

BLOCKCHAIN PLUMBING: A POTENTIAL SOLUTION FOR SHAREHOLDER VOTING?

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INTRODUCTION

The 2017 proxy season, lasting from March to June, saw upwards of 437 billion shares voted across more than four thousand shareholder meetings.¹ In 2008, a Delaware attorney stated that proxy contests with

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1. See BROADRIDGE, 2017 Proxy Season Key Statistics and Performance Ratings, <http>

election results closer than fifty-five percent to forty-five percent could not be accurately verified.² One study of proposals put to a shareholder vote between 1997 and 2004 found that sixty-four voting results had a margin of victory less than one percent.³ These facts alone raise the question: can we rely on shareholder voting given its potential for inaccuracies? Even if we can more accurately ascertain the results, is it efficient to do so?

Since Adolf Berle and Gardiner Means published their seminal book outlining the separation of ownership and control in the modern corporation,⁴ scholarly literature on the proper role of the shareholder within the corporation has exploded.⁵ Some scholars support increasing shareholder participation⁶ while others advocate the limitation of the shareholder franchise as much as possible.⁷ Nevertheless, the shareholder franchise continues to be one of the most important topics in corporate law.⁸ A well-established principle in corporate governance stems from the principal-agent problem, and the shareholder vote undoubtedly is meant to

s://www.broadridge.com/_assets/pdf/key-statistics-and-performance-ratings-for-the-2017-proxy-season.pdf [https://perma.cc/4B8S-ZRD4].

2. Marcel Kahan & Edward B. Rock, *The Hanging Chads of Corporate Voting*, 96 GEO. L.J. 1227, 1279 (2008).

3. Yair Listokin, *Management Always Wins the Close Ones*, 10 AM. L. & ECON. REV. 159, 161 (2008).

4. See ADOLF A. BERLE & GARDINER C. MEANS, *THE MODERN CORPORATION AND PRIVATE PROPERTY* 5-8, 84-90 (1932).

5. For a general overview of the role of shareholders and the rationale behind shareholder voting, see FRANK D. EASTERBROOK & DANIEL R. FISCHEL, *THE ECONOMIC STRUCTURE OF CORPORATE LAW* 63-89 (1991).

6. See, e.g., John H. Matheson & Brent A. Olson, *Corporate Cooperation, Relationship Management, and the Trialogical Imperative for Corporate Law*, 78 MINN. L. REV. 1443 (1994); William W. Bratton & Joseph A. McCahery, *Regulatory Competition, Regulatory Capture, and Corporate Self-Regulation*, 73 N.C. L. REV. 1861 (1995); Luc Renneboog & Peter G. Szilagyi, *The Role of Shareholder Proposals in Corporate Governance*, 17 J. CORP. FIN. 167 (2011) (supporting shareholders' right to propose new bylaw amendments and participate heavily in corporate governance).

7. See, e.g., LYNN STOUT, *THE SHAREHOLDER VALUE MYTH: HOW PUTTING SHAREHOLDERS FIRST HARMS INVESTORS, CORPORATIONS, AND THE PUBLIC* (2012) (calling into question the growing focus on shareholder wealth maximization and participation); ROBERT CHARLES CLARK, *CORPORATE LAW* 95 (1986) (stating that shareholding voting is "a mere ceremony designed to give a veneer of legitimacy to managerial power"); Iman Anabtawi, *Some Skepticism About Increasing Shareholder Power*, 53 U.C.L.A. L. REV. 561, 564 (2006) (promoting the idea that directors use all available power over the firm to avoid "often conflicting" shareholder interests); Jill E. Fisch, *Taking Boards Seriously*, 19 CARDOZO L. REV. 265, 272-75 (1997) (advocating for the consolidation of corporate control with the board of directors).

8. See R. Franklin Balotti & Travis Laster, *Professor Coates Is Right. Now Please Study Stockholder Voting*, 54 U. MIAMI L. REV. 819, 837 (2000) ("Stockholder voting is the central issue in today's takeover battles.").

serve as a check on the board's managerial power.⁹ A 2010 report by the Council of Institutional Investors noted that recent changes in corporate governance, including the relative increase in proxy battles in lieu of tender offers, "will place more pressure on voting outcomes."¹⁰

Recognizing the need to improve the underlying proxy machinery that steers the shareholder voting process, the Securities & Exchange Commission issued a concept release in July 2010 soliciting feedback on how to move the plagued system¹¹ into the twenty-first century.¹² Yet, with all the research surrounding the current voting framework, much of the shareholder voting mechanism remains an outdated product of the pre-Internet era.¹³

Vice Chancellor Travis Laster has proffered a solution. In a 2016 speech, noting that "[t]he current system works poorly and harms stockholders," Laster posited that distributed ledger technology ("DLT"), more commonly known as the blockchain, can modernize shareholder voting and provide a more efficient platform for stockholders to exercise their franchise.¹⁴

9. RESTATEMENT (THIRD) OF AGENCY § 1.01 (AM. LAW INST. 2006). *See* Adam Smith, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 439 (1776) ("Like the stewards of a rich man, they are apt to consider attention to small matters as not for their master's honour [sic], and very easily give themselves a dispensation from having it.").

10. Alan L. Beller & Janet L. Fisher, *The OBO/NOBO Distinction in Beneficial Ownership: Implications for Shareholder Communications and Voting* (February 2010), http://www.cii.org/files/publications/white_papers/02_18_10_obo_nobo_distinction_white_paper.pdf [<https://perma.cc/75WL-FA5J>], at 11.

11. *See infra* Part I.B.3. For one example of many, see Matt Levine, *T. Rowe Price Voted for the Dell Buyout by Accident*, BLOOMBERG VIEW (May 13, 2016, 12:14 PM), <https://www.bloomberg.com/view/articles/2016-05-13/t-rowe-price-voted-for-the-dell-buyout-by-accident> [<https://perma.cc/6KYR-C8HU>] (describing how an error in the current proxy system caused a large asset manager to vote its block of shares differently than intended); *In re Appraisal of Dell Inc.*, 2015 WL 4313206 (Del. Ch. July 30, 2015) (same).

12. *See generally* Concept Release on the U.S. Proxy System, Exchange Act Release No. 34-62495, Investment Advisers Act Release No. 3052, Investment Company Act Release No. 201340, 98 SEC Docket 3027 (July 14, 2010), <http://www.sec.gov/rules/concept/2010/34-62495.pdf> [<https://perma.cc/3X6Y-MM2J>] [hereinafter "SEC Concept Release"].

13. *See* Matt Levine, *Absent Regulators and Activist Votes*, BLOOMBERG VIEW (Nov. 17, 2017, 9:40AM), <https://www.bloomberg.com/view/articles/2017-11-17/absent-regulator-s-and-activist-votes> [<https://perma.cc/8AC7-LKHR>] (describing a recent proxy contest where the vote tabulator "showed up with a wooden table . . . divided into bins; much like the counting boards used in ancient Mesopotamia. . . . The guy had tabulated things but there were lots of problems. . . . The CEO and I would trade back and forth until the three of us agreed on a total we could all live with."). Ironically, the story described seems eerily similar to that of the 2000 election, where the margin of victory in the state of Florida was less than 0.03%. *Bush v. Gore*, 531 U.S. 98, 100-01 (2000).

14. J. Travis Laster, Del. Ch., *The Block Chain Plunger: Using Technology to Clean*

But how would blockchain technology for shareholder voting work? Does it fit within the existing regulatory framework? Given the debate over whether shareholders should even participate in the corporation, should it be implemented? This Article provides answers to these questions.

Part I provides an overview of the current shareholder voting regime in the United States by analyzing shareholders' ability to vote and the elaborate structure that has developed to facilitate that process. The section discusses the relevant ownership principles under the Uniform Commercial Code and establishes the difference between beneficial and record ownership. Securities ownership and the proxy voting process are incredibly complicated in the United States, leading to vote counting errors, accidentally voted shares, votes that are too close to call, and empty voting. The section concludes by noting the costs associated with the current regime and how a monopolistic market favoring proxy advisory firms has resulted in inefficiencies for shareholders.

Part II introduces the reader to distributed ledger technology and its associated blockchains. It begins by highlighting the general trend toward digital corporate governance, specifically the adoption of virtual shareholder meetings and decentralized autonomous organizations. The section provides a high level overview of the theoretical and technical underpinnings of blockchains, followed by a discussion of how the technology might be integrated into the corporate regime using permissioned ledgers and voting tokens.

Part III outlines the key arguments for and against implementing blockchain technology for voting. The section discusses ways the technology can allow boards to further manipulate an already complex proxy system, including the use of a rapid voting timeline and as a tool for greater information disparity. The section also highlights how blockchain's massive rise in popularity may lead to its use despite the availability of other, more traditional technologies. The section continues by analyzing the efficacy of the shareholder vote in light of the rational apathy and rational ignorance problems. Theories of the firm are discussed, as well as managers' perceived duty to maximize shareholder value. The analysis concludes with arguments for remaining *laissez faire* and leaving the

Up Proxy Plumbing and Take Back the Vote, Keynote Speech for the Council of Institutional Investors (Sept. 29, 2016), https://www.cii.org/files/09_29_16_laster_remarks.pdf [<https://perma.cc/93EW-6LPB>] [hereinafter "Laster CII Speech"]; see also George S. Geis, *Traceable Shares and Corporate Law*, 113 Nw. U. L. REV. 227 (2018), (suggesting that distributed ledger technology—blockchain—may solve many problems stemming from antiquated securities clearing mechanisms).

decision of whether to implement distributed ledger technology to the marketplace.

I. THE CURRENT SHAREHOLDER VOTING REGIME

A. *The Shareholder Franchise*

At common law, the right of a shareholder to vote at a shareholders' meeting was "regarded much the same as the right to vote in a political election—so personal that it could not be delegated."¹⁵ However, as share ownership began to grow in the early 1900s,¹⁶ dispersed stockholders could not receive quality necessary to make informed voting decisions.¹⁷ In response to the harm caused by securities market practices leading up to the Great Depression,¹⁸ Congress enacted the Securities and Exchange Act of 1934 ("the Exchange Act")¹⁹ to restore to shareholders the power they previously wielded as fully informed voting participants at shareholder meetings.²⁰ This legislation pushed forth the proxy mechanism, facilitating shareholders' ability to delegate their voting power to an agent, usually a third party nominated by management.²¹ Since most shareholders no longer attend company shareholder meetings in person,²² shareholders exercise their franchise primarily by proxies submitted prior to the meeting. Issuers of securities registered under the Exchange Act and issuers registered under the Investment Company Act of 1940 are required to comply with federal proxy rules when soliciting proxies from

15. FRANK D. EMERSON & FRANKLIN C. LATCHAM, *SHAREHOLDER DEMOCRACY: A BROADER OUTLOOK FOR CORPORATIONS* 4 (1954).

16. See BERLE & MEANS, *supra* note 4, at 47-64 (describing the general growth and dispersion of stockholders in the 1900s). For example, AT&T saw stockholder growth from 10,000 in 1901 to 642,180 by 1931. *Id.* at 55.

17. See Jill E. Fisch, *From Legitimacy to Logic: Reconstructing Proxy Regulation*, 46 VAND. L. REV. 1129, 1138 (1993) (pointing to geographic dispersion as a hindrance on the power of shareholder voting).

18. *Id.*

19. Codified at 15 U.S.C. § 78 (2012).

20. Fisch, *supra* note 17, at 1140; see also LOUIS D. GILBERT, *DIVIDENDS AND DEMOCRACY* 30-31 (1956) (the Exchange Act was passed "in the belief that shareholders could not vote effectively until they had adequate information").

21. See BERLE & MEANS, *supra* note 4, at 139 (describing management's proxy nominee as a "dummy").

22. Lisa A. Fontenot, *Public Company Virtual-Only Annual Meetings*, 73 BUS. LAW. 35, 35 (2018) (noting that most shareholders no longer attend shareholder meetings in person and even institutional investors face attendance difficulties stemming from a multitude of meetings over a short span each spring).

shareholders.²³ Thus, the corporate proxy has become “the forum for shareholder suffrage.”²⁴

Shareholders’ right to vote is primarily a product of state law and stock exchange rules. Under Delaware law, shareholders vote to elect a board of directors;²⁵ effect changes to the bylaws;²⁶ and approve mergers,²⁷ sales of substantially all or all assets,²⁸ and amendments to the corporation’s certificate of incorporation.²⁹ Delaware has traditionally supported the shareholder franchise³⁰ and recent case law provides further incentives for corporations to maximize their use of shareholder votes.³¹ Moreover, the Model Business Corporation Act respects the fundamental importance of shareholder voting to elect directors and approve major changes.³² The New York Stock Exchange likewise requires shareholder approval for transactions involving the issuance of stock that increases the number of outstanding shares by twenty percent or more.³³ In other, more limited circumstances, shareholders have the ability to proffer and vote on proposals at the annual shareholder’s meeting.³⁴

23. 17 C.F.R. § 240.14a-1 (2014); 17 C.F.R. § 270.20a-1 (2014); SEC Concept Release, *supra* note 12, at *11.

24. *Roosevelt v. E.I. DuPont de Nemours & Co.*, 958 F.2d 416, 422 (D.C. Cir. 1992).

25. DEL. CODE ANN. tit. 8, § 211(b), 216.

26. *Id.* § 109.

27. *Id.* § 251(c).

28. *Id.* § 271.

29. *Id.* § 242(b).

30. *See, e.g., Blasius Indus., Inc. v. Atlas Corp.*, 564 A.2d 651 (Del. Ch. 1988) (applying a higher standard of review for actions by the board with the primary purpose of interfering with the shareholder franchise); *MM Cos. v. Liquid Audio, Inc.*, 813 A.2d 1118 (Del. 2003) (affirming *Blasius*).

31. *See, e.g., Corwin v. KKR Fin. Holdings LLC*, 125 A.3d 304 (Del. 2015) (applying great deference to an informed, affirmative vote of a majority of shareholders); *Kahn v. M&F Worldwide Corp.*, 88 A.3d 635 (Del. 2014) (providing a cleansing effect via business judgment review for self-interested transactions if approved by an affirmative vote of a majority of the minority shareholders).

32. MODEL BUS. CORP. ACT §§ 7.01 and 7.21.

33. NYSE, Inc., Listed Company Manual § 312.03(c).

34. 17 C.F.R. § 240.14a-8 (2014). This right is often limited under a number of exceptions. The most prominent is the so-called ordinary business doctrine, which prevents shareholders from voting on proposals that fall within the “ordinary business operations” of a corporation. *See, e.g., HP Inc.*, SEC No-Action Letter, 2016 WL 6819133, at *1 (Dec. 28, 2016) (granting no enforcement action protection to HP and concluding that selection of venue for annual shareholder meetings constitutes ordinary business operations).

B. Proxy Voting Machinery

1. Complexity of Ownership

The U.S. proxy system can be described as nothing less than overly complex. This complexity stems from a system of share ownership where intermediaries such as banks and broker-dealers hold almost all securities.³⁵ Although this system supports quick and relatively accurate clearance and settlement of securities transactions, it adds “significant complexity to the proxy voting process.”³⁶ The current state of proxy voting creates a need for an array of third parties, including brokers, banks, custodians, securities depositories, transfer agents, proxy solicitors, proxy service providers, proxy advisory firms, and vote tabulators.³⁷ These third parties are often, and rightfully, seen as an impediment to the efficiency of the proxy machine, creating additional expenses and more opportunities for error along the way.³⁸

Since the proxy solicitation process begins by determining who has the right to vote on matters presented at shareholders meetings,³⁹ it is important to discuss in greater detail the way shares are owned under the U.S. system. From the founding of the stock exchange on Wall Street through the mid-1970s, clerks and messengers hand delivered stock certificates between buyers and sellers to execute trades.⁴⁰ This arcane mechanism was inefficient, arguably slowed the growth of American capital markets, and even forced the stock markets to close on Wednesdays for traders to catch up on paperwork.⁴¹ Finally, in 1975 Congress amended

35. FINAL REPORT OF THE SECURITIES AND EXCHANGE COMMISSION ON THE PRACTICE OF RECORDING THE OWNERSHIP OF SECURITIES IN THE RECORDS OF THE ISSUER IN OTHER THAN THE NAME OF THE BENEFICIAL OWNER OF SUCH SECURITIES PURSUANT TO SECTION 12(M) OF THE SECURITIES AND EXCHANGE ACT OF 1934, Dec. 3, 1976 [hereinafter “SEC Report on Ownership of Securities”].

36. SEC Concept Release, *supra* note 12, at *8.

37. *Id.*

38. See generally Tamara C. Belinfanti, *The Proxy Advisory and Corporate Governance Industry: The Case for Increased Oversight and Control*, 14 STAN. J.L. BUS. & FIN. 384 (2009).

39. SEC Concept Release, *supra* note 12, at *11.

40. David C. Donald, *The Rise and Effects of the Indirect Holding System: How Corporate America Ceded its Shareholders to Intermediaries*, Johann Wolfgang Goethe-Universität, Institute for Law and Finance, Working Paper No. 68, 9-10 (2007), http://publikationen.uni-frankfurt.de/volltexte/2007/4885/pdf/ILF_WP_068.pdf [<https://perma.cc/Q5RD-5FTL>].

41. See Wyatt Wells, *The Remaking of Wall Street, 1967 to 1971*, 74 BUS. HIST. REV. 193, 201 (2000) (noting that the slow process caused several exchanges in the U.S. to limit their trading hours); FINRA, *When Paper Paralyzed Wall Street: Remembering the 1960s*

the Exchange Act to require the immobilization of all exchange-traded securities held by banks and brokers for their clients.⁴² Securities, including stock certificates, were to be held in “street name” in a central depository with share transfers recorded akin to book entry style accounting, thereby eliminating many of the logjams of the hand-to-hand paper system.⁴³ Now, about eighty-five percent of shares are held in “street name” by banks, brokers, and other intermediaries.⁴⁴ Essentially, “street name” means that certificates representing shares bear the names of financial intermediaries in lieu of the beneficial owners as a means to ease the transfer process.⁴⁵ Shares are then deposited with the Depository Trust and Clearing Corporation (“DTCC”),⁴⁶ which keeps track of who owns them using electronic bookkeeping.⁴⁷ As of 2008, DTCC held securities worth more than \$40 trillion in street name.⁴⁸ Important to many state laws and federal proxy regulations, DTCC’s affiliate Cede & Co. is the shareholder of record on the issuing company’s stock register.⁴⁹

Although this system of ownership greatly facilitates the efficiency of trading and clearing in the public marketplace, these benefits come at the cost of obfuscating beneficial ownership of those shares. The true beneficial owner of the equitable title is often not the record shareholder that state corporation law recognizes. For example, in Delaware the corporation’s stock ledger is the only evidence as to who the company’s stockholders are and this stock ledger determines who may vote.⁵⁰ Access

Paperwork Crisis (Aug. 19, 2015), <http://www.finra.org/investors/when-paper-paralyzed-wall-street-remembering-1960s-paperwork-crisis> [<https://perma.cc/722B-LFQJ>] (describing how piles of certificates caused stock markets to close on Wednesdays).

