joint venture— comprised of over twelve hundred newspapers with eighty percent of the newspaper circulation— had market power.[131] It also forbade the dissemination of news to non-members.[132] Further, if an applicant newspaper company competed in the same market as a member of the Associated Press, that member was given veto power to deny the applicant admission into the Associated Press.[133] However, if an applicant newspaper did not compete with an existing member, the board of the joint venture had the ability to admit the applicant without approval from existing members.[134] The Supreme Court ruled that these bylaws unlawfully restricted competition by severely limiting a new newspaper from entering one of the cities already occupied by a member of the Associated Press.[135] In fact, the Supreme Court stated that "the By-Laws on their face, and without regard to their past effect, constitute restraints of trade."[136]

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[129] *See* Associated Press v. United States, 326 U.S. 1, 8-9 (1945) (explaining importance of bylaws).

[130] *See id.* at 9.

[131] *See* ELHAUGE & GERADIN, *supra* note 13, at 166.

[132] *See* ABA Section of Antitrust Law, *supra* note 7, at 491.

[133] *See Associated Press*, 326 U.S. at 10.

[134] *See id.* at 10–11; ELHAUGE & GERADIN, *supra* note 13, at 166.

[135] *See Associated Press*, 326 U.S. at 13.

[136] *Id.* at 12.

If the members of a permissioned blockchain collectively possess market power, then the antitrust risks increase if their joint venture provides members with a similar veto power that allows members to essentially unilaterally restrict access and inhibit other competitors from entering the market.[137] A court could find that this bylaw provision is anticompetitive and illegal without analyzing or considering whether the bylaws actually restrained trade, as the Court did in *Associated Press*.[138]

On the other hand, the antitrust risks decrease if the members of a permissioned blockchain do not collectively possess market power, as their actions are less likely to restrain trade in the relevant market.[139] Further, a permissioned blockchain joint venture that does collectively possess market power could still conceivably exclude companies from the joint venture, similar to the veto allowed in *Associated Press*,[140] as long as the joint venture implemented sufficient safeguards based around the joint venture's decisions to exclude.[141] Specifically, the joint venture's decision as to which party to exclude should have safeguards that prevent the members of the joint venture from making a biased decision that inhibits competition.[142] Although the Court has been dismissive of such safeguards in the past,[143] recently the Court has been more accepting of these safeguards.[144]

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[137] *See id.* at 12–13.

[138] *See id.* at 12.

[139] *See* Nw. Wholesale Stationers, Inc. v. Pac. Stationery & Printing Co., 472 U.S. 284, 296 (1985); *Associated Press*, 326 U.S. at 12–13.

[140] *See Associated Press*, 326 U.S. at 10–11.

[141] *See* Allied Tube & Conduit Corp. v. Indian Head, Inc., 486 U.S. 492, 509 (1988).

[142] *See id.*

[143] *See* ELHAUGE & GERADIN, *supra* note 13, at 172 (explaining Court's holding in Silver v. NYSE, 373 U.S. 341 (1963).

[144] *See Allied Tube & Conduit Corp.*, 486 U.S. at 508–10.

3. The Degree to Which the Benefits of the Venture Can be Duplicated by Nonparticipants in Some Other Fashion, such as Forming a Similar Joint Enterprise

A permissioned blockchain joint venture's antitrust risks decrease if the joint venture and the underlying blockchain software are duplicable.[145] For example, if the joint venture's benefits were based on the software's ease of use and the competing joint venture can buy or license similar software that has a similar ease of use, the blockchain joint venture's antirust risks are likely minimal in that regard.[146]

On the other hand, the joint venture's antitrust risks increase if the blockchain software and its benefits are not duplicable by a rival joint venture formed by competitors.[147] For instance, given the inherent topographical limitations in *Terminal Railroad Association of St. Louis*, it was extremely unlikely that a competing joint venture could build other facilities necessary to achieve the benefits that the joint venture maintained.[148] Moreover, one of the benefits of a joint venture, like R3, is that all of the member financial institutions exclusively use the permissioned blockchain technology created through the joint venture to conduct all of their financial transfers.[149] Given this, the size of the member financial institutions and the fact that access to the permissioned blockchain technology is necessary for any party to participate in such transfers, it is unlikely that competitors could form a rival joint venture that would derive similar benefits.[150]

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[145] *See* ABA Section of Antitrust Law, *supra* note 7, at 490–91.