42. 15 U.S.C. § 78q-1(e) (2012) (as amended in 1975, § 17A(e) of the Securities and Exchange Act of 1934).

43. *Id.*; Donald, *supra* note 40, at 10.

44. Sec. & Exch. Comm’n, Briefing Paper: Roundtable on Proxy Voting Mechanics (May 23, 2007), <https://www.sec.gov/spotlight/proxyprocess/proxyvotingbrief.htm> [<https://perma.cc/394Z-J8C7>].

45. *Why are Securities Held ‘In Street Name’?*, INVESTOPEDIA, <https://www.investopedia.com/ask/answers/185.asp> [<https://perma.cc/3GJW-PAXL>].

46. DTCC provides a broad range of settlement and clearing activities while most securities transfers are handled by its subsidiaries The Depository Trust Co. (“DTC”) and Cede & Co. (“Cede”). DTC, <http://www.dtcc.com/about/businesses-and-subsidiaries/dtc> [<https://perma.cc/YFN6-YQF9>].

47. *See generally Settlement & Asset Services*, DTCC, <http://www.dtcc.com/settlement-and-asset-services> [<https://perma.cc/V2BR-5DUE>].

48. *See* Larry Garvin, *The Changed (and Changing?) Uniform Commercial Code*, 26 FLA. ST. L. REV. 285, 315 (1999) (estimating that as much as seventy or eighty percent of shares of public companies are held by DTCC and its subsidiaries).

49. *Id.*

50. DEL. CODE ANN. tit. 8 § 219(c) (providing that the corporation’s stock ledger is the

to the appraisal remedy, a hot topic of corporate law today, is also affected by the distinction between record and beneficial ownership since only a record holder may perfect appraisal rights.⁵¹ There are narrow exceptions, however, where the Delaware courts have been more flexible on the distinction between record and beneficial owners.⁵² Moreover, the consequences appear conflated when considering that both record owners and beneficial owners may bring suit for actions challenging the validity of a contested election of directors.⁵³ Understanding the nuances of what actions record owners may take vis-à-vis beneficial owners can be challenging, but Article 8 of the Uniform Commercial Code steps in to provide the roadmap for deciphering underlying property issues: the holder of shares in street name has a “security entitlement” in a “financial asset.”⁵⁴ That entitlement is not a claim to specific property; it represents the right to enforce a claim against the intermediary (e.g., broker or bank) to deliver all property rights associated with the shares.⁵⁵ The beneficial owner holds a pro rata claim against the intermediary’s holdings, and it is immaterial whether the intermediary actually owns sufficient shares to cover the claims.⁵⁶ The resulting indirect holding system not only partially hides the

only evidence as to who are the stockholders); *see also* *Berlin v. Emerald Partners*, 552 A.2d 482, 494 (Del. 1989) (holding that record ownership is the definitive factor in determining who may vote).

51. DEL. CODE ANN. tit. 8 § 262 (allowing “record owners” to exercise appraisal rights); *In re* Transkaryotic Therapies, Inc., No. Civ.A. 1554-CC, 2007 WL 1378345, at *3 (Del. Ch. May 2, 2007) (“Only the record holder possesses and may perfect appraisal rights. The statute simply does not allow consideration of the beneficial owner in this context.”). More recently, record ownership played a large part in the Dell appraisal litigation in which a shareholder lost the ability to seek appraisal because the record holder, DTCC, transferred a beneficial owners’ shares to a new record owner, thereby resulting in a failure to satisfy the statute’s continuous ownership requirement. DEL. CODE ANN. tit. 8 §§ 262(a), 262(h) (providing that the word “stockholder means a holder of record of stock in a corporation”); *In re* Appraisal of Dell Inc., 2015 WL 4313206, at *21 (Del. Ch. July 30, 2015); *see also* Laster CII Speech, *supra* note 14 (“Constrained by the law, I held they lost standing to seek appraisal Personally, I think that is absurd.”). Laster goes on to note that the record ownership distinction caused the shareholder to lose the ability to collect interest for the capital represented by those shares, again indicating the economic importance at play. *Id.*

52. *See, e.g.,* *Gamble-Skogmo, Inc. v. Saks*, 122 A.2d 120 (Del. 1956) (holding that proof of record ownership is not required to maintain a derivative action); *see also* R. FRANKLIN BALOTTI & JESSE A. FINKELSTEIN, DELAWARE LAW OF CORPORATIONS AND BUSINESS ORGANIZATIONS § 13.10 (2007) (“An equitable owner of shares is considered a stockholder and may maintain a derivative action.”).

53. DEL. CODE ANN. tit. 8 § 225; *Rosenfield v. Standard Elec. Equip. Corp.*, 83 A.2d 843, 845 (Del. Ch. 1951).

54. UCC § 8-501(b); *id.* § 8-102(a)(9) (stating that financial assets include shares).

55. *Id.* § 8-503(b).

56. *Id.*; *id.* § 8-501(c)-(e); *see also* Kahan & Rock, *supra* note 2, at 1240-43 (describing

owner's identity but also obscures the quantity owned. Although corporation law views a shareholder as owner of a determinate number of shares, under Article 8 the shareholder legally owns only a pro rata interest in a fungible mass of securities that the broker holds.⁵⁷ This regime allows a brokerage customer to become an entitlement holder even if the intermediary has not yet acquired the shares to be credited to the customer's account, and even if the intermediary does not own a single share.⁵⁸ Marcel Kahan and Edward Rock, both currently at New York University Law School, claim that holding in "fungible bulk" leads to a misalignment of property rights and is among the chief causes of voting errors.⁵⁹

As a result of the "fungible bulk" approach, DTCC does not handle the allocation of its shares to individual clients. Rather, a layer of intermediaries exists to aid both institutional and retail investors in navigating the share ownership machine.⁶⁰ DTCC keeps track of the owners, but the intermediaries must discern how to allocate the shares they hold among their clients. The multitude of layers means that trades take about two to three days before they are fully cleared.⁶¹ Throughout the trade, DTCC remains the record owner and the specific securities traded are not even recognized as being traded within their own systems.⁶² Thus, the corporation's list of record holders never changes throughout the entirety of the process, rendering it relatively useless for identifying the company's beneficial owners for the purposes of voting.⁶³

the relevant UCC provisions in detail and noting the bevy of problems this immateriality causes).

57. UCC § 8-503; Sec. & Exch. Comm'n, Briefing Paper: Roundtable on Proxy Voting Mechanics (May 23, 2007), <https://www.sec.gov/spotlight/proxyprocess/proxyvotingbrief.htm> [<https://perma.cc/MDW3-KRV7>]; see also Laster CII Speech, *supra* note 14 ("Ironically, at the same time that Delaware corporate law assumes that each stockholder directly owns a specific number of shares, Delaware's version of Article 8 treats each stockholder as own a pro rata interest in the fungible bulk.").

58. Kahan & Rock, *supra* note 2, at 1242.

59. *Id.* at 1243 ("The misalignment between the property rights implicit in the beneficial-owner-as-shareholder paradigm and the property concepts from Article 8 comes to the fore in the problem of overvoting").

60. See SEC Concept Release, *supra* note 12 (highlighting that the majority of participants in DTCC are brokers and banks, numbering approximately 400); see also DTC Member Directories, DTCC, <http://www.dtcc.com/client-center/dtc-directories> [<https://perma.cc/BE3P-5S7Y>] (providing detailed lists of DTCC's clients).

61. Geis, *supra* note 14 at 234.

62. *Id.*; Kahan & Rock, *supra* note 2, at 1238-40.

63. Kevin Kearney, Note, *Proxy.gov: A Proposal to Modernize Shareholder Lists and Simplify Shareholder Communications*, 37 HASTINGS COMM. & ENT. L.J. 391, 395 (2015).

2. Proxy Distribution and the Voting Process

Most shareholders no longer attend annual shareholder meetings and require a method for their shares to be voted.⁶⁴ This method is governed at both the federal and state levels. Generally speaking, the federal proxy rules have four main components: (1) provisions requiring adequate disclosure to keep shareholders informed; (2) rules requiring elaborate disclosures in the event of a contested proxy fight; (3) a general prohibition against using false or misleading statements; and (4) provisions allowing shareholders to communicate with others by placing a proposal in the proxy statement.⁶⁵

To facilitate the federal process, issuers of securities are often required under state law to maintain a record of all security holders to make this process more efficient.⁶⁶ Most corporations lack experience and resources to do so and hire outside transfer agents to maintain that record.⁶⁷ Since record holders must vote shares in accordance with beneficial owners' instructions, record holders and intermediaries must seek out these transfer agents to discern the beneficial owners of the corporation's shares so they can fulfill the requirements under SEC rules that proxies reach beneficial owners in a timely and effective manner.⁶⁸ Issuers also need to contact intermediaries to request the number of proxies and voting materials necessary to align with their shareholdings.⁶⁹ To that end, intermediaries traditionally hire a proxy service provider who forwards proxy materials by mail or electronically.⁷⁰ Currently, a single proxy service provider handles over ninety-eight percent of the market for proxy vote processing in the United States. Recognizing this pseudo monopolistic market, major stock exchanges have capped the amount that firms such as Broadridge can charge listed companies for proxy related services.⁷¹ In order to permit

64. See *supra* notes 22-24 and accompanying text.

65. EASTERBROOK & FISCHER, *supra* note 5, at 82.

66. DEL. CODE ANN. tit. 8, § 219(a).

67. See SEC Concept Release, *supra* note 12, at *21.

68. See SEC Rule 14A-4(e), 17 C.F.R. § 240.14a-4(3) (2015) (providing that shares be voted in accordance with beneficial owner's instructions); *Freeman v. Fabniak*, No. Civ. A. 8034, 1985 WL 11583 (Del. Ch. Aug. 15, 1985) (holding that allowing a record holder to vote shares contrary to the beneficial owner's wishes is inequitable).

69. This process is required under Exchange Act Rule 14a-13. 17 C.F.R. § 240.14a-13 (2015); see *Kahan & Rock*, *supra* note 2, at 1244.

70. See 17 C.F.R. § 240.14b-1 (requiring issuers to provide beneficial owners with proxy cards, annual reports, and a proxy statement highlighting essential information necessary for an informed vote); DEL. CODE ANN. tit. 8 § 222 (requiring similar information to be sent to shareholders).

71. See *Proxy Policies and Insights*, BROADRIDGE, <https://www.broadridge.com/financi>

beneficial owners to vote, intermediaries—via Broadridge acting on their behalf—must provide them with a request for voting instructions.⁷² When the beneficial owner completes these voting instructions, an elaborate agency relationship is created where the intermediaries and record owners must vote shares in accordance with their clients' wishes.⁷³ Importantly, however, courts have repeatedly held that the beneficial owner bears the risk of any errors made by the proxy holder during the course of voting.⁷⁴

A final topic on voting will be covered here, as it is relevant to the accuracy of votes: vote tabulation. Once corporations receive votes, state laws dictate that a vote tabulator or inspector of election must be hired to officially collect and count both proxy votes and votes delivered by shareholders in person at a meeting.⁷⁵ The tabulator holds the ultimate responsibility for determining that each registered owner has submitted the correct number of votes and that the vote tally is accurate.⁷⁶ But often, many intermediaries will submit to the vote tabulator more votes than they are entitled to cast, forcing the tabulator to either accept votes on a first-in basis or to simply not accept any proxy votes from the erring intermediaries at all.⁷⁷

al-services/asset-management/institutional-investors/enhance-and-simplify-portfolio-management/proxy-policies-and-insights [https://perma.cc/5MMG-LY9B] (emphasizing Broadridge's market domination); NYSE, Inc., Listed Company Manual §§ 451.90, 465 (articulating fees that proxy service providers may charge).

72. 17 C.F.R. § 240.14b-1(b)(2)-(3). See R. FRANKLIN BALOTTI & FINKELSTEIN, DELAWARE LAW OF CORPORATIONS & BUSINESS ORGANIZATIONS § 10.7 (3d ed. 2017).

73. See *Hauth v. Giant Portland Cement Co.*, 96 A.2d 233, 235 (Del. Ch. 1953) (holding that the proxy holder has a fiduciary obligation to carry out owners' wishes).

74. See *Enstar Corp. v. Senouf*, 535 A.2d 1351, 1354-55 (Del. 1987) (noting that since holding shares in street name is voluntary, shareholder must bear the risk of holding their shares through nominees); *Am. Hardware Corp. v. Savage Arms Corp.*, 136 A.2d 690, 692 (Del. 1957) (determining that the shareholder bears the risk of any failure by a broker to fulfill voting instructions); *Mainiero v. Microbyx Corp.*, 699 A.2d 320, 324 (Del. Ch. 1997) (shareholder holding shares in any other way than as the record owner assumes the risk); see also *Preston v. Allison*, 650 A.2d 646, 649 (Del. 1994) (settling Delaware law that the beneficial owner is not entitled to relief if the proxy holder errs in voting). For a more recent example, see *In re Appraisal of Dell Inc.*, 2015 WL 4313206 (Del. Ch. July 30, 2015) (referring to an instance where a proxy holder incorrectly voted in favor of a merger, causing the shareholder to forfeit access to the appraisal remedy).

75. E.g., DEL. CODE ANN. tit. 8 § 231; MODEL BUS. CORP. ACT § 7.29.

76. SEC Concept Release, *supra* note 12, at *24; see also Frank J. Obara, Jr., *The Counting and Reporting of the Vote, Including the Role of Inspectors of Elections*, in R. FRANKLIN BALOTTI, JESSE A. FINKELSTEIN & GREGORY P. WILLIAMS, MEETINGS OF STOCKHOLDERS § 10-3 (1995) (commenting that in a fair and honest corporate election someone should attest to the accuracy of the vote tabulation).

77. This error is often called "over-voting." SEC Concept Release, *supra* note 12, at *26; see also John C. Wilcox, *Shareholder Nominations of Corporate Directors:*

3. Issues and Mistakes with Current Voting Mechanisms

Why is it important to know how proxy voting currently works? Simply put, the machinery causes problems. Let's begin by discussing the problem of over-voting touched upon in the preceding section. The complex securities ownership and voting structure fails to account for many of the intricacies of our modern financial system, including margin lending and high frequency trading. Brokers often allow their customers to purchase securities on margin, thereby lending them shares that they already own in fungible bulk. However, the broker doesn't really *own* the shares, rather, she holds them for another client. Given that the standard stock loan agreement transfers the right to vote to the borrower, the broker's client may have had their right to vote transferred to the borrowing client.⁷⁸ Neither the initial beneficial owner nor the borrower becomes aware of the vote transaction since the broker does not match the loaned shares with any particular margin customer, and consequently both clients fill out voter instruction forms and submit them to their brokers for vote execution.⁷⁹

Critics of the current system believe that over-voting is an indication that brokers are not doing enough to determine who is actually entitled to vote when a margin transaction has occurred. But in an attempt to fix these issues, brokers have adopted several different, yet rather rudimentary, methods of reconciling the additional votes by assigning the total number of shares they are eligible to vote on a pro rata basis to their customers either prior to or after proxies are mailed. Some brokers do not even attempt to assign votes pro rata and simply "reduce the number" of their total votes cast.⁸⁰ Again, it is ultimately the vote tabulator who must determine if the number of votes cast aligns with the company's stockholder register, providing the chance for human error. Since the

Unintended Consequences and the Case for Reform of the U.S. Proxy System, in SHAREHOLDER ACCESS TO THE CORPORATE BALLOT 6 (Lucian A. Bebchuk ed., 2004); see also Kahan & Rock, *supra* note 2, at 1255-63 (elaborately describing the ways over-voting can occur)..

78. *Master Securities Lending Agreement* at 6, https://www.sifma.org/wp-content/uploads/2017/06/MSLA_Master-Securities-Loan-Agreement-2017-Version.pdf [<https://perma.cc/NE69-CMHZ>]; SEC. & EXCH. COMM'N, *Briefing Paper: Roundtable on Proxy Voting Mechanics*, <https://www.sec.gov/spotlight/proxyprocess/proxyvotingbrief.htm> [<https://perma.cc/A6B9-WDDK>].

79. SEC. & EXCH. COMM'N, *Briefing Paper: Roundtable on Proxy Voting Mechanics*, <https://www.sec.gov/spotlight/proxyprocess/proxyvotingbrief.htm> [<https://perma.cc/A6B9-WDDK>]

80. SEC Concept Release, *supra* note 12, at *32.

voting inspector's determination is presumed correct under law, the only way to challenge the result is to bring a shareholder suit.⁸¹

Still, a more prevalent problem with rudimentary voting structures occurs during the actual counting of the vote and determining the accuracy of such a count. Consider the recent proxy contest at Procter & Gamble ("P&G"), where activist investor Nelson Peltz stirred the pot by competing with incumbent directors for a seat on the company's board. Initially, it appeared that Peltz was unsuccessful, and P&G claimed victory by a tally of about six million votes out of more than two billion cast.⁸² However, Peltz's fund Trian Partners was quick to challenge that number and demanded a recount by an independent proxy tabulator, asserting that the vote was actually "too close to call."⁸³ After a recount that lasted *more than a month*, Peltz turned out to be the victor—winning by a mere 42,780 votes, a margin of 0.0016%.⁸⁴ Out of billions of votes it came down to just a few thousand, many of which might not have been accurately voted as a result of the layers of intermediaries interposed between the beneficial owners and the voters of record. Unsurprisingly, while this may be an extreme example of a proxy contest won by the narrowest of margins, shareholders are waging more and more proxy fights as activists gain more clout within the investor community.⁸⁵ In 2008, during a proxy fight for

81. DEL. CODE ANN. tit. 8, §§ 225, 227.

82. Procter & Gamble Co., *Submission of Matters to a Vote of Security Holders* (Form 8-K) (Oct. 16, 2017), <https://www.sec.gov/Archives/edgar/data/80424/000119312517311028/d451432d8k.htm> [<https://perma.cc/NZF5-W68H>].

83. *Trian Says Procter & Gamble Vote Too Close to Call*, BUS. WIRE, Oct. 10, 2017, <https://www.businesswire.com/news/home/20171010006248/en/> [<https://perma.cc/2YPA-U582>].

84. David Benoit & Sharon Terlep, *Activist Peltz Narrowly Wins P&G Board Seat, New Count Shows*, WALL ST. J. (Nov. 15, 2017), <https://www.wsj.com/articles/activist-nelson-peltz-elected-to-p-g-board-1510782775> [<https://perma.cc/XYG6-VP2Q>].

85. See Jay Frankl and Steve Balet, *The Rise of Settled Proxy Fights*, HARV. L. SCH. F. ON CORP. GOVERNANCE (Mar. 22, 2017), <https://corpgov.law.harvard.edu/2017/03/22/the-rise-of-settled-proxy-fights/> [<https://perma.cc/3EF8-6EB7>] (demonstrating that there were 110 hostile proxy fights in 2016, a forty-three percent increase since 2012); see also RANDALL S. THOMAS & CATHERINE T. DIXON, ARANOW & EINHORN ON PROXY CONTESTS FOR CORPORATE CONTROL § 1.01 (3d ed. 1998) (citing *Paramount Commc'ns, Inc. v. Time Inc.*, 571 A.2d 1140, 1141 (Del. 1989) (pointing to the ability of the board of directors to "just-say-no" to poison pill redemption as a primary reason for a shift toward proxy fights as a method of achieving corporate control); Randall S. Thomas & Patrick C. Tricker, *Shareholder Voting in Proxy Contests for Corporate Control, Uncontested Director Elections and Management Proposals: A Review of the Empirical Literature*, 70 OKLA. L. REV. 9, 15 (2017) (commenting that one cause of the rise of activists stems from new internal regulations by large pension funds forcing them to vote in every board election). For more on activist investors and their role in corporate governance, see generally Frank Partnoy, *US Hedge Fund Activism*, in RESEARCH HANDBOOK ON SHAREHOLDER POWER 99-

the control of Yahoo!'s board, the company announced that it had received approval for its slate of directors from eighty percent of stockholders. However, a major error occurred: Broadridge misattributed about twenty percent of the vote because it failed to include millions of votes in its final tally.⁸⁶ Although the error in this proxy battle was not outcome-determinative, it serves as a reminder of just how consequential these errors can become. These examples illustrate that it is not a matter of *if* an error like this will happen again, but when.

Although the vote tabulator's word is supposed to be taken as gospel,⁸⁷ vote tabulators are often incorrect and far from infallible. In the now famous—or infamous, depending on one's stance on appraisal arbitrage—case of *In re Transkaryotic Therapies, Inc.*, the election director certified that shareholders had approved Transkaryotic's merger with Shire Pharmaceuticals by a 2.6% margin.⁸⁸ However, the record indicated disputes of fact as to the validity of proxies amounting to a greater number of votes than the merger itself was approved by.⁸⁹ In another instance, the tabulator failed to record more than three million votes due to a minor technical error.⁹⁰ And in the case of *Seidman & Associates v. G.A. Financial*, the Chancery Court was forced to invalidate more than 230,000 proxies because the tabulator was not able to resolve an over-vote of a mere 824 shares.⁹¹ Note that vote tabulators are not without mechanisms to solve problems stemming from over-voting and may respond with a variety of vote counting procedures, including counting votes on a first-in-first-voted or last-in-first-voted basis, or disregarding altogether a vote submitted by a broker dealer.⁹² Nevertheless, given human error we should be reluctant to place so much power with a single referee. These examples illustrate that

113 (Jennifer G. Hill & Randall S. Thomas eds., 2015).

86. Yi-Wyn Yen, *Yahoo Recount Shows Large Protest: Yang's Approval At 66 Not 85 Percent*, HUFFINGTON POST Aug. 6, 2008, http://www.huffingtonpost.com/2008/08/06/yahoo-recount-shows-large_n_117195.html [<https://perma.cc/TW7P-XT3J>].

87. See *supra* note 76 and accompanying text.

88. 954 A.2d 346, 375-78 (Del. Ch. 2008). Recall that a prominent Delaware attorney stated that “in a contest that is closer than fifty-five to forty-five percent, there is no verifiable answer to the question ‘who won?’” Kahan & Rock, *supra* note 2, at 1279 (quoting A. Gilchrist Sparks III, Partner, Morris, Nichols, Arsht & Tunnell LLP, Wilmington, Delaware).

89. *In re Transkaryotic Therapies, Inc.*, 954 A.2d at 375-78.

90. See *In re Waddell & Reed Financial, Inc.*, No. Civ. A. 4602-CC (Del. Ch. June 12, 2009) (ordering an election inspector to reopen voting after failing to account for votes).

91. 837 A.2d 21, 24-28 (Del. Ch. 2003).

92. *In re Deutsche Bank Securities, Inc.*, NYSE Decision 05-45, para. 11 (Feb. 2, 2006).

the errors are not trivial—they matter.⁹³

It is not just the vote tabulator and narrow margins that are the problem: the underlying system is to blame more than anything else.⁹⁴ Recall the now-well-known 2003 proxy contest at Unilever. The voter turnout appeared outrageously low, so the company inquired as to why its shareholders did not vote in force on a very important proxy contest. Following the investigation, it was discovered that three of Unilever's largest stockholders did not have their votes executed by their voting intermediary because Institutional Shareholder Services (“ISS”) had improperly filed its voting cards. In this way, more than twelve million votes were “lost.”⁹⁵

Empty voting, where the shareholder vote is separated from the beneficial owner, is another problem stemming from the inability to ascertain individual owners.⁹⁶ Simply by paying a fee to borrow shares, the borrowing investor can “buy” votes without owning the corresponding economic interest.⁹⁷ In the United States the practice is limited by Regulation T, under which securities loaned by institutional investors through their broker-dealers are restricted to distinct “permitted purposes,” such as execution of a short sale.⁹⁸

93. See *United States v. Saylor*, 322 U.S. 385, 388 (1944) (indicating that accurate vote counting is fundamental to democracy).

94. See Levine, *supra* note 11 (noting that since T. Rowe Price's shares were voted incorrectly in favor of Dell's management buyout plan, the firm missed out on millions in interest payments stemming from an appraisal action since they never had standing to bring a claim).

95. Adam Jones, *Riddle of the Missing Unilever Votes Solved*, FIN. TIMES, Aug. 16, 2003, at A1; *Voting Integrity: Practices for Investors and the Global Proxy Advisory Industry*, Millstein Center for Corporate Governance and Performance, Yale School of Management, Policy Briefing No. 3 at 11 (2009), <http://www.law.columbia.edu/sites/default/files/microsites/millstein-center/Voting%20Integrity%20Policy%20Briefing%20No%203%2002%2027%2009.pdf> [<https://perma.cc/Y3LL-VCYL>].

96. See generally Henry T.C. Hu & Bernard S. Black, *The New Vote Buying: Empty Voting and Hidden (Morphable) Ownership*, 79 S. CAL. L. REV. 811 (2006); Henry T. C. Hu & Bernard Black, *Equity and Debt Decoupling and Empty Voting II: Importance and Extensions*, 156 U. PA. L. REV. 625 (2008). But see Susan E. K. Christoffersen, Christopher C. Geczy, David K. Musto & Adam V. Reed, *Vote Trading and Information Aggregation*, 62 J. FIN. 2897 (2007) (noting that informed investors could potentially improve electoral outcomes through empty voting by taking long economic positions, acquiring disproportionate voting power from less informed shareholders, and casting votes that are more informed and thus more likely to contribute to shareholder value).

97. Kara Scannell, *Outside Influence: How Borrowed Shares Swing Company Votes – SEC and Others Fear Hedge-Fund Strategy May Subvert Elections*, WALL ST. J., Jan. 26, 2007, <https://www.wsj.com/articles/SB116978080268188623> [<https://perma.cc/F2KM-SH6H>].

98. Federal Reserve Board Regulation T, 12 C.F.R. § 220.2 (2014).

Investors can easily manipulate the loopholes in Regulation T and the current regulatory apparatus to shield their holdings from the rest of the marketplace by using a combination of equity derivatives and synthetic transactions. In a classic example, Mylan Laboratories, Inc. sought to acquire King Pharmaceuticals in 2004.⁹⁹ At the time of the announcement, hedge fund Perry Corporation owned a large stake in King, but hedged its position by shorting Mylan shares to protect itself from a fall in Mylan's stock price.¹⁰⁰ As was the case here, an investor may make a profit by borrowing stock from a lender, selling it to others at a higher price, and then buying the stock at a lower price in the future to return to the initial lender. Perry accumulated nearly ten percent of Mylan's outstanding shares, then entered into equity swaps to protect itself from a drop in Mylan's stock price. In this manner, Perry created an empty voting position allowing it to vote Mylan's shares in opposition to the merger without any economic repercussions or real stake in the result.¹⁰¹ Five years after this incident, the SEC settled an enforcement action against Perry for failing to disclose its purchase of over five percent of Mylan stock even though the position was achieved via a swap arrangement instead of direct ownership.¹⁰² The hope, evidently, was to put hedge funds that engaged in these questionable activities on notice.

Apart from these voting errors and manipulations, the proxy mechanism is also expensive for shareholders. It is estimated that markets for shares of publicly traded companies annually generate upwards of \$100 billion in post-trade and securities servicing fees.¹⁰³ Moreover, issuers themselves pay more than \$200 million per year just to communicate with stockholders—and that figure does not even include printing or postage fees.¹⁰⁴ For an example, the base mailing fee for *each* beneficial owner for

99. Press Release, Sec. and Exch. Comm'n, SEC Charges Perry Corp. With Disclosure Violations in Vote Buying Scheme, (Jul. 21, 2009) <https://www.sec.gov/news/press/2009/2009-165.htm> [<https://perma.cc/YN5F-VNLV>].

100. Latham & Watkins M&A Deal Commentary, "Empty Voting" and other Fault Lines Undermining Shareholder Democracy: The New Hunting Ground for Hedge Funds (2007), https://www.lw.com/upload/pubContent/_pdf/pub1878_1.Commentary.Empty.Voting.pdf [<https://perma.cc/RE44-3NCB>].

101. Charles M. Nathan & Parul Mehta, *The Parallel Universes of Institutional Investing and Institutional Voting* (Mar. 6, 2010), http://www.lw.com/upload/pubContent/_pdf/pub3463_1.pdf [<https://perma.cc/YS94-HADT>].

102. ROBERTA ROMANO, *FOUNDATIONS OF CORPORATE LAW* 370 (2d ed. 2010).

103. *Blockchain in Capital Markets: The Prize and the Journey*, OLIVER WYMAN at 20 (February 2016), <http://www.oliverwyman.com/content/dam/oliver-wyman/global/en/2016/feb/Blockchain-In-Capital-Markets.pdf> [<https://perma.cc/99SN-BS9L>].

104. Kearney, *supra* note 60, at 398.

situations when there is not an opposing proxy is \$0.40.¹⁰⁵ While the NYSE and other exchanges cap these fees,¹⁰⁶ Broadridge unsurprisingly uses its monopoly power to charge the maximum amount allowable under such rules.¹⁰⁷ Unsurprisingly, companies have not been sitting around doing nothing about the costs of the proxy mechanism. In fact, the charges associated with shareholder voting have been “[o]ne of the most persistent concerns . . . expressed to the [SEC’s] staff.”¹⁰⁸ As Vice Chancellor Laster puts it,

The voting and stockholder infrastructure is complicated. The costs of that complexity fall on stockholders. One type of cost is uncertainty as to voting. . . . Another type of cost is financial. Stockholders pay for the system. The folks who run the system are not affected by the election results and are generating profits in a non-competitive environment. Change will have to come from the outside.¹⁰⁹

II. BLOCKCHAIN AS A SOLUTION

A. Digital Trends in Corporate Governance

Blockchain. The word itself seems to be the hottest one around these days—simply adding it to a company’s name creates nearly unparalleled enthusiasm followed shortly by a massive bump in stock price.¹¹⁰ Since Satoshi Nakamoto’s foundational paper describing Bitcoin, the technology

105. NYSE, Inc., Listed Company Manual, Supplementary Material to § 465.20.

106. SEC Concept Release, *supra* note 12, at *21.

107. *Id.* at *51-55; REPORT AND RECOMMENDATIONS OF THE PROXY WORKING GROUP TO THE NEW YORK STOCK EXCHANGE 23 (June 5, 2006), <http://www.shareholdercoalition.com/sites/default/files/NYSE%20Proxy%20Working%20Grp%20Rpt%206-5-2006.pdf> [<https://perma.cc/243Y-B3W8>].

108. SEC Concept Release, *supra* note 12, at *50.

109. Laster CII Speech, *supra* note 14.

110. See Arie Schapira & Kailey Leinz, *Long Island Iced Tea Soars After Changing Its Name to Long Blockchain*, BLOOMBERG (Dec. 21, 2017), <https://www.bloomberg.com/news/articles/2017-12-21/crypto-craze-sees-long-island-iced-tea-rename-as-long-blockchain> [<https://perma.cc/ZM6D-KKXZ>] (reporting how Long Island Iced Tea Corp.’s stocks soared by as much as 289% after changing its name to Long Blockchain Corp). Popular late night television host John Oliver has since provided great commentary on the buzz surrounding blockchain. See *Last Week Tonight with John Oliver* (HBO television broadcast Mar. 11, 2018). The mania surrounding blockchain and cryptocurrencies has even spurred an entire language of slang used by enthusiasts. See Stephanie Yang, *Want to Keep Up With Bitcoin Enthusiasts? Learn the Lingo*, WALL ST. J. (Jan. 31, 2018, 5:30 AM), <https://www.wsj.com/articles/want-to-keep-up-with-bitcoin-enthusiasts-learn-the-lingo-1517394601> [<https://perma.cc/9G8Z-HE9W>] (describing words such as hodl, goxed, shilling, and bitshaming).

has grown tremendously in popularity.¹¹¹ The notion of blockchain, or distributed ledger technology (“DLT”), is exciting not only because it marks a true technological innovation in cryptography and computer coding but also because it can be widely applied across nearly every industry.¹¹²

Recently, the securities industry has discovered DLT’s useful functionality as a secure method of transacting. In 2017, DTCC began a program geared toward using DLT to eventually settle the trading of certain types of credit derivative securities.¹¹³ DTCC sees this embrace of blockchain technology as creating many possible cost savings for both itself and industry members.¹¹⁴ Elsewhere, Australia’s securities markets are attempting to settle the actual trading of stocks using DLT¹¹⁵ and an

111. Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System* (2008) (unpublished manuscript), <https://bitcoin.org/bitcoin.pdf> [<https://perma.cc/59BH-D9B2>]. While Nakamoto is often credited with creating the concept of the blockchain, the initial idea was planted as early as 1991. See Stuart Haber & W. Scott Stornetta, *How to Time-Stamp a Digital Document*, 3 J. CRYPTOLOGY 99, 99 (1991) (suggesting a method of time stamping to ascertain ownership of intellectual property).

112. See Steven Johnson, *Beyond the Bitcoin Bubble*, N.Y. TIMES MAG. (Jan. 16, 2018), <https://www.nytimes.com/2018/01/16/magazine/beyond-the-bitcoin-bubble.html> [<https://perma.cc/BJ8X-2RAC>] (noting that “[a]ll the focus on Bitcoin as a payment system may similarly prove to be a distraction, a technological red herring”); Rob Marvin, *Blockchain: The Invisible Technology That’s Changing The World*, PCMAG (Aug. 29, 2017, 1:38 PM), <https://www.pcmag.com/article/351486/blockchain-the-invisible-technology-thats-changing-the-world> [<https://perma.cc/PAA7-T55M>] (describing how DLT could be used in every digital transaction and major industry reactions to it); see also Anoop Nannra, *Blockchain and a Safer Self-Driving Future*, CISCO BLOGS (Jan. 19, 2018), <https://blogs.cisco.com/innovation/blockchain-and-a-safer-self-driving-future> [<https://perma.cc/B77W-8KZ3>] (advocating for using blockchain in industries as specialized as autonomous vehicles).

113. See Laura Shin, *DTCC Partners With IBM, Startups For Blockchain-Based Credit Default Swaps Solution*, FORBES (Jan. 9, 2017, 8:00 AM), <https://www.forbes.com/sites/laurashin/2017/01/09/dtcc-selects-partners-for-blockchain-solution-for-credit-default-swaps/#4b92e7d05061> [<https://perma.cc/4CVP-ZJPE>] (announcing DTCC’s development of DLT in the credit default swap market); Press Release, DTCC, DTCC Selects IBM, AXONI and R3 to Develop DTCC’s Distributed Ledger Solution for Derivatives Processing (Jan. 9, 2017), <http://www.dtcc.com/news/2017/january/09/dtcc-selects-ibm-axoni-and-r3-to-develop-dtccs-distributed-ledger-solution> [<https://perma.cc/7RG7-QBS2>] (announcing key partnerships with innovative technology companies that displays DTCC’s long-term investment in blockchain).

114. See Michael del Castillo, *\$11 Trillion Bet: DTCC to Process Derivatives with Blockchain Tech*, COINDESK (Jan. 9, 2017), <http://www.coindesk.com/11-trillion-bet-dtcc-clear-derivatives-blockchain-tech/> [<https://perma.cc/5ETR-TR2T>] (quoting the CEO of DTCC’s derivatives subsidiary concerning internal cost savings).

115. David Meyer, *The Australian Securities Exchange Just Made Blockchain History*, FORTUNE (Dec. 7, 2017), <http://fortune.com/2017/12/07/blockchain-technology-australian-securities-exchange-asx/> [<https://perma.cc/K6SA-EJUH>].