[146] *See id.*

[147] *See id.*

[148] *See* United States v. Terminal R.R. Ass'n of St. Louis, 224 U.S. 383, 405 (1912).

[149] *See Terminal R. R. Ass'n of St. Louis*, 224 U.S. at 405; ABA Section of Antitrust Law, *supra* note 7, at 490–91; Kelly, *supra* note 9.

[150] *See Terminal R. R. Ass'n of St. Louis*, 224 U.S. at 405.

4.   The Business Reasons for the Refusal to Grant Access

Finally, a permissioned blockchain joint venture's antitrust risks decrease if it has a significant, legitimate pro-competitive business justification for its restraint.[151] For example, if it rejected an applicant because if the applicant were admitted, neither the applicant nor the members of the joint venture could sustain a successful business, and there was substantial evidence to substantiate this claim, then the court may likely decide for the venture.[152] This is because if admittance was allowed, the net effect would be to decrease the number of competitors in the market, resulting in decreased competition and decreased consumer choice.[153] Thus, it would likely help a joint venture's argument if the joint venture conducted an analysis for every applicant regarding the sustainability of member businesses and the impact on consumers that would occur if the applicant was admitted.[154]

In *Associated Press*, the Associated Press did not conduct such an analysis.[155] It simply allowed one competing member to maintain the exclusive power to veto the applicant's application.[156] Thus, an analysis concerning the sustainability of businesses in that area could help to differentiate the bylaws of the joint venture from the bylaws at issue in *Associated Press*.[157]

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[151] *See* Nw. Wholesale Stationers, Inc. v. Pac. Stationery & Printing Co., 472 U.S. 284, 295 (1985).

[152] *See* Associated Press v. United States, 326 U.S. 1, 12–13 (1945).

[153] *See id.* at 13.

[154] *See id.*

[155] *See id.* at 10–11, 13.

[156] *See id.* at 10.

[157] *See generally id.* at 8–13.

B. Would a Joint Venture With a Permissioned Blockchain Receive Per Se Treatment or a Rule of Reason Analysis for its Denial of Access to a Competitor?

An additional likely concern for a member of a joint venture is whether the denial of access to a permissioned blockchain would be deemed *per se* illegal or subject to a rule of reason analysis.[158] In *Northwest Wholesale Stationers, Inc.*, the Court stated that the distinction between these two standards is based on whether the conduct at issue appears on its face to "always or almost always tend to restrict competition and decrease output . . . or instead one designed to 'increase economic efficiency and render markets more, rather than less, competitive.'"[159] Thus, a court's choice between these two legal standards will likely be influenced by the factors discussed above in subpart (a).[160]

Therefore, a member could argue that a permissioned blockchain would increase efficiency for the consumers as much of the administration of the transfer of funds would move from a human function to one that is computerized and much faster as computers would almost instantly perform the record keeping and audit functions that are currently performed by people.[161] Additionally, they could argue that this would increase competition especially among the members of the joint venture as the underlying technology that they would offer the consumer is the same; thus, these members would likely have to compete on other factors such as price, service, and geographic availability.[162] Similarly, competition

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[158] *See* Nw. Wholesale Stationers, Inc. v. Pac. Stationery & Printing Co., 472 U.S. 284, 294 (1985); *Associated Press*, 326 U.S. at 27.

[159] *Nw. Wholesale Stationers, Inc.*, 472 U.S. at 289–90 (quoting Broad. Music, Inc. v. Columbia Broad. Sys., Inc., 441 U.S. 1, 19–20 (1979)).

[160] *See id.*

[161] *See* Gopinath, *supra* note 35; Jayachandran, *supra* note 38; Kelly, *supra* note 9; Levi, *supra* note 10.

[162] *See* Gopinath, *supra* note 35; Jayachandran, *supra* note 38; Kelly, *supra* note 9; Levi, *supra* note 10.

among both members and non-members would increase, as non-members would have to develop their own competing technology or increase other services offered and/or decrease prices.[163] Additionally, according to the holding in *Northwest Wholesale Stationers, Inc.*, in cases where courts often apply the *per se* illegal standard, the joint ventures are actively seeking to harm the non-member through actions that are not justifiable by procompetitive benefits, like in *Associated Press*.[164] Taking all of these factors into consideration, it is unlikely that a court would apply a *per se* illegal standard to a joint venture that is not open to all competitors if the joint venture can offer significant procompetitive business justifications.[165]

VI.   CONCLUSION

The popularity of blockchain has correlated with the advent, and widespread adoption, of Bitcoin; however, uses outside of digital currency abound for blockchain technology and its users.[166] Given that blockchain can store vast amounts of information in a highly encrypted database, one of blockchain's more impactful uses will likely concern transfers among large financial organizations and digitizing the record-keeping and audit functions that result from these transfers.[167] Currently, these transfers cost over one trillion dollars per year, a large part of which is likely used to cover the administrative duties and resulting expenses that it takes to complete these transfers.[168] Thus, financial institutions implementing blockchain as a digital ledger to keep records for each individual

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[163] *See* Gopinath, *supra* note 35; Jayachandran, *supra* note 38; Kelly, *supra* note 9; Levi, *supra* note 10.