Estonian stock exchange began using DLT for shareholder voting in 2016.¹¹⁶ Outside the realm of securities, blockchain has been suggested as a means for all areas requiring voting mechanisms¹¹⁷ to solve many problems of voter inaccuracies and avoid a need for recounts in close elections.¹¹⁸ As scholars begin to embrace blockchain technology as a possible innovation in the world of securities trading clearance and shareholder voting, perhaps its adoption is not as far off as one might think.¹¹⁹ In fact, at a recent hearing on Capitol Hill, SEC Chairman Jay Clayton opined that the technology underlying cryptocurrencies (DLT) could be very valuable if utilized in securities clearing.¹²⁰

The shift toward using technology to aid in corporate governance is far from revolutionary and there is a general trend toward digitalizing many traditional regimes. In 2000, recognizing the Internet as providing a forum that could lessen expenses incurred by companies at their annual

116. See Anna Irrera, *Nasdaq Successfully Completes Blockchain Test in Estonia*, REUTERS (Jan. 23, 2017, 8:01 AM), <https://www.reuters.com/article/nasdaq-blockchain/nasdaq-successfully-completes-blockchain-test-in-estonia-idUSL1N1FA1XK> [<https://perma.cc/5YFQ-H8BM>] (announcing NASDAQ's successful use of a blockchain voting platform with its Estonian affiliate exchange).

117. See, e.g., Phillip Boucher, *What If Blockchain Technology Revolutionised Voting?*, EUR. PARLIAMENTARY RES. SERV. (Sept. 2016), http://www.europarl.europa.eu/RegData/etudes/ATAG/2016/581918/EPRS_ATA%282016%29581918_EN.pdf [<https://perma.cc/RV5X-7JUY>] (describing how blockchain could be applied to e-voting to increase efficiency); Danny Bradbury, *How Blockchain Could Usher in Digital Democracy*, COINDESK (June 16, 2014, 11:05 PM), <http://www.coindesk.com/block-chain-technology-digital-democracy/> [<https://perma.cc/A7YC-W9UU>] (providing ways blockchain could aid in Internet voting without compromising security).

118. See Ben Kamisar, *What's Next in the Pa. Special Election Ballot Fight*, THE HILL (Mar. 18, 2018, 8:00 AM), <http://thehill.com/homenews/campaign/378864-whats-next-in-the-undecided-pa-special-election> [<https://perma.cc/T6Q6-544N>] (pointing out the extensive appeals and recount process in a recent congressional election). See generally Sean Richey, *Random and Systematic Error in Voting in Presidential Elections*, 66 POL. RES. Q. 645 (2013) (providing statistical evidence that voting error may have caused the wrong candidate to become elected in three of the last nine US presidential elections).

119. See generally Geis, *supra* note 14 (suggesting that DLT may solve problems stemming from securities clearing mechanisms); David Yermack, *Corporate Governance and Blockchains*, 21 REV. FIN. 7 (2017) (positing that blockchain is a promising new technology that will ultimately have a transformative impact); Laster CII Speech, *supra* note 14 (proposing blockchain technology as an immediate solution to today's proxy voting problems); Michael Mainelli & Allstair Milne, *The Impact and Potential of Blockchain on the Securities Transaction Lifecycle* (SWIFT Institute Working Paper No. 2015-007, 2016) (finding that blockchain can provide substantial reductions in cost and risk).

120. *Virtual Currencies: The Oversight Role of the U.S. Securities and Exchange Commission and the U.S. Commodity Futures Trading Commission: Hearing Before the S. Comm. on Banking and Fin.*, 115th Cong. (Feb. 6, 2018) (Statement of Jay Clayton, Chairman, Sec. & Exch. Comm'n).

shareholder meetings, Delaware amended its corporate code to allow corporations to hold virtual shareholder meetings.¹²¹ While investors are not in agreement on their favorability of virtual shareholder meetings,¹²² the shift toward their usage is becoming abundantly clear.¹²³ Broadridge—whose prominence in the proxy advisory industry is noted throughout this Article—has many resources for companies wishing to hold meetings online, leading one to believe that the process is relatively easy to facilitate.¹²⁴

121. See Act of June 23, 2000, ch. 343, §7, 72 Del. Laws 619, 619-20 (codified at DEL. CODE ANN. tit. 8, § 211(a)) (providing that the board of directors may hold shareholder meetings “by means of remote communication”); Noel D. Humphreys, *Legal Tech: When Next We Meet Online . . .*, 19 PA. LAW. 50, 51 (1997) (suggesting the idea of virtual shareholder meetings). See generally James L. Holzman & Thomas A. Mullen, *A New Technology Frontier for Delaware Corporations*, 4 DEL. L. REV. 55 (2001) (analyzing the impact of the new statute).

122. Compare Press Release, N.Y. City Comptroller, Comptroller Stringer: Virtual Only Meetings Deprive Shareowners of Important Rights, Stifle Criticism (Apr. 2, 2017), <https://comptroller.nyc.gov/newsroom/comptroller-stringer-virtual-only-meetings-deprive-shareowners-of-important-rights-stifle-criticism/> [<https://perma.cc/Z4FN-7UG8>] (highlighting the New York City Comptroller’s opposition to virtual meetings), and CALPERS, GLOBAL GOVERNANCE PRINCIPALS 63 (Mar. 16, 2015), <https://www.calpers.ca.gov/docs/forms-publications/global-principles-corporate-governance.pdf> [<https://perma.cc/GB3U-FC4C>] (indicating CalPERS’ policy that virtual shareholder meetings should only take place as a supplement to in-person meetings), with Anders Melin, *John Malone’s Formula for Successful Shareholder Meetings: 15 Minutes or Less*, BLOOMBERG (May 23, 2017, 9:49 AM), <https://www.bloomberg.com/news/articles/2017-05-23/billionaire-malone-packs-four-shareholder-meetings-in-one-hour> [<https://perma.cc/XYA5-A9DR>] (showing that one investor was able to attend far more meetings since they were held virtually), and Cydney Posner, *Will the Virtual-Only Shareholders’ Annual Meeting, Once Disparaged, Be Rejuvenated?*, COOLEY PUBCO (June 7, 2016), <https://cooleypubco.com/2016/06/07/once-disparaged-will-the-virtual-only-shareholders-annual-meeting-be-rejuvenated/> [<https://perma.cc/MV4C-AES7>] (noting that virtual meetings are being embraced and promoted more recently).

123. See Lisa Fontenot & Linda Dang, *The Pros and Cons of Virtual-Only Shareholder Meetings*, LAW360 (Nov. 29, 2016, 12:56 PM), <http://www.law360.com/articles/866760/the-pros-and-cons-of-virtual-only-shareholder-meetings> [perma.cc/7XD5-6AQ6] (observing that virtual meetings have “particular popularity with new public companies and technology companies”). Intel, a large technology company, has recently implemented virtual shareholder meetings. Compare Intel Corp., Proxy Statement—Notice of 2016 Annual Stockholders’ Meeting 3 (May 19, 2016), https://s21.q4cdn.com/600692695/files/doc_financials/2015/annual/Final_2016_Proxy_Statement_web.pdf [<https://perma.cc/TLS3-W5DX>] (indicating an in-person shareholder meeting) with Intel Corp., Proxy Statement—Notice of 2017 Annual Virtual Stockholders’ Meeting 3 (May 18, 2017), https://s21.q4cdn.com/600692695/files/doc_financials/2017/2017-Proxy-Statement.pdf [<https://perma.cc/XCF8-QDAN>] (announcing efficiencies associated with holding a virtual shareholder meeting).

124. E.g., *Virtual Shareholder Meetings*, BROADRIDGE, https://www.broadridge.com/_assets/pdf/broadridge-vsm-brochure.pdf [<https://perma.cc/9VPC-W52J>]

Interestingly, some entities are completely removing elements of corporate governance that have been staples for centuries. Imagine a corporation where the power is solely vested in shareholders rather than one where the board serves as a fiduciary intermediary. The Decentralized Autonomous Organization (“the DAO”), an entity run on the Ethereum blockchain,¹²⁵ provided investors with the algorithmic certainty of smart contracts instead of utilizing a sometimes-fallible board.¹²⁶ As soon as tokenholders voted on a proposal, the DAO dispersed funds precisely how the vote specified.¹²⁷ Tokenholders of the DAO could even vote on governance rules and procedures, much like shareholders in a traditional corporation vote to amend the charter or bylaws.¹²⁸ Consequently, DLT offers a mechanism of “radical transparency” that puts governance on display in an indisputable ledger.¹²⁹

125. Ethereum, similar to the more popular Bitcoin, is a cryptocurrency that supports open-source, public, blockchain-based distributed computing and operating systems. More simply, Ethereum is a decentralized platform that runs smart contracts, allowing platforms to run exactly as programmed without any threat of interference, downtime, or third-party interference. ETHEREUM: BLOCKCHAIN APP PLATFORM, <https://www.ethereum.org/> [<https://perma.cc/9Y47-G92B>]. For an easily digestible overview of Bitcoin, see *A Gentle Introduction to Bitcoin*, BITSONBLOCKS.NET (Sept. 1, 2015), <https://bitsonblocks.net/2015/09/01/gentle-introduction-bitcoin/> [<https://perma.cc/WM5T-SBJS>].

126. While outside the scope of this Article, smart contracts have the potential to greatly impact the securities markets, particularly in structured products such as derivatives and swaps. For an overview of how smart contracts work, see generally Nick Szabo, *Smart Contracts* (1994), <http://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/smart.contracts.html> [<https://perma.cc/HY3S-68GS>]. For more on smart contracts’ role within current contract law, see Max Raskin, *The Law and Legality of Smart Contracts*, 1 GEO. L. TECH. REV. 305 (2017). After reading these pieces, one may no doubt notice how transformative smart contracts may appear, and although rather exciting at first glance, some commentators have noted pitfalls in their structure. See Jeremy M. Sklaroff, Comment, *Smart Contracts and the Cost of Inflexibility*, 166 U. PA. L. REV. 263, 291-302 (2017) (arguing that smart contracts favor one-off transactions and are unmodifiable once executed, leading to inflexible negotiations).

127. See Carla L. Reyes, Nizan Geslevich Packin & Benjamin P. Edwards, *Distributed Governance*, 59 WM. & MARY L. REV. ONLINE 1 (2017) (examining how structure affects the efficiency of distributed entities). Not all was hunky-dory in DAO land however, as the entity was later subject to a hack that allowed a single operator to alter voting patterns and move the entirety of the DAO’s assets—Ethereum coins—out of the entity thereby rendering it valueless. Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO, Exchange Act Release No. 81207 (July 25, 2017), <https://www.sec.gov/litigation/investreport/34-81207.pdf> [<https://perma.cc/VGB2-WG5X>].

128. See Seth Bannon, *The Tao of “The DAO”: Or How the Autonomous Corporation Is Already Here*, TECHCRUNCH (May 16, 2016), <https://techcrunch.com/2016/05/16/the-tao-of-the-dao-or-how-the-autonomous-corporation-is-already-here/> [<https://perma.cc/2AEE-BYWC>] (describing the voting powers of DAO tokenholders).

129. See Alex Tapscott, *Blockchain Democracy: Government Of The People, By The*

B. What is Blockchain?

This section describes the technological underpinnings of blockchain and attempts to minimize the use of programming jargon as much as possible. Taking a page out of Frank Easterbrook's style guide, the goal of this section is to provide the reader with a general understanding of the technology rather than to provide a thorough treatise on innovative technology that may change within a few short years.¹³⁰ To remain technologically correct, DLT is literally a protocol that is made up of blockchains. Think of the blockchain as an operational database that maintains a distributed ledger that can be inspected openly. The terms blockchain and distributed ledger technology ("DLT") will be used interchangeably for ease of understanding.

The most basic way to explain blockchain is as a method of validating transactions without the use of a third-party entity.¹³¹ Most blockchains are run on a peer-to-peer basis, with no central computing server operating the network. Instead, the software functions via the connections remote computers make with one another, making them decentralized.¹³² It may be helpful to compare a decentralized blockchain network with a starfish:

[T]he starfish doesn't have a head. Its central body isn't even in charge. In fact, the major organs are replicated throughout each and every arm. If you cut the starfish in half, you'll be in for a surprise: the animal won't die, and pretty soon you'll have two

People, For The People, FORBES (Aug. 16, 2016, 2:38 PM), <https://www.forbes.com/sites/al-extapscott/2016/08/16/blockchain-democracy-government-of-the-people-by-the-people-for-the-people/#39e35d6e1fb5> [<https://perma.cc/BBT9-RBQT>] (providing a framework for distributed governance).

130. Frank H. Easterbrook, *Cyberspace and the Law of the Horse*, 1996 U. CHI. LEGAL F. 207, 208 ("Only by putting the law of the horse in the context of broader rules about commercial endeavors could one really understand the law about horses.").

131. See WILLIAM MOUGAYAR, *THE BUSINESS BLOCKCHAIN: PROMISE, PRACTICE, AND APPLICATION OF THE NEXT INTERNET TECHNOLOGY* § 1 (2016) (providing a foundational explanation of blockchain). For an extremely high-level overview of blockchain technology, see Sloane Brakeville & Bhargav Perepa, *Blockchain Basics: Introduction to Distributed Ledgers*, IBM DEVELOPER (May 9, 2016), <http://www.ibm.com/developerworks/cloud/library/cl-blockchain-basics-intro-bluemix-trs/index.html> [<https://perma.cc/R5D2-BLSF>]. For a somewhat more in depth analysis, see PAUL VIGNA & MICHAEL J. CASEY, *THE TRUTH MACHINE: THE BLOCKCHAIN AND THE FUTURE OF EVERYTHING* 12-15 (2018).

132. See Detlef Schoder, Kai Fischbach & Christian Schmitt, *Core Concepts in Peer-to-Peer Networking*, in *PEER TO PEER COMPUTING: THE EVOLUTION OF A DISRUPTIVE TECHNOLOGY* 1-27 (Ramesh Subramanian & Brian D. Goodman eds., 2005) (giving an overview and description of the application of peer-to-peer networking).

starfish to deal with.¹³³

This decentralized framework uses a network of “nodes” that verify transactions and provide a “trustless consensus” to prevent fraudulent activity.¹³⁴ Nodes are simply computers that participate in recording and verifying transactions on the DLT network. These nodes are what really powers blockchains, but the network they create differs from a server; unlike the World Wide Web where a site request is sent to a server, the network of computers makes a request to the blockchain.¹³⁵ The nodes work in concert to record transactions permanently “in a way that cannot be later erased but can only be sequentially updated, in essence keeping a never-ending historical trail.”¹³⁶

Each block contains a record of all previous transactions to ensure total accuracy.¹³⁷ Thus, the blocks are chained together.¹³⁸ Once a block is completed and chained to the protocol sequence, someone attempting to change a prior transaction must alter not only the initial block the transaction was recorded on, but also all ensuing blocks that follow.

To ensure that the permanent ledger coded on the blockchain is accurate, DLT uses hashes as a “unique fingerprint” that helps to verify that a certain piece of information has not been altered. Simply put, a hash function is a mathematical process that takes data of any size, performs operations on them, and returns output data of a fixed size. For example, Bitcoin’s hash keys use a sixty-four character string of letters and numbers into which text as complex as the entirety of Dickens’s *A Tale of Two Cities* could be encoded.¹³⁹ The hashes are used to create cryptographic

133. ORI BRAFMAN & ROD BECKSTROM, *THE STARFISH AND THE SPIDER* 35 (2006).

134. See Marvin, *supra* note 112 (describing blockchain-based systems used to prevent fraud).

135. See Shawn Bayern, *Of Bitcoins, Independently Wealthy Software, and the Zero-Member LLC*, 108 NW. U. L. REV. 1485, 1488-89 (2014) (noting that there is no “Bitcoin server or Bitcoin company that directly manages the system”); see also Joshua Fairfield, *Smart Contracts, Bitcoin Bots, and Consumer Protection*, 71 WASH. & LEE L. REV. ONLINE 35, 36 (2014) (describing the use of blockchain for smart contracts where digital assets are transferred within the blockchain).

136. HENNING DIEDRICH, *ETHEREUM* 94 (2016) (“It’s not a blockchain if its copies are not stored, identically, across massively many computers. . . . Fundamentally the data a blockchain holds is a sequence of transactions. And as of today it is essential that no transaction is ever forgotten.”).

137. *Id.* at 33.

138. See MOUGAYAR, *supra* note 131 (describing the mechanisms and algorithms behind blockchains).

139. Corin Faife, *Bitcoin Hash Functions Explained*, COINDESK (Feb. 19, 2017, 12:35 PM), <https://www.coindesk.com/bitcoin-hash-functions-explained/> [<https://perma.cc/YK2Y-CMRM>]; *Hashing Technology in Blockchain*, BLOCKCHAIN EXPERT (Oct. 25, 2017),

keys, one public and one private. The public key serves as a method of recording ownership, and the private key ensures that only the owner of the asset recorded on the blockchain can access their property.¹⁴⁰ One may analogize a public key to an email address, and the private key may be thought of as the password allowing the sender to originate messages from the account. Since anyone with access to the blockchain can reasonably conclude that someone with the corresponding private key conducted a transaction posted by a public key, there is no need for a trusted third party.¹⁴¹

In order to ensure that information sent to the blockchain by nodes is accurate and can be trusted, DLT utilizes a concept called consensus. The premise is that “all nodes control each other all the time” and they know “exactly what every other node *should* hold as truth.”¹⁴² “If all nodes agree, this is called consensus.”¹⁴³ Different blockchain platforms have incorporated differing methods of establishing consensus and the most prominent method of consensus is called proof-of-work, which is utilized by Bitcoin and has become preeminent in the cryptographic community. The process allows participants to add new financial records to the authoritative sequence by demonstrating that they have expended computing power on an otherwise unimportant, repetitive task. This process, known as Bitcoin mining, confers the right to add a record to the sequence (and also, not incidentally, it is rewarded by the creation of new Bitcoins, partly as an incentive to participate in the network and partly as a

<http://www.blockchainexpert.uk/blog/hasing-technology-in-blockchain> [<https://perma.cc/H6F2-S5PB>]. Hash functions are an essential component of cryptography that is rather complex in nature and difficult to understand. See Isaac Simpson, *To Understand Blockchains, You Should Understand Cryptographic Hashes First*, MEDIUM (Sept. 19, 2017), <https://medium.com/vandal-press/to-understand-blockchains-you-should-understand-cryptographic-hashes-first-for-normies-93bc7645e816> [<https://perma.cc/2YTS-YTGW>] (“[C]ryptographic hash functions are . . . magic and you will never fully understand them unless you are a mathematician.”).

140. ANDREAS M. ANTONOPOULOS, *MASTERING BITCOIN: UNLOCKING DIGITAL CRYPTOCURRENCIES* 18(2014); Melanie Swan, *BLOCKCHAIN: BLUEPRINT FOR A NEW ECONOMY* 3 (2015); Carla L. Reyes, *Moving Beyond Bitcoin to an Endogenous Theory of Distributed Ledger Technology Regulation: An Initial Proposal*, 61 VILL. L. REV. 191, 200 (2016).

141. See ANTONOPOULOS, *supra* note 140, at 173-74; Michael Abramowicz, *Cryptocurrency-Based Law*, 58 ARIZ. L. REV. 359, 372 (2016).

142. DIEDRICH, *supra* note 136, at 20 (emphasis in original).

143. *Id.*; see MOUGAYAR, *supra* note 131 (“A consensus algorithm is the nucleus of a blockchain representing the method or protocol that commits the transaction. It is important, because we need to trust those transactions.”). For more on consensus and how it works, see ALJOSHA JUDMAYER ET AL., *BLOCKS AND CHAINS: INTRODUCTION TO BITCOIN, CRYPTOCURRENCIES, AND THEIR CONSENSUS MECHANISMS* 29-43 (2017).

way to manage the initial distribution of Bitcoins). In the event of a dispute among different candidate sequences of transactions, the one that is eventually backed by the most computing power wins.¹⁴⁴ Although these algorithms have fundamental differences, for our purposes these mechanisms can be viewed as taking a different route to the same result.

C. Shareholder Voting and the Blockchain

With an understanding of DLT in mind, it's easy to see how the basic problems of corporate voting in the United States—lack of transparency, verification of votes, and identification of correct voters—can be remedied using DLT. Shareholder votes could be recorded on one of two types of distributed ledgers that could be managed directly by the corporation or by shareholders themselves.¹⁴⁵ These two variations are commonly known in their application as permissioned and unpermissioned ledgers, respectively. In the permissioned variant, a company may set up a blockchain requiring “permission” to read the blockchain’s information, limit the parties that can contract on the chain, and limit those that can serve as nodes maintaining the chain’s security.¹⁴⁶ In contrast, an unpermissioned ledger allows anyone to read the chain, make legitimate changes, and operate the network by serving as a node.¹⁴⁷ For example, Bitcoin operates as an unpermissioned blockchain and is totally decentralized, thereby allowing anyone to transact on the chain or contribute to the network. As such, companies are most likely to use permissioned ledgers to allow only management, shareholders of record, or a proxy advisory firm to operate the ledger. Regulators would likely receive permissions to view the blockchain’s data to review votes for compliance with the law.

But how would the actual process for blockchain voting on a permissioned ledger work? Companies would continue to set record dates and intermediaries would be required to upload a list of beneficial owners

144. Bayern, *supra* note 135, at 1490-91. See Antonopoulos, *supra* note 140, at xxi (defining a miner as a “network node that finds valid proof-of-work for new blocks”); see also PEDRO FRANCO, UNDERSTANDING BITCOIN: CRYPTOGRAPHY, ENGINEERING, AND ECONOMICS 103 (2015) (“To secure the blockchain . . . Bitcoin requires proof-of-work to be performed on blocks of transactions following the Solution-Verification protocol.”).

145. Christoph F. Van der Elst & Anne J.F. Lafarre, *Blockchain and the 21st Century Annual General Meeting*, 14 EUR. CO. L. 167, 168 (2017).

146. Nolan Bauerle, *What is the Difference Between Public and Permissioned Blockchains?*, COINDESK, <https://www.coindesk.com/information/what-is-the-difference-between-open-and-permissioned-blockchains/> [<https://perma.cc/N2NL-HFVL>].

147. *Id.*

prior to that date.¹⁴⁸ These beneficial owners would be provided a certain amount of tokenized voting rights, which for our purposes we will call “votecoins.”¹⁴⁹ These coins would be deposited in shareholders’ public addresses to which only they, or their designated proxy, would have access to the associated private keys. Shareholders send their “votecoins” to public addresses corresponding with their voting preference using a consensus method in accordance with blockchain’s transaction protocol. This method will likely be proof-of-concept. The more popular proof-of-work protocol may enable shareholders to create new votecoins and therefore more votes, an obviously undesirable result.

Before the voting process begins, shareholders could continue the process of designating a proxy to vote in their stead. This would be achieved in one of two ways: either by transferring votecoins via the blockchain to the proxy’s public address or by providing the private key to the proxy holder. The preferable method is to provide the private key to the voter’s proxy, allowing the voter to determine exactly how their shares were voted. If a voter simply transfers her votecoins to the proxy’s public address, the concept of shares held in fungible bulk becomes replicated in a tokenized manner.

Each shareholder, and their proxies, can verify precisely how their votes were cast and included in the vote counts recorded on the blockchain.¹⁵⁰ Shareholders are thus able to independently verify the voting results and regulators will be satisfied that no foul play has interfered with the voting process. Both shareholders and management will have access to vote tabulation in real time, providing both parties an equal chance to intervene with last minute campaigning.¹⁵¹

There are clear benefits to implementing this process. Chiefly, there is the capability of using electronic proxies, which many scholars have noted as a solution for reducing the costs associated with shareholder voting.¹⁵² Additionally, the inability to confirm voting information is

148. Adoption of DLT technology for securities clearing could render this step unnecessary, as beneficial owners may soon be directly listed on company’s stock registers.

149. See Yermack, *supra* note 119, at 23 (coining the term “votecoin,” pun intended).

150. See Anne Lafarre & Cristoph Van der Elst, *Blockchain Technology for Corporate Governance and Shareholder Activism*, EUR. CORP. GOVERNANCE INST., Working Paper No. 390/2018 at 17 (March 2018) (providing an overview of how blockchains may be used by shareholder activists to enhance monitoring at reduced cost).

151. Yermack, *supra* note 119, at 23.

152. See Jeffrey N. Gordon, *Proxy Contests in an Era of Increasing Shareholder Power: Forget Issuer Proxy Access and Focus on E-Proxy*, 61 VAND. L. REV. 475, 476 (2008) (noting decreased agency costs when e-proxies are used); George Ponds Kobler, *Shareholder Voting over the Internet: A Proposal for Increasing Shareholder Participation*

directly linked to the fact that no one individual participant in the process possesses all the information necessary to discern whether a particular shareholder's vote has been accurately recorded.¹⁵³ DLT directly addresses these core issues. Custodians and a central accountant such as DTC become unnecessary in a system where there is only one owner recorded on the blockchain: the beneficial owner. The levels of each share's ownership would be recorded on a single ledger, demanding no need to reconcile systems or agree to various obligations.¹⁵⁴ As a result, the centralized ledger—assuming the use of a permissioned blockchain—reduces brokers' or proxy solicitors' tasks in distributing voting materials and instructions, thereby decreasing voting costs incurred by companies on behalf of shareholders.

Overall, the greater speed, transparency, and accuracy of blockchain voting could motivate shareholders to participate more directly in governance and demand votes on more topics with greater frequency.¹⁵⁵ Companies and their shareholders will gain confidence in the accuracy of voting, resulting in less litigation that occurs when votes are mistakenly cast.¹⁵⁶ The problem of empty voting is mediated since voting power remains attached to individual shares for longer periods, preventing sellers from voting shares they have no longer owned for months. Thus, there will be fewer situations where extraneous votes are available for sale or manipulation.¹⁵⁷ Stock loans would become immediately transparent, providing notice to shareholders, management, and regulators of a redistribution of voting power.¹⁵⁸

The benefits of using DLT for voting are not only clearly

in Corporate Governance, 49 ALA. L. REV. 673, 694 (1998) (stating that the Internet and proxy system make for a "natural marriage" to reduce costs associated with governance participation by way of video conferencing or voting via a corporate homepage).

153. See SEC Concept release, *supra* note 12, at *39 (highlighting that neither issuers, transfer agents, vote tabulators, securities intermediaries, nor third party proxy service providers possess all information related to voting).

154. OLIVER WYMAN, *supra* note 103; Laster CII Speech, *supra* note 14.

155. See Aaron Wright & Primavera De Filippi, *Decentralized Blockchain Technology and the Rise of Lex Cryptographia* (Working Paper, Yeshiva University & Université Paris II, 2015) (remarking that the use of blockchains may result in large entities losing the ability to control and shape existing democratic processes); see also *infra* Part III.B (discussing pros and cons of relying on the shareholder franchise).

156. E.g., *Kurz v. Holbrook*, 2010 WL 707425, C.A. No. 5019-VCL (Del. Ch. Feb. 9, 2010) (detailing voting errors by a record owner in a proxy contest); see also *supra* notes 79-92 and accompanying text.

157. See Robert B. Thompson & Paul H. Edelman, *Corporate Voting*, 62 VAND. L. REV. 129, 162-66 (2009) (suspecting that short sales of stock are often simple vote buying transactions).

158. See Yermack, *supra* note 119, at 24.

ascertainable, but they are also readily capable of implementation. The blockchain initiative in Delaware is well underway, and former Delaware Governor Jack Markell has stated that blockchain will remedy large corporate expenditures aimed at fixing stock issuance and voting errors that could be “seamlessly” handled from the outset.¹⁵⁹ Although this initiative is currently only aimed at improving private company records, it will not be long before state and federal regulatory agencies shift their focus to blockchain as well. Adoption is coming. Nevertheless, shareholders need to remain mindful of many shortfalls and potential problems that blockchain use for shareholder voting may cause. The next section discusses these pitfalls extensively.

III. WHY BOTHER?

Once one understands DLT and blockchain technology, the benefits are pretty easy to spot. Votes could be processed quickly, accurately, and securely. Shareholders and the marketplace could develop greater trust in the system and spend far less capital on expensive recounts and proxy solicitation services. In the aforementioned P&G proxy contest debacle,¹⁶⁰ Triantopoulos spent \$25 million and P&G spent a whopping \$100 million attempting to hold a *single* board seat—not even to gain control of the board and, therefore, control of the company’s decision making process.¹⁶¹ Corporations, or more accurately, their boards, tend to spend lavishly when defending board seats from a hostile or activist investor. These expenses appear to be pointless, however, because shareholders are no more likely to exercise their franchise when management spends more.¹⁶² But the benefits of blockchain could possibly be achieved without using a technology that

159. Giulio Prisco, *Delaware Blockchain Initiative to Streamline Record-Keeping for Private Companies*, BITCOIN MAG. (May 9, 2016), <https://bitcoinmagazine.com/articles/delaware-blockchain-initiative-to-streamline-record-keeping-for-private-companies-1462812187> [<https://perma.cc/43ED-3DJV>] (quoting Governor Markell as saying “companies allocate significant financial resources to correct and validate stock authorization and issuance errors that could have been correctly and seamlessly handled from the outset . . . Distributed ledger shares hold the promise of . . . dramatic increases in efficiency and speed.”).

160. See *supra* notes 82-84 and accompanying text.

161. Chris Isidore & David Goldman, *Procter & Gamble Declares Victory in Expensive Proxy Fight*, CNN (Oct. 10, 2017), <http://money.cnn.com/2017/10/10/news/companies/procter-gamble-proxy-fight/index.html> [<https://perma.cc/YQ4W-M5JT>].

162. See Jennifer E. Bethel & Stuart L. Gillan, *Corporate Voting and the Proxy Process: Managerial Control Versus Shareholder Oversight* (paper presented at Tuck-JFE Contemporary Corp. Governance Conference, 2000), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=236099 [<https://perma.cc/4KLP-XH9Z>] (finding no relationship between the amount of money spent on proxy solicitors and voter turnout).

most still do not know much about. Instead of buying into the blockchain hysteria, shareholders, corporations, and regulators can use more established technologies to reach the same ends.

Apart from the biased focus on disruptive technologies, supporters of blockchain technology seem to overlook the threshold question of whether the shareholder franchise should be given a more significant role in corporate governance. Economic and financial theory indicates that shareholders do not have proper incentives to care about their votes, and that their votes often will not matter anyway given the reality of current corporate boards, the structure of corporate control transactions, and other methods of undermining the shareholder franchise.

A. Blockchain's Mythical Benefits

1. Blockchain Voting Needs a Speeding Ticket

One of the principal benefits of using blockchains for shareholder voting is the speed at which votes could be held and accurately recorded. Yet, speed of a proxy contest is not always a net positive.

The power of the vote itself provides a large economic incentive to investors that can be attributed to one part of the underlying stock price. Peter Dodd and Jerome Warner find positive returns up to the record date before a proxy contest but significantly negative returns between a proxy contest announcement and the outcome itself.¹⁶³ They proffer the “value of the vote hypothesis” that attributes the increasing stock price during the period leading up to the record date to the value of each share’s vote.¹⁶⁴ This hypothesis suggests that the price of the stock should decrease after the record date because only the record holder has the right to vote in the proxy contest.¹⁶⁵ These findings seemingly suggest that the increased processing speed offered by blockchain voting would be a positive innovation. But these findings, although significant, are hardly conclusive, and many studies have actually indicated that shortened proxy contests have the opposite result. One such study found an average positive return to stock price of 11.4% during a proxy contest¹⁶⁶ while another, similar

163. Peter Dodd & Jerome B. Warner, *On Corporate Governance: A Study of Proxy Contests*, 11 J. FIN. ECON. 401, 424 (1983).

164. *Id.* at 425-31.

165. *Id.* at 428-29; see also Chinmoy Ghosh *et al.*, *Proxy Contests: A Re-examination of the Value of the Vote Hypothesis*, 18 MANAGERIAL FIN. 3, 10 (1992) (uncovering significant negative returns following the record date of a proxy contest).

166. Lisa F. Borstadt & Thomas J. Zwirlein, *The Efficient Monitoring Role of Proxy*

study found that even after normalization for other factors, abnormal shareholder wealth creation rested positively around six percent.¹⁶⁷ To be fair, there are a multitude of studies that suggest that proxy contests increase shareholder value overall. I agree and do not contend that proxy contests are bad for shareholders, but drastically increasing their speed may negate these effects.¹⁶⁸

Apart from wealth returns to shareholders, speedy contests may not prove beneficial for dissenters who are most often the shareholders most likely to exercise their franchise. In a 1988 study, John Pound found that shortening the amount of time between announcement of a proxy contest and its outcome indicated a lower chance of dissident success.¹⁶⁹ Seemingly, management may use quicker proxy votes to sway contests in their favor. Yair Listokin of Yale Law School has researched this phenomenon extensively and has commented that proposals and candidates sponsored by management are “overwhelmingly more likely to win . . . by a very small amount than to lose by a very small amount—to a degree that cannot occur by chance.”¹⁷⁰ Although blockchain provides more accuracy in vote tabulation and transparency of those results,¹⁷¹ management can use the more rapid time frame to manipulate those results. As noted above, the most likely form of DLT that would be used for shareholder voting itself is the private, permissioned ledger, negating the benefits that could be derived if the greater marketplace sees the outcome of votes.¹⁷² Undoubtedly, the SEC would serve as regulator over these mechanics since it already requires ‘34 Act reporting companies to submit 8-K’s following every vote

Contests: An Empirical Analysis of Post-Contest Control Changes and Firm Performance, 21 FIN. MGMT. 22, 28 (1992).

167. Harry DeAngelo & Linda DeAngelo, *Proxy Contests and the Governance of Publicly Held Corporations*, 23 J. FIN. ECON. 29, 40 (1989). *But see* Thomas & Tricker, *supra* note 85, at 84 (removing the forty-day period used by the DeAngelos leads to a -12.47% return, supporting the notion that the market already prices in the contest and therefore the length of the contest does not matter).

168. DeAngelo & DeAngelo, *supra* note 167 Lakonishok, *Corporate Governance Through the Proxy Contest: Evidence and Implications*, 66 J. BUS. 405, 432–33 (1993); J. Harold Mulherin & Annette B. Poulsen, *Proxy Contests and Corporate Change: Implications for Shareholder Wealth*, 47 J. FIN. ECON. 279, 280 (1998).

169. John Pound, *Proxy Contests and the Efficiency of Shareholder Oversight*, 20 J. FIN. ECON. 237, 258–59 (1988).

170. Listokin, *supra* note 3 at 161; *see also* Thomas & Tricker, *supra* note 85, at 84–85 (noting a similar phenomenon with management proposals and stating “management is aware that the length of time [of the vote] influences the number of votes cast, so management uses this phenomenon to their advantage to secure passage of their proposals.”).

171. *See infra* Parts III.A.2 and III.A.3.

172. *See supra* Part II.C.

of security holders.¹⁷³ But the SEC has traditionally been behind the blockchain curve and likely will not be able to properly regulate these votes any time in the near future.

Shareholders receive a proxy statement with important information prior to every shareholder vote to enable them to become more informed voters and thereby exercise their franchise intelligently.¹⁷⁴ Speeding up the proxy voting mechanism may shorten an already intense proxy season, which features thousands of meetings over the course of a brief period. A basic Schedule 14A proxy statement is frequently more than seventy-five pages¹⁷⁵ and in a year with a contested board election, the filings and their subsequent amendments may be much longer.¹⁷⁶ Glass Lewis, a prominent proxy advisory firm, handles the influx of work during this season by hiring temporary workers. Needless to say, the average shareholder can do no such thing. Will shareholders who already have full-time jobs elsewhere dedicate their precious time toward reading the entirety of these filings?¹⁷⁷ No doubt a rhetorical question. Currently, proxy statements are mailed—or delivered electronically¹⁷⁸—and shareholders have at least twenty days to review the information and cast their votes.¹⁷⁹ The integration of blockchain will surely necessitate new rules to adjust to the shifting technology and general trend toward informing the market more and more rapidly. Given that shareholders, especially retail holders, are likely not reading their mailings, a quicker turnaround time will result in a much less informed voting shareholder.

Acknowledging the shifting paradigm toward holdings by institutions rather than retail investors,¹⁸⁰ these institutional investors already face

173. U.S. SEC. & EXCH. COMM'N, SEC 873, FORM 8-K, § 5.07 (2012) (noting that an 8-K should be filed for any matter submitted to a vote of securities holders and requiring specific information based on the type of vote).

174. 15 U.S.C. § 78n(a) (2012); 17 C.F.R. § 240.14a (2014).

175. *E.g.*, Alphabet Inc., Proxy Statement (Schedule 14A) (Apr. 28, 2017).

176. *See, e.g.*, Procter & Gamble Co., Proxy Statement (Schedule 14A) (Aug. 1, 2017) (containing a twenty-two page appendix in addition to a seventy-two page proxy statement). Note that a search on the SEC's EDGAR platform reveals that P&G made over eighty subsequent amendments to its initial definitive filing.