[164] *See Nw. Wholesale Stationers, Inc.*, 472 U.S. at 294; Associated Press v. United States, 326 U.S. 1, 12–13 (1945).

[165] *Nw. Wholesale Stationers, Inc.*, 472 U.S. at 289–90, 294.

[166] *See* Klayman, *supra* note 10, at 1–4; Marr, *supra* note 8; O'Shields, *supra* note 10, at 181; *21 Areas of Blockchain Application Beyond Financial Services*, *supra* note 40.

[167] *See* Klayman, *supra* note 10, at 1–4.

[168] *See High Tech Meets Low Finance*, *supra* note 54.

transaction could decrease these costs while also increasing security and efficiency.[169]

To fully realize the benefits of blockchain as a digital ledger, many financial institutions will likely have to join together in a joint venture so that the parties are using the same blockchain technology, as that would enhance efficiency and maximize the utility of blockchain.[170] However, a joint venture among competitors can give rise to unique antitrust issues, as a joint venture of unrelated competitors that excludes or refuses other non-member competitors from accessing the joint venture's facilities is challengeable under the Sherman Act.[171]

As the number of large financial institutions entering joint ventures to utilize blockchain increases, the antitrust scrutiny will likely increase as well.[172] These joint ventures can take steps to reduce antitrust risks.[173] Antitrust risks decrease if a joint venture proactively develops procedures to organize and document evidentiary analysis of the procompetitive benefits of the joint venture and the positive impact on consumers.[174] Further, antitrust risks decrease if a permissioned blockchain maintained by a joint venture comprised of large financial

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[169] *See High Tech Meets Low Finance*, *supra* note 54; Klayman, *supra* note 10, at 4; O'Shields, *supra* note 10, at 183; *21 Areas of Blockchain Application Beyond Financial Services*, *supra* note 40.

[170] *See High Tech Meets Low Finance*, *supra* note 54; Klayman, *supra* note 10, at 4; O'Shields, *supra* note 10, at 183; *21 Areas of Blockchain Application Beyond Financial Services*, *supra* note 40.

[171] *See Unlocking the Blockchain: A Global Legal and Regulatory Guide*, *supra* note 34, at 31–36.

[172] *See id.*

[173] *See* Nw. Wholesale Stationers, Inc. v. Pac. Stationery & Printing Co., 472 U.S. 284, 296 (1985); Associated Press v. United States, 326 U.S. 1, 12–13 (1945); *Unlocking the Blockchain: A Global Legal and Regulatory Guide*, *supra* note 34, at 31–36.

[174] *See Nw. Wholesale Stationers, Inc.*, 472 U.S. at 296; ELHAUGE & GERADIN, *supra* note 13, at 75.

institutions provides reasonable access to competitors.[175] Additionally, antitrust risks decrease if the resulting benefits from a joint venture's blockchain technology are duplicable by a competitor.[176] With significant increases in utilization of blockchain and projections of expansion beyond financial institutions, it is important that joint ventures consider the antitrust risks and issues underlying the joint venture's blockchain technology and take proactive steps, such as those outlined above, to decrease the antitrust risk.[177]

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[175] *See Nw. Wholesale Stationers, Inc.*, 472 U.S. at 294–96; United States v. Terminal R.R. Ass'n of St. Louis, 224 U.S. 383, 405 (1912).

[176] *See Terminal R.R. Ass'n of St. Louis*, 224 U.S. at 405; ABA Section of Antitrust Law, *supra* note 7, at 490–91; Kelly, *supra* note 9.

[177] *See Nw. Wholesale Stationers, Inc.*, 472 U.S. at 296; *Associated Press*, 326 U.S. at 21; *Terminal R. R. Ass'n of St. Louis*, 224 U.S. at 405; ELHAUGE & GERADIN, *supra* note 13, at 73–75; Kelly, *supra* note 9.