177. *See infra* Part III.B for a discussion on rational ignorance, a theory that states that the average shareholder is rationally ignorant to the goings on at a company because their single vote will not alter the outcome of an election; ANDREAS CAHN & DAVID C. DONALD, *COMPARATIVE COMPANY LAW* 474 (2010) (opining facetiously that shareholders will “sit down after work some evening and read a 150-page proxy statement.”).

178. *See* 17 C.F.R. § 240.14a-16 (2014) (noting that proxies may be delivered electronically or made available online).

179. 17 C.F.R. § 240.14a-3(b)(10) (2014) (stating that twenty days is the minimum).

180. *See* Steven David Solomonoff, *Rise of Institutional Investors Raises Questions of Collusion*, N.Y. TIMES (Apr. 12, 2016), <https://www.nytimes.com/2016/04/13/business/deal>

enormous pressure to cut costs and cannot add staff comparably as their proxy advisory counterparts can.¹⁸¹ There also exists a dichotomy between those who make investment decisions at institutions and those who cast the votes on behalf of the institution as the owner.¹⁸² This divorce results because all too often investors such as pension funds, hedge funds, and university endowments use the recommendations of proxy advisors to make their own voting decisions. In fact, a single proxy advisor, Institutional Shareholder Services (“ISS”), impacts the “governance decisions of professional investors controlling . . . half the value of the world’s common stock.”¹⁸³ One cannot blame the institutions for using these specialized companies given that, in 2012 alone, a single institutional investor received more than 129,000 management and shareholder proposals.¹⁸⁴ In theory, proxy advisors provide a specialized service for institutional investors in a broad space. The investors should be analyzing market trends, assessing management’s ideas, and understanding economic fundamentals, not wasting their time on trivial corporate governance issues.¹⁸⁵ But whereas these investors owe fiduciary duties to their clients,

book/rise-of-institutional-investors-raises-questions-of-collusion.html [https://perma.cc/73WH-M6HN] (noting that Blackrock, Vanguard, and other institutions own roughly seventy percent of the public stock market); ALAN PALMITER & FRANK PARTNOY, *CORPORATIONS: A CONTEMPORARY APPROACH* 465 (2010) (stating that the top one hundred institutional investors own fifty-two percent of publicly-held stock and that “the persons acting on behalf of the majority of shareholders of corporate America could all fit into a large law school classroom.”); see also Robert Profusek, *The Increasing Power of Institutional Investors*, WALL ST. J. (June 24, 2015, 7:00 AM), <https://blogs.wsj.com/experts/2015/06/24/the-increasing-power-of-institutional-investors/> [https://perma.cc/JZG7-8J6S] (stressing the role of institutional investors in corporate governance).

181. See, e.g., Madison Marriage & Attracta Mooney, *Hedge Funds and Private Equity Pressured to Cut Fees*, FIN. TIMES (Feb. 21, 2016), <https://www.ft.com/content/07867a66-d737-11e5-8887-98e7feb46f27> [https://perma.cc/G9UZ-CL4B] (stating that nearly two-thirds of pension funds in the United States are under pressure to cut investment costs). See generally STEPHEN DAVIS, JON LUKOMNIK & DAVID PITT-WATSON, *THE NEW CAPITALISTS* (2006) (highlighting the pressure on institutional investors by individuals whom have invested their life savings into pooled investment schemes).

182. See Charles M. Nathan, *The Parallel Universes of Institutional Investing and Institutional Owning*, HARV. L. SCHOOL F. ON CORP. GOVERNANCE (April 6, 2010), <https://corpgov.law.harvard.edu/2010/04/06/the-parallel-universes-of-institutional-investing-and-institutional-voting/> [https://perma.cc/6Y4S-BQMW] (stressing that the divorce between institutional investing and institutional voting results from too many portfolio companies and various rules by regulators).

183. Robert D. Hershey, Jr., *A Little Industry With a Lot of Sway on Proxy Votes*, N.Y. TIMES, June 18, 2006, at S3.

184. Carol J. Loomis, *BlackRock: The \$4.3 trillion force*, FORTUNE (July 7, 2014), <http://fortune.com/2014/07/07/blackrock-larry-fink/> [https://perma.cc/AL7R-BYLC].

185. For a thoughtful piece defending proxy advisors and the work they perform, see

proxy advisors owe no fiduciary duties to their clients or the shareholders of the companies whose proposals and management slates they are evaluating.¹⁸⁶

Speeding the timeline of shareholder voting will only increase institutional investors' reliance on these advisors and, largely unchecked, proxy advisors have gained tremendous power over the shareholder vote under a regulatory regime that encourages shareholders to rely on their recommendations.¹⁸⁷ Today, proxy advisors wield tremendous power over the outcome of a vote. The *Wall Street Journal* has gone as far as saying that a "black mark from ISS could be very harmful to a company."¹⁸⁸ Current Delaware Chief Justice Leo Strine notes that CEOs frequently travel to ISS's headquarters to persuade it of their views, recognizing that some investors will "simply follow ISS's advice rather than do any thinking of their own."¹⁸⁹ If a busy CEO comes begging ISS for services rather than the other way around, the industry's prominence speaks for itself. We should hesitate before placing more power in proxy advisors that enjoy nearly unchecked monopoly power, increases agency costs, and have great sway on the shareholder vote.¹⁹⁰

This is not to say there are no benefits to shortening the time it takes

George W. Dent, Jr., *A Defense of Proxy Advisors*, 2014 MICH. ST. L. REV. 1287.

186. See Leo E. Strine, Jr., *Towards A True Corporate Republic: A Traditionalist Response to Bebchuk's Solution For Improving Corporate America*, 119 HARV. L. REV. 1759, 1765 (2006) ("Unlike corporate managers, neither institutional investors as stockholders nor ISS as voting advisor owe fiduciary duties to the corporations whose policies they seek to influence.").

187. See Stephen Choi, Jill Fisch & Marcel Kahan, *The Power of Proxy Advisors: Myth or Reality*, 59 EMORY L.J. 869, 872-79 (2010) (summarizing how proxy advisors have become increasingly important as a result of SEC and NYSE rules); Paul Rose, *The Corporate Governance Industry*, 32 J. CORP. L. 887, 887 (2007) ("The corporate governance industry influences (and in some cases effectively controls) the votes of trillions of dollars of equity . . . the governance policies and fortunes of countless companies through proxy voting recommendations and governance ratings.").

188. Monica Langley, *ISS Rates Firms – and Sells Roadmap to Boosting Score*, WALL ST. J. (June 6, 2003), <https://www.wsj.com/articles/SB105485006531971100> [<https://perma.cc/35PZ-LRGV>].

189. Tamara C. Belinfanti, *The Proxy Advisory and Corporate Governance Industry: The Case for Increased Oversight and Control*, 14 STAN. J.L. BUS. & FIN. 384, 429 (2009) (citing Leo E. Strine, Jr., *The Delaware Way: How We Do Corporate Law and Some of the New Challenges We (and Europe) Face*, 30 DEL. J. CORP. L. 673, 688 (2005)).

190. See Choi, Fisch & Kahan, *supra* note 187, at 906 (finding that ISS's recommendation sways a shareholder vote by at least six to ten percent); see also Strine, *supra* note 186, at 1765 ("The influence of ISS and its competitors over institutional investor voting behavior is so considerable that . . . any initiative to increase stockholder power will simply shift more clout to firms of this kind—firms even more unaccountable than their institutional investor clients.").

to collect and count the votes.¹⁹¹ Management may be able to implement changes quicker and close transactions more rapidly thereby providing certainty and reducing transaction based arbitrage. After all, one of the hallmarks of Delaware corporate law is the certainty afforded by its large body of precedent and dedicated Chancery Court, which lowers transaction costs for companies incorporated or litigating there.¹⁹² But the inconclusive impact on shareholder wealth, dearth of necessary information, and reliance on proxy advisors sway the needle against shortening the timeline between proxy solicitations and voting.

2. Accuracy Attributes Can Be Replicated

In *Aprahamian v. HBO & Co.*, the Delaware Chancery Court stated “those in charge of the election machinery of a corporation must be held to the highest standards in providing for and conducting corporate elections.”¹⁹³ Blockchain appears to be a simple solution for boards and managers to meet these high standards. It offers near-instantaneous confirmation of votes, and voters can confirm their votes were counted properly using the unique hash algorithm of the associated blockchain.¹⁹⁴ The permanent record established by the ledger may help prevent problems such as the T. Rowe Price debacle whereby shares were voted incorrectly.¹⁹⁵ One prominent drawback is that blockchain transactions cannot be changed *post hoc*—the ledger is immutable. Simple errors like entering a voting address one digit off may result in votes being lost or incorrectly attributed to the wrong selection.

More intriguing, however, is that the benefits derived from the accuracy of blockchain can easily be realized with already-established technologies as simple as websites. There is no need to build a blockchain for everything, as many who support the technology lead others to

191. See Borstadt & Zwirlein, *supra* note 166 (discussing positive shareholder wealth implications).

192. See, e.g., *Hariton v. Arco Elecs., Inc.*, 188 A.2d 123 (Del. 1963) (using the doctrine of independent legal significance in interpreting the Delaware corporate code to create certainty and prevent litigation); *EASTERBROOK & FISCHER*, *supra* note 5, at 216 (lower transaction costs justify increased cost of incorporating in Delaware); see also Ralph K. Winter, Jr., *State Law, Shareholder Protection, and the Theory of the Corporation*, 6 J. LEGAL STUD. 251 (1977) (articulating the position that Delaware state law represents a “race to the top” and that other jurisdictions should emulate its corporate regime).

193. 531 A.2d 1204, 1207 (Del. Ch. 1987).

194. See *supra* Part II.C.

195. Levine, *supra* note 11.

believe.¹⁹⁶ Even if a problem can be solved using DLT, it may not be the most efficient solution. A common perception in the world of virtual currencies is that many currencies themselves have no underlying value apart from what people believe they are worth. Aptly named the “Tinkerbelle effect,” it can be stated that the current mania surrounding DLT processes is wholly similar.¹⁹⁷ Once the general populace realizes that, although revolutionary, DLT may not be the answer for everything, the shift of resources into a blockchain method for shareholder voting may be rendered moot. However, the tide of investment has not stopped in 2018 and venture capital investment in the blockchain sphere has dramatically increased in recent years.¹⁹⁸

Numerous web-based voting applications already exist, including basic websites such as Google’s Forms application, Survey Monkey, and Doodle.¹⁹⁹ These platforms display the ease in creating simple polls and conducting elections in an extremely cost effective manner. Obviously, shareholder voting is not a simple endeavor and requires a user interface and servers that have the capacity to enable millions (or billions) of shareholders to cast their votes. Platforms such as ElectionRunner²⁰⁰ and DirectVote²⁰¹ can provide the parameters necessary to host a large corporate election. Specifically, ElectionRunner facilitates the elections for

196. See Antonio Grumser, *Buddha and the Blockchain: Everything in Moderation*, BITCOINIST (Mar. 30, 2018, 3:15 AM), <http://bitcoinist.com/everything-in-moderation-even-blockchain/> [<https://perma.cc/PS2C-YWXQ>] (discussing how the rise of Bitcoin in late 2017 led to the mass adoption of blockchain technology as “an end instead of a means to an end.”).

197. The notion rests on the Disney story of Peter Pan, where the fairy Tinkerbelle exists only so long as one believes in her. See PETER PAN (Walt Disney Prod. 1953) (exemplifying the effect when Tinkerbelle recovers from near death due to belief by the audience); see also, e.g., ARVIND NARAYANAN ET AL., BITCOIN AND CRYPTOCURRENCY TECHNOLOGIES: A COMPREHENSIVE INTRODUCTION 169 (2016) (“[M]y belief that the [B]itcoins I am receiving today are of value depends on my expectation that tomorrow other people will believe the same thing . . . consensus on value relies on believing that consensus on value will continue.”).

198. Marie Huillet, *Venture Capital Investment in Blockchain and Crypto Up 280% in 2018, Report Shows*, COIN TELEGRAPH (Oct. 2, 2018), <https://cointelegraph.com/news/venture-capital-investment-in-blockchain-and-crypto-up-280-in-2018-report-shows> [<https://perma.cc/3KC4-R9E9>].

199. GOOGLE FORMS, <https://www.google.com/forms/about/> [<https://perma.cc/TZY9-HQEB>]; SURVEY MONKEY, <https://www.surveymonkey.com/> [<https://perma.cc/A5RT-986U>]; DOODLE, <https://doodle.com/> [<https://perma.cc/H82G-9HYV>].

200. ELECTIONRUNNER, <https://electionrunner.com/> [<https://perma.cc/TV7D-4PQW>].

201. See SBS DIRECTVOTE, <https://www.surveyandballotsystems.com/services/voting-services/directvote/> [<https://perma.cc/7P54-LRGT>] (DirectVote is a fully operational platform that supports any number of voters. It is sophisticated and even complies with the Americans with Disabilities Act.).

the University of Florida's student government, an organization requiring software to facilitate more than 35,000 votes. These applications are mere examples of the simplicity involved in creating and operating a platform that facilitates the corporate shareholder vote.

Blockchains can be expensive and difficult to create. Most shareholders have no idea how the current proxy mechanisms work. While blockchain's accuracy attributes could fundamentally change securities clearing processes, at this juncture it seems unnecessary to use DLT to increase the accuracy of the shareholder vote when other, cheaper approaches can be implemented.

B. Focus on the Shareholder Franchise is Misguided

The focus of this Article is not to disparage the use of DLT throughout the securities industry and within corporate law generally.²⁰² Rather, the goal is to display that use of blockchain as a solution for shareholder voting may be shortsighted. It overvalues the shareholder franchise and furthers misinterpretations of corporate law that permeate economic thought in the area. Information disparities, rational ignorance, and the overall sentiment on the value of the shareholder vote indicate that shareholders are actually better off remaining uninformed and abstaining from corporate votes. Although much of prevailing theory emphasizes putting shareholder interests above all others, directors and corporate theorists are missing the point of the corporation itself. In short, the costs of instituting DLT for shareholder voting greatly outweigh the benefits. Finally, the decision of whether to switch to a blockchain shareholder voting platform should be guided by the response of the marketplace rather than by the thoughts of experts.

1. Vaguely Valuable? Is the Vote Worth Anything?

In Delaware and other states, the majority of corporate power rests with the board of directors.²⁰³ The powers of the board are "original and undelegated," stemming from a combination of the charter and state

202. In fact, as mentioned several times in this Article, DLT can and is proving to be incredibly useful in easing the major problems underlying securities clearing in both the United States and globally.

203. See DEL CODE ANN. TIT. 8, § 141(a) ("The business and affairs of every corporation organized under this chapter shall be managed by or under the direction of a board of directors.").

laws.²⁰⁴ These powers encompass ordinary business of the corporation such as naming a CEO, calling a shareholder meeting,²⁰⁵ or declaring a dividend, and “stockholders cannot . . . control the . . . judgment vested in [the directors] by virtue of their office.”²⁰⁶ In turn, these directors owe shareholders the fiduciary duties of due care and loyalty to ensure they act in the best interests of the corporation.²⁰⁷ Shareholders retain the right to elect directors and vote on fundamental changes such as charter amendments and certain types of transactions.²⁰⁸

This power distribution model creates a disparity in knowledge between the two levels of governance that no blockchain can remedy. Corporate board meetings are closed to shareholders for a number of reasons, including protecting proprietary information and limiting insider trading or fraud on the market. These meetings are frequently kept so secretive that “[n]o one, other than the directors, the CEO-chairman, and the corporate secretary, knows what transpires behind the closed doors of the corporate boardroom.”²⁰⁹ Recognizing this information dichotomy and the desire to facilitate informed shareholder votes, Delaware law allows stockholder to inspect certain corporate documents.²¹⁰ However, section 220 is not all encompassing and does not open the door for shareholders to conduct a sweeping search. This right is curtailed in that stockholders must prove a proper purpose before the Chancery Court in order to gain access. Such proper purposes include determining mismanagement or misconduct

204. *People ex rel. Manice v. Powell*, 241 N.Y. 194, 200 (N.Y. 1911); *see also* *Charlestown Boot v. Dunmore*, 60 N.H. 85 (N.H. 1880) (holding that the only limitation upon the discretion of the board of directors is what the charter and bylaws impose). State laws often afford great power to corporate boards. For example, in Delaware, boards can create new classes of stock without shareholder approval and can assign various rights to that stock. DEL. CODE ANN. TIT. 8, §§ 151(a), 157(a). This provision, along with others, enables boards to enact one of the most effective anti-takeover mechanisms, the Poison Pill. PALMITER & PARTNOY, *supra* note 180, at 919-22.

205. *See* DEL. CODE ANN. TIT. 8, § 211 (stating that only the board has the power to call a meeting of shareholders).

206. *Manice*, 241 N.Y. at 200.

207. *See In re The Walt Disney Co. Derivative Litig.*, 906 A.2d 27, 67 (Del. 2006) (affirming the fiduciary duties of due care and loyalty in Delaware).

208. *See supra* notes 25-34 and accompanying text.

209. JAY W. LORSCH, PAWNS OR POTENTATES: THE REALITY OF AMERICA'S CORPORATE BOARDS 55 (Elizabeth MacIver ed., 1989).

210. *See* DEL. CODE ANN. tit. 8, § 220(b) (allowing shareholders to inspect a corporation's stock ledger, list of its stockholders, and other books and records). While Delaware's statute does not make a distinction as to what constitutes a book or record, the Model Business Corporation Act separates board minutes into a category of records that requires a shareholder to indicate a proper purpose prior to their release. MODEL BUS. CORP. ACT § 16.02(b)(1).

with specific allegations, determining the value of the corporation, and preparing for an upcoming shareholder proposal.²¹¹ Plaintiffs bear this burden and must make “specific and discrete identification, *with rifled precision* . . . [to] establish that each category of books and records is essential to the accomplishment of their articulated purpose.”²¹² Putting board knowledge of company specific information on a blockchain is not only inefficient and a foolish use of the technology, but also will likely lead to more frivolous claims against directors and will not aid shareholders in articulating the proper purpose necessary to access information in the first place. Some claim that greater access to information will increase the role of shareholders in corporate governance.²¹³ Yet Jill Fisch persuasively argues that greater access to information and heightened transparency actually results in inefficiencies and obstacles to a board’s execution of both its strategic and managerial role within the company.²¹⁴ Also, what one person may view as an “active monitor” is “another person’s ‘intrusive busybody’ or ‘speculator.’”²¹⁵

Even where shareholders have the ability to become informed through active monitoring or inspection of records, it is not always in their best interest to do so. As the philosopher Edmund Burke put it, “[y]our representative owes to you, not his industry only, but his judgment; and he betrays, instead of serving you, if he sacrifices it to your opinion.”²¹⁶ Theoretically, a perfectly informed shareholder undermines the whole purpose of representation by a prudent board comprised of members with experience as investment bankers, lawyers, or business executives.²¹⁷ As a

211. DEL. CODE ANN. tit. 8, § 220(c); *Saito v. McKesson HBOC, Inc.*, 806 A.2d 113, 116 (Del. 2002); *see also* *Security First Corp. v. U.S. Die Casting & Dev. Co.*, 687 A.2d 563, 568 (Del. 1977) (“mere curiosity or desire for a fishing expedition” does not warrant a § 220 search).

212. *Brehm v. Eisner*, 746 A.2d 244, 266-67 (Del. 2000) (emphasis added).

213. *See, e.g.*, Edward B. Rock, *Shareholder Eugenics in the Public Corporation*, 97 CORNELL L. REV. 849, 854-56 (2012) (highlighting an informed shareholder’s ability to monitor management effectively, thereby reducing agency costs).

214. *See* Jill E. Fisch, *Taking Boards Seriously*, 19 CARDOZO L. R. 265, 272-75 (1997) (discussing the functions of the managerial board).

215. Rock, *supra* note 213, at 855; *see also* Martin Lipton & Steven A. Rosenblum, *Election Contests in the Company’s Proxy: An Idea Whose Time Has Not Come*, 59 BUS. LAW. 67, 92-93 (2003) (arguing that even with more robust information, a disparity will always exist between a company’s board and its shareholders and prying shareholders distract the board from its mission).

216. EDMUND BURKE, II WORKS 95-96 (1866).

217. *See* EASTERBROOK & FISCHER, *supra* note 5, at 8 (arguing that the structure of the firm enables an efficient method of specialization between owners and controllers); Lynn A. Stout, *The Mythical Benefits of Shareholder Control*, in ROBERTA ROMANO, FOUNDATIONS OF CORPORATE LAW 358 (2d ed. 2010) (offering the notion that “shareholders, like Ulysses,

result of this representation by an intelligent party, the shareholder's cost of informing herself prior to a shareholder vote is often higher than the benefits of such knowledge.²¹⁸ It takes a considerable amount of time to properly obtain the knowledge required to be an informed shareholder, and many may not partake in the endeavor. Consider further that most Americans now invest in passively managed mutual and index funds.²¹⁹ In ceding active management, these shareholders care little about the underlying stocks owned by their respective indices and value returns over all else. They will certainly care even less about minor corporate governance issues at individual portfolio companies.²²⁰ Even shareholders who actively manage their investments have notoriously been uninformed.²²¹ As Frank Emerson & Franklin Latcham wrote in 1954, "the stockholder, of all people, has shown a peculiarly high degree of indifference to what goes on in his corporation, and worse, that he would not understand it anyway."²²² While a blockchain may make casting a proxy vote slightly cheaper, implementation of the technology will not

sometimes see advantage in 'tying their own hands' and ceding control over the corporation to directors largely insulated from their own influence."); *see also* *United States v. Carolene Prods. Co.*, 304 U.S. 144, 153 n.4 (1938) (deeming the democratic process too important to be left to a democratic process).

218. *Supra* note 176 and accompanying text; PALMITER & PARTNOY, *supra* note 180, at 461-62; *see also* Frank H. Easterbrook & Daniel R. Fischel, *The Corporate Contract*, in ROBERTA ROMANO, FOUNDATIONS OF CORPORATE LAW 158 (2d ed. 2010) ("Shareholders' approval of changes is likely to be unreliable as an indicator of their interests, because scattered shareholders in public firms do not have the time, information, or incentive to review all proposed changes.").

219. *See* Trevor Hunnicutt, *Index Funds to Surpass Active Fund Assets in U.S. by 2024: Moody's*, REUTERS (Feb. 2, 2017, 9:31 AM), <https://www.reuters.com/article/us-funds-passive/index-funds-to-surpass-active-fund-assets-in-u-s-by-2024-moodys-idUSKBN15H1PN> [<https://perma.cc/TN9J-RU96>] (describing the drastic rise of passively managed index funds); Tom Petruno, *Small Investors' Move to 'Passive' Stock Funds Becomes a Stampede*, L.A. TIMES (Apr. 9, 2017, 3:00 AM), <http://www.latimes.com/business/la-fi-investing-quarterly-index-funds-20170409-story.html> [<https://perma.cc/LC8H-2AT4>] (noting that passively managed funds saw an increase in investment by forty-two percent in 2016 while outflows from actively managed funds decreased by more than \$500 billion during the same period).

220. A relatively new phenomenon related to indices that may potentially help the passive investor make more informed decisions is that of corporate governance indices. These metrics driven models seek to compare various firms with respect to their governance practices including antitakeover devices, capital structure, presence of dual class stock, etc. *See generally* Sanjai Bhagat, Brian Bolton, and Roberta Romano, *The Promise and Peril of Corporate Governance Indices*, 108 COLUM. L. REV. 1803 (2008).

221. *See* Lynn A. Stout, *Are Stock Markets Costly Casinos? Disagreement, Market Failure, and Securities Regulation*, 81 VA. L. REV. 611, 710 (1995) ("We live in a world of ignorance and uncertainty . . . [i]n the case of stock markets, any analysis that ignores ignorance risks being incomplete indeed.").

222. EMERSON & LATCHAM, *supra* note 15, at 10.

reduce information gathering costs to the point where it makes sense for shareholders to inform themselves—the problem of rational ignorance is here to stay.

To shareholders, the value of their vote lacks much power to begin with.²²³ For one, the collective choice problem prevents shareholders from caring about their single vote.²²⁴ Since there are millions of shares to be voted, no single shareholder expects her vote to be decisive. As a result, no voter has the appropriate incentives to vote their shares wisely.²²⁵ Each shareholder believes that another will spend the time becoming informed, so they forego the opportunity cost of becoming informed themselves.²²⁶ Since shareholders can increase the value of their votes and mitigate their own collective action fears by aggregating a large mass of stock, smaller voters can systematically exploit the work of larger shareholders.²²⁷ These

223. See Margaret M. Blair & Lynn A. Stout, *A Team Production Theory of Corporate Law*, 85 VA. L. REV. 248, 298-304 (1999) (discussing the relationship between directors and shareholders and noting that corporate directors are not subject to the direct control by shareholders as was once thought); Lucian Bebchuk, *The Myth of the Shareholder Franchise*, 93 VA. L. REV. 675, 676 (2007) (arguing that since proxy contests occur so infrequently, “shareholders do not in fact have at their disposal [the] powers of corporate democracy.”); Daniel J.H. Greenwood, *Fictional Shareholders: For Whom Are Corporate Managers Trustees, Revisited*, 69 S. CAL. L. REV. 1021, 1043 (1996) (“As a matter of law, shareholders, even taken as a collectivity, lack the control over directors that characterizes an ordinary agency relationship.”).

224. Traditionally, the most common method of assigning votes to shares reflects “one share, one vote” where each share is assigned a single vote. See *One-Share-One-Vote Rule*, NASDAQ, <https://www.nasdaq.com/investing/glossary/o/one-share-one-vote-rule> [<https://perma.cc/K5MF-FJV6>] (defining the one share, one vote rule). This is in contrast with structures that assign multiple votes to a single class of shares, often referred to as dual class voting stock. See Simon C.Y. Wang, *Rethinking “One Share, One Vote”*, HARV. BUS. REV. (Jan. 29, 2013), <https://hbr.org/2013/01/rethinking-one-share-one-vote> [<https://perma.cc/QQ2R-NF23>] (questioning whether traditional one share, one vote regimes can effectively combat the rise of activist short termism).

225. See EASTERBROOK & FISCHER, *supra* note 5, at 66 (suggesting that “voting rarely serves any function except *in extremis*.”).

226. See CLARK, *supra* note 7, at 392 (describing the inefficiencies caused by the Free Rider Problem); HENRY HANSMANN, *THE OWNERSHIP OF ENTERPRISE* 39-42 (describing the costs of collective ownership through the lens of both decisionmaking and process).

227. I use the word mitigate rather than erase because no shareholder has the correct incentives unless she owns the entirety of outstanding shares. Otherwise, a misalignment will exist. See EASTERBROOK & FISCHER, *supra* note 5, at 67 (illustrating how even large shareholders, while facing the collective action problem to a lesser extent, will never have the right incentives unless they own 100% of the shares); Ronald J. Gilson & Jeffrey N. Gordon, *The Agency Costs of Agency Capitalism: Activist Investors and the Revaluation of Governance Rights*, 113 COLUM. L. REV. 863, 867 (2013) (noting that even large investors incur costs associated with voting and that the “reconcentration of ownership through institutions adds only marginally to the value of the vote”). *But see* Alon Brav *et al.*, *Hedge*

shareholders can “free-ride” off of larger investors and by extracting rent from the investment research of larger bloc holders.²²⁸ But investors with the capacity to become large shareholders may be deterred from accumulating blocs of shares due to this exploitation by the minority. The cost of informing themselves to lessen the collective action problem may be the straw that breaks the camel’s back and prevents even large holders from casting informed votes.²²⁹ Shareholders still have incentives to accumulate larger holdings, however, especially given the benefits of control.²³⁰ Registering votes on a blockchain only serves to exacerbate the issue: since voting tokens would be stored in a single public address on an owner-by-owner basis, shareholders would be able to see exactly how large blocs of shares are voted. Even if an argument can be made in favor of greater transparency affording minority holders with more market information, blockchain is not the means to satisfy the end goal. *Large shareholders are already doing this.*²³¹

Apart from the many issues facing the process of obtaining an informed shareholder vote, standards of review for actions by the board

Fund Activism, Corporate Governance and Firm Performance, 63 J. FIN. 1729, 1730 (2008) (arguing that activist hedge funds reduce the collective action problem because they are more willing to incur the costs of voting during proxy contests).

228. See Matthew Dimick, *Labor Law, New Governance, and the Ghent System*, 90 N.C. L. REV. 319, 349 (2012) (discussing the free-rider problem in the labor law context by asserting that “[w]henver the benefits of group action are collective—they cannot be provided to some without providing them to all—there is an incentive for a member of the group to ‘free ride’ on the contributions of others and not join or support the group’s efforts.”).

229. See CLARK, *supra* note 7, at 394 (likening this phenomenon to the classic prisoner’s dilemma).

230. See *id.* (highlighting this offset, but noting that unfair treatment of large but not controlling shareholders is likely to persist); *Zetlin v. Hanson Holdings*, 48 N.Y.2d 684 (N.Y. 1979) (discussing the benefits of control and allowing a controlling shareholder to sell his control block for whatever price he likes without a duty to share the premium with the minority). See generally Adolph A. Berle, *The Price of Power: Sale of Corporate Control*, 50 CORNELL L. Q. 628 (1965) (analyzing various problems associated with the sale of shareholder control).

231. E.g., Andrew Ross Sorkin, *BlackRock’s Message: Contribute to Society, or Risk Losing Our Support*, N.Y. TIMES (Jan. 15, 2018), <https://www.nytimes.com/2018/01/15/business/dealbook/blackrock-laurence-fink-letter.html> [https://perma.cc/AC5N-K5XK] (announcing the decision made by the chief executive of BlackRock to require companies to contribute to society if they want to continue receiving BlackRock’s support); Ross Kerber, *Two Big California Pension Systems Oppose Nine Wells Fargo Directors*, REUTERS (Apr. 21, 2017, 7:40 PM), <https://www.reuters.com/article/us-wellsfargo-accounts-calpers/two-big-california-pension-systems-oppose-nine-wells-fargo-directors-idUSKBN17N2MQ> [https://perma.cc/HY65-MAEG] (revealing how large shareholders of Wells Fargo planned to vote against incumbent directors because of a phony account scandal).

greatly expand the board's decision making ability and undermine the shareholder vote. The business judgment rule provides great latitude to corporate directors if they make decisions on an informed basis in good faith and on the honest belief that the actions taken were in the best interest of the company, even if they acted negligently.²³² This judicial standard has effectively gutted many shareholder protections and renders a shareholder vote of less utility.²³³ Even in a case where the business judgment standard does not apply, directors may nevertheless be free of liability for money damages in duty of care cases through clauses in company charters.²³⁴ Inherently, the reduction in liability allows managers to take greater risks—whether in the form of beginning new ventures that promise high returns²³⁵ or bypassing the shareholder vote in situations where one may be warranted. The problem is further aggravated when director and officer (“D&O”) indemnification insurance is considered. D&O policies are rather robust and cover for liabilities ensuing from normal risk taking endeavors.²³⁶ When a board is taking a new risk, considering a transaction using a structure that bypasses a shareholder vote, or hiring a new officer, D&O insurance allows directors to proceed more liberally rather than question their own actions or solicit approval from shareholders.²³⁷ Blockchain voting may make it easier for directors to put

232. AM.LAW INST. PRINCIPLES OF CORPORATE GOVERNANCE § 4.01(c); *see* *Smith v. Van Gorkam*, 488 A.2d 858 (Del. 1985) (holding that the business judgment rule will not apply in instances where the decision made was not an informed one); *Kamin v. American Express*, 383 N.Y.S.2d 807 (N.Y. Sup. Ct. 1976) (holding that a court will not interfere with a director's decisions unless they were made fraudulently or in bad faith); Daniel R. Fischel, *The Business Judgment Rule and the Trans-Union Case*, 40 BUS. LAW. 1437 (1985) (analyzing *Van Gorkam* and other applications of the business judgment rule).

233. *See* Blair & Stout, *supra* note 223, at 300 (claiming that the business judgment rule undermines directors' accountability to shareholders by insulating directors from claims of the fiduciary duty of care).

234. *See* DEL. CODE ANN. tit. 8, § 102(b)(7) (allowing corporations to include a charter provision eliminating liability for directors); 2 AM.LAW INST., PRINCIPLES OF CORPORATE GOVERNANCE: ANALYSIS AND RECOMMENDATIONS § 7.19(c) (1994) (discussing the policy rationale behind limiting liability). Other states have similar provisions. *See generally* Deborah A. DeMott, *Limiting Director's Liability*, 66 WASH. U. L.Q. 295 (1988) (analyzing the various state statutes).

235. *See* EASTERBROOK & FISCHEL, *supra* note 5, at 40 (noting that limited liability generally empowers managers to undertake projects with a higher variance). Though Easterbrook & Fischel refer to limited liability in the sense of share ownership, the analogy to reduced or zero liability for manic managers remains viable.

236. *See* Tom Baker & Sean J. Griffith, *Predicting Corporate Governance Risk: Evidence from the Directors' & Officers' Liability Insurance Market*, in ROBERTA ROMANO, FOUNDATIONS OF CORPORATE LAW 282 (2d ed. 2010) (noting that D&O insurance covers a wide array of potential liabilities apart those resulting from fraud or prior claims).

237. *But see* Tom Baker & Sean J. Griffith, *The Missing Monitor in Corporate*

matters to a shareholder vote, but it wouldn't make any sense for them to do so. The marginal cost savings they may achieve from a cheaper D&O policy (assuming insurers even favor blockchain voting methods) will not outweigh the cost of holding a vote, calling a shareholder meeting, and sending out proxy mailings.

2. Shareholder Primacy is the “Dumbest Idea in the World”

If a company implements blockchain shareholder voting, they implicitly believe in the power of the vote and thereby put the interests of shareholders first—one doesn't invest in shareholder voting without inherently believing that the corporation should be run for the benefit of shareholders. But, there exist numerous theories on who are a corporation's ultimate beneficiaries—shareholders, employees, or society. Many rationalize shareholder voting by pointing to a board's legal duty to maximize shareholder value.²³⁸ This is a misreading of basic corporate principles. As Lynn Stout repeatedly retorts throughout her works, the “notion that corporate law requires directors, executives, and employees to maximize shareholder wealth simply isn't true.”²³⁹ Yet, practitioners almost universally agree that shareholder primacy is the only way for directors to run a corporation.²⁴⁰

Governance: The Director's' & Officers' Liability Insurer, 95 GEO. L.J. 1795, 1813 (2006) (finding that, all else equal, insurers “charge poorly governed corporations more for D&O insurance than better governed corporations.”).

238. See, e.g., *Revlon v. MacAndrews & Forbes Holdings, Inc.*, 506 A.2d 173, 182 (Del. 1985) (requiring directors to get the best price for shareholders once a decision to sell the company has been made); *eBay Domestic Holdings, Inc. v. Newmark*, 16 A.3d 1, 33 (Del. Ch. 2010) (containing the opinion of Chancellor William Chandler that decisions of corporate directors should “ultimately promote shareholder value”); NAT'L ASS'N OF CORP. DIRS., REPORT OF THE NACD BLUE RIBBON COMMISSION ON DIRECTOR COMPENSATION I (1995) (“The primary objective of the corporation is to conduct business activities with a view to enhancing profit and shareholder gain.”).

239. STOUT, *supra* note 7, at 25 (citing *Dodge v. Ford Motor Co.*, 170 N.W. 668 (Mich. 1919)) (calling into question the popular reading of a seminal corporate law case by noting that the aspect of running a corporation for its shareholders is “mere dicta”); see also *Paramount Commc'ns v. Time, Inc.*, 571 A.2d 1140, 1152 (Del. 1989) (citing the seminal case of *Unocal Corp. v. Mesa Petroleum Co.*, 493 A.2d 946, 955 (Del. 1985) (holding that the board may consider “the impact on ‘constituencies’ other than shareholders” when taking defensive actions against a takeover)).

240. See STOUT, *supra* note 7 at 21 (“Shareholder Primacy had become a dogma, a belief system that was rarely questioned, seldom explicitly justified, and had become so pervasive that many of its followers could not even recall where or how they had first learned of it.”); Jeffrey N. Gordon, *The Rise of Independent Directors in the United States, 1950-2005: Of Shareholder Value and Stock Market Prices*, 59 STAN. L. REV. 1529, 1530 (2007) (noting

To better understand this principal question, it remains important to know the theory underlying the corporation.²⁴¹ By far the most well-known theory of the corporation, and the one this Article accepts, is that a corporation is a set of legal fictions “which serve as a nexus for a set of contracting relationships among individuals.”²⁴² These contracts are formed between shareholders and managers, the corporation and its suppliers, and the corporation and its customers.²⁴³ As with all contracts, shareholders voluntarily decide to purchase shares and create the implicit agreement that binds themselves with the corporation.²⁴⁴ This reciprocal arrangement²⁴⁵ comes with the right to receive a pro rata portion of the residual free cash flows of the enterprise and little more.²⁴⁶ The team theory of governance recognizes that a board with consolidated power is essentially the enforcement mechanism for the various contracts of the corporation, both explicit and implicit.²⁴⁷ The dispersed interests of shareholders, managers, and employees are best remedied by creating a single entity that manages the interests of the team so it remains cohesive.²⁴⁸

that the prevailing theory of shareholder primacy had nearly taken over managerial thinking by the late 1990s and persists today); *see also* *Citizens United v. Fed. Election Comm’n*, 558 U.S. 310, 454 (2010) (Stevens, J., dissenting) (defining the corporate purpose in terms of “maximiz[ing] shareholder value”).

241. *See* Lynn Stout, *The Economic Nature of the Corporation*, in 2 OXFORD HANDBOOK OF LAW AND ECONOMICS 343-48 (Francesco Parisi ed., 2017) (listing theories such as the entity theory, aggregate theory, and property theory and commenting on their strengths and weaknesses); David Millon, *Theories of the Corporation*, 1990 DUKE L.J. 201 (outlining the various theories).

242. Michael Jensen & W. H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305, 310 (1976).

243. Here, I focus on the contracts between shareholders and the managers who operate the corporation.

244. *See* RESTATEMENT (SECOND) OF CONTRACTS §§ 174-177 (AM. LAW. INST. 1981) (presence of duress or improper coercion eliminates the mutual assent necessary to form a binding contract).

245. *See* Melvin A. Eisenberg, *The Conception that the Corporation is a Nexus of Contracts, and the Dual Nature of the Firm*, 24 J. CORP. L. 819, 822 (1998) (noting the conception of a firm as a nexus of contracts really means that “the corporation is a nexus of reciprocal arrangements.”).

246. *See* GERALD F. DAVIS, *MANAGED BY THE MARKETS: HOW FINANCE RESHAPED AMERICA* 42 (2009) (“Buying shares in a company . . . entitles an investor to almost no real influence on how the company is run, or by whom.”).

247. *See* Blair & Stout, *supra* note 223, at 280-81 (outlining the team theory of governance).

248. *Id.* *But see* Alan J. Meese, *The Team Production Theory of Corporate Law: A Critical Assessment*, 43 WM. & MARY L. REV. 1629, 1635 (2002) (arguing that the team theory undermines shareholders’ important managerial role of oversight).

Still, the shareholder vote is often cited as a remedy for the agency problem. This problem arises when constituents expend resources to ensure managers or directors do not abuse their powers by serving themselves rather than furthering the goals of the corporation.²⁴⁹ The vote can be categorized as a monitoring cost for shareholders, who build agency costs of ownership into their perceived value of the firm. Since shareholders “price in” the impact of agency costs into their cost-benefit analysis of firm ownership, share price is evidently a cheaper method of holding managers accountable than voting. The efficient market hypothesis, some variant of which is accepted widely by most scholars, postulates that stock prices incorporate market information.²⁵⁰ Since the cost of voting can be learned via a corporation’s SEC filings, the costs are likely embedded in listed prices. Economists view this method favorably, especially when considering shareholders’ approval with a current price as evidenced by their willingness to defer to the actions of the board rather than running a proxy contest.²⁵¹

Because share price is a foundational aspect when choosing to make an investment, some have argued that it is better to provide shareholders with greater authority over the board’s decision making so that directors are properly incentivized to maintain shareholders’ satisfaction.²⁵² However, too much reliance on share price certainly would result in an incentive for management to emphasize short-term gains over long-term performance.²⁵³

249. See Jensen & Meckling, *supra* note 246, at 308 (1976) (noting that “it is generally impossible for the principal or the agent at zero cost to ensure that the agent will make optimal decisions from the principal’s viewpoint.”).

250. See Burton G. Malkiel, *Efficient Market Hypothesis*, in THE NEW PALGRAVE 122 (John Eatwell *et al.* eds., 1st ed. 1987) (describing variations of the market efficiency theory that vary depending on the level of information reflected in market stock prices); Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms Of Market Efficiency*, 70 VA. L. REV. 549, 554 (1984) (defining market efficiency as when “prices at any time fully reflect all available information”).

251. See Tamara Belifanti & Lynn Stout, *Contested Visions: The Value of Systems Theory for Corporate Law*, 166 U. PA. L. REV. 579, 594 n.70 (2018) (discussing various economists’ stances on the use of share price as a metric for reducing agency costs).

252. See, e.g., Lucian A. Bebchuk, *The Case for Increasing Shareholder Power*, 118 HARV. L. REV. 833 (2005) (arguing for an increase in shareholder power with respect to board power); Lucian A. Bebchuk, *The Case for Shareholder Access to the Ballot*, 59 BUS. LAW 43 (2003) (supporting of an SEC proposal requiring companies to include shareholder nominees to the board in their proxy materials).

253. See STOUT, *supra* note 7, at 66 (2012) (emphasizing that the average holding period for U.S. stocks may be as low as four months, further encouraging managerial short-termism); William W. Bratton & Michael L. Wachter, *The Case Against Shareholder Empowerment*, 158 U. PA. L. REV. 653, 716-25 (2010) (observing managers’ tendency to take greater risks in lieu of stable returns when shareholder power is increased); David

Short-termism, or the focus on short-term growth, is an often used tool by managers to stave off proxy battles, thereby reducing the number of shareholder votes overall.²⁵⁴ Even if one considers it the primary goal of directors to increase value for shareholders, the emphasis on short-term gains may prevent managers from putting resources in value maximizing projects with a long-term time horizon, such as a new pharmaceutical drugs or artificial intelligence. As a result, many corporate executives have referred to the focus on shareholder value as “the dumbest idea in the world.”²⁵⁵ Judges are noticing the dangers of short-termism too: Chief Justice Leo Strine has stated that shareholder welfare is best served by “that course of action [that] will best advance the interests of stockholders *in the long run*.”²⁵⁶

Primacy also includes frequently deferring to the wishes of shareholders. A good avenue for this is the ability of shareholders to make proposals on how the company should be run and submit them to a vote by their fellow shareholders. But evidence shows that even allowing shareholders to proffer and vote on proposals is actually anti-democratic. Since most shareholders are passive and uninformed, they show little interest in proposals, which are consistently defeated by large margins.²⁵⁷

Millon, *Radical Shareholder Primacy*, 10 U. ST. THOMAS L.J. 1013, 1040 (2013) (arguing that Bebchuk’s rationale for increasing shareholder’s power would bring about a “radical” shift toward short-termism); see also Edward B. Rock, *Adjusting to the New Shareholder-Centric Reality*, 161 U. PA. L. REV. 1907, 1926-30 (2013) (discussing the detrimental implications of shareholder primacy and short-termism on a corporation’s creditors).

254. See ASPEN INST. BUS. & SOC. PROGRAM, *OVERCOMING SHORT-TERMISM 2* (2009), https://www.aspeninstitute.org/sites/default/files/content/docs/pubs/overcome_short_state09_09_0.pdf [<https://perma.cc/386B-4XPB>] (describing the risks created by focus on short-term stock price and performance).

255. See Francesco Guerrera, *Welch Condemns Share Price Focus*, FIN. TIMES (Mar. 12, 2009), www.ft.com/intl/cms/s/0/294ff1f2-0f27-11de-ba10-0000779fd2ac.html#axzz1eHkdklrf [<https://perma.cc/AD6N-C4QE>] (quoting former Jack Welch, former CEO of General Electric); Usman Hayat, *Shareholder Value Maximization: The World’s Dumbest Idea?*, CFA INST. (Oct. 2, 2014), <https://eic.cfainstitute.org/2014/10/23/shareholder-value-maximization-the-dumbest-idea-in-the-world/> [<https://perma.cc/C4XL-38LP>] (noting that many certified financial advisors oppose strong reliance on share price due to short-termism).

256. Leo E. Strine, Jr., *The Dangers of Denial: The Need for A Clear-Eyed Understanding of the Power and Accountability Structure Established by the Delaware General Corporation Law*, 50 WAKE FOREST L. REV. 761, 764 (2015) (emphasis added); see also *In re Citigroup Inc. S’holder Derivative Litig.*, 964 A.2d 106, 139 (Del. Ch. 2009) (“the discretion granted directors and managers allows them to maximize shareholder value *in the long term*” (emphasis added)).

257. See EASTERBROOK & FISCHER, *supra* note 5, at 85 (“The reality is that the shareholders’ proposal rule is an anti-democratic device . . . the majority must subsidize the activities of the minority who are allowed to make proposals without incurring the costs.”).

When managers acquiesce to the wishes of utterly uninformed voters, they often sacrifice their business school certified knowledge in favor of an action that may be more socially responsible, but nevertheless does not provide the same wealth creation.²⁵⁸ Corporations are also responsible for bearing the costs of sending shareholder proposals via proxy mailings, as a result the majority end up bankrolling the minority's proposals.²⁵⁹ This methodology is incredibly inefficient. Why even allow shareholders to make proposals? After all, questions of strategy and operations fall under the gambit of "ordinary business."²⁶⁰ Directors can merely ignore shareholder proposals that receive an affirmative vote from the majority since these votes are simply precatory and non-binding.²⁶¹ Imagine the uproar if directors spent millions creating a platform for voting and then rarely, if ever yielded to the wishes of shareholders. Perhaps we would learn whether blockchain voting would be valuable in the ensuing proxy contest.

3. The Market Should Settle the Debate

Economic theory provides for an almost Darwinist approach to the nature and structure of firms established for profit-seeking purposes.²⁶² Over the course of centuries, even with the ever-present problem of agency costs, the corporation persists to be the primary vehicle for enterprise.²⁶³ Specific corporate governance schemes are no different and, over time, the history of corporations has been that firms who fail to adapt their

But see Donald Schwartz & Elliot L. Weiss, *An Assessment of the Shareholder Proposal Rule Proposal*, 65 GEO. L.J. 635 (1977) (arguing that shareholder proposals have an indirect impact on corporate manager's behavior).

258. *See generally* DAVID VOGEL, *LOBBYING THE CORPORATION* (1978).

259. DEL. CODE ANN. tit. 8, § 113 (allowing bylaws that call for the reimbursement of shareholders for proxy expenses); *see also* Gerry N. Wren, *Expenses of a Proxy Fight—The Problem of Reimbursement by the Corporation*, 10 SW. L.J. 44 (1956) (noting that these bylaws are widely adopted); *CA, Inc. v. AFSCME Emps. Pension Plan*, 953 A.2d 227 (Del. 2008) (evaluating a reimbursement bylaw). For a description of the economic inefficiencies regarding payment for shareholder proposals, *see* EASTERBROOK & FISCHER, *supra* note 5, at 85 ("the majority must subsidize the activities of the minority who are allowed to make proposals without incurring the costs.").

260. *See supra* note 34 and accompanying text.

261. *See* DAVIS, *supra* note 246, at 42 ("Even if almost all shareholders voted in favor of a particular policy . . . the board could legally ignore them, as such shareholder votes are merely advisory.").

262. *See* MARK J. ROE, *STRONG MANAGERS, WEAK OWNERS* 3-8 (1994) (describing the development of the firm due to market and economic forces).

263. *See* BERLE & MEANS, *supra* note 4, at 11-17 (noting the rise of the corporation in the United States).

governance structures are eventually “ground under by competition.”²⁶⁴ While this Article has argued that using DLT for shareholder voting is not necessarily a prudent use of corporate resources, a case can be made for allowing public corporations to try out the technology and wait to see how the market will react. Presumably, if the technology results in lower transaction costs for shareholders, it will be adopted widely. If the reverse is true, shareholders will be less willing to invest their capital in firms utilizing DLT for voting thereby lowering the price per share of corporations using the technology. When such events occur, viable empirical data will be available to determine the real worth of DLT in corporate governance.²⁶⁵

One notion in a traditional corporate governance regime is what has become known as the “Wall Street Rule,” whereby shareholders either vote in accordance with managers or sell their shares on the open market.²⁶⁶ This form of activism is cheaper than running a proxy contest and managers, whose compensation is often tied to the stock price, are not inclined to act in a way that will lead to a large sell-off by shareholders. One consequence of using blockchain in securities clearing is that cheaper and faster trade execution would likely make it easier for large shareholders to sell their positions, thereby exacerbating the impact of a threat to sell.²⁶⁷ Since the threat will become more viable, large investors may resort to placing a greater emphasis on exit as opposed to voice. The easier option to exit makes market trends more important: if a corporation institutes blockchain voting and a shareholder does not agree with the concept, they are more likely to sell their shares than speak out against it.

Running a company in the twenty-first century requires managers to

264. EASTERBROOK & FISCHER, *supra* note 5, at 13; *see also* OLIVER E. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM 15-18 (1985) (outlining competitive market forces). *But see* RICHARD LEBLANC & JAMES GILLES, INSIDE THE BOARDROOM: HOW BOARDS REALLY WORK AND THE COMING REVOLUTION IN CORPORATE GOVERNANCE 125 (2005) (“For every company that one can quote as an example demonstrating a positive correlation between good corporate governance . . . and good financial performance, another that followed very good corporate governance practices can be found with a negative relationship.”).

265. *See* DAVIS, *supra* note 246, at vii (“Trust the market: it speaks with wisdom greater than any of its participants.”).

266. *See* Anat R. Admati & Paul Pfleiderer, *The “Wall Street Walk” and Shareholder Activism: Exit as a Form of Voice*, 22 REV. FIN. STUD. 2445, 2446 (2009) (articulating the phenomenon of the Wall Street Rule).

267. Peter Rosenbloom, Frederik Schlingemann & Manuel Vasconcelos, *Does Stock Liquidity Affect Incentives to Monitor? Evidence from Corporate Takeovers*, 27 REV. FIN. STUD. 2392 (2014); *see also* Alex Edmans, *Blockholder Trading, Market Efficiency, and Managerial Myopia*, 64 J. FIN. 2481 (2009) (noting that liquidity increases the credibility of a blockholder’s threat to sell).

frequently return to the market to raise new capital and a thriving market for corporate control ensures managerial decisions don't go off the rails. However, many public companies today do not need to raise additional capital and instead choose to finance new projects using retained earnings.²⁶⁸ Thus, failure to adhere to shareholder interests does not harm a company as one might think, save for a reduced share price. Even if companies need to raise further capital via equity or debt, the increased cost of doing so only affects the firm's bottom line and, therefore, the additional cost is borne primarily by shareholders.²⁶⁹ Many believe that a thriving market for corporate control would provide boards with the proper incentive structure to perform adequately,²⁷⁰ but existing legal norms provide boards with a wide range of weapons to avoid takeovers.²⁷¹ Since boards are empowered to defend against takeovers, the threat of such offers has less of an impact on the board's decision making process.²⁷² Actions by directors in this area receive enhanced scrutiny by the courts, however, making the market for corporate control a more viable method of keeping directors in line with shareholder value maximization.²⁷³ Thus, in a world where a board's decision to implement blockchain voting is not received well by shareholders, an outside actor can propose to take the firm over via tender offer or statutory merger to give shareholders another option. The vote to approve such a transaction could be among the first to use blockchain.

Overall, market forces exist such that the decision of whether to utilize DLT in shareholder voting should be left to boards. After all, if voting were not worth the cost, "firms that eliminated voting would have

268. Bebhuk, *supra* note 223, at 715.

269. *Id.*; DAVIS, *supra* note 246, at 5 ("We have moved to a market-centered system in which the corporations themselves . . . are guided by the gravitational pull of financial markets.").

270. Henry G. Manne, *Mergers and the Market for Corporate Control*, 73 J. POL. ECON. 110, 112 (1965); see also Frank H. Easterbrook & Daniel R. Fischel, *The Proper Role of a Target's Management in Responding to a Tender Offer*, 94 HARV. L. REV. 1161, 1169 (1981) (discussing board responsibilities when receiving an unsolicited takeover offer).

271. See generally Richard S. Ruback, *An Overview of Takeover Defenses*, in MERGERS AND ACQUISITIONS (Alan J. Auerbach ed., 1987) (explaining many defenses, including staggered boards, super-majority voting provisions, poison pills, and standstill agreements). See generally *Moran v. Household Int'l*, 500 A.2d 1346 (Del. 1985) (allowing the use of poison pills, or shareholder rights plans, in Delaware).

272. See *Unitrin, Inc. v. Am. Gen. Corp.*, 651 A.2d 1361 (Del. 1995) (allowing directors latitude when responding to takeover bids so long as a threat to corporate policy is identified and the board acts reasonably without being preclusive or coercive).

273. See generally *Unocal Corp. v. Mesa Petroleum Co.*, 493 A.2d 946 (Del. 1985) (establishing enhanced scrutiny for director actions when responding to a perceived takeover threat).

prospered relative to others.”²⁷⁴ Perhaps the same is true of using blockchains to manage the vote: if the benefits outweigh the costs of implementation, companies will make the shift.

CONCLUSION

Distributed ledger technology provides an opportunity to reform an otherwise chaotic and complex system of ownership that leads to voting inaccuracies and increased costs to corporations. Using a permissioned blockchain with tokenized “votecoins” allows for increased speed, transparency, and accuracy of shareholder voting. However, shareholders, managers, and regulators should understand the potentially negative externalities posed by this technology. Managers can use blockchain to speed up voting, manipulating shareholders and abusing their rationally ignorant status quo. Blockchain voting also has the potential to be used as a form of direct democracy, which would greatly undermine legal and economic theory placing power in a board intermediary. This direct democracy, while possibly reducing the principle-agent problem, exacerbates the ever-present collective action problem that has plagued the shareholder franchise since its implementation.

Corporations should be encouraged to sample DLT in their corporate governance regimes, but we should continue to rely on the market to reveal preferences of shareholders. After all, corporations are wealth maximizing and will only implement the technology on a broad basis if perceived benefits outweigh costs. This Article has voiced concerns, but has also noted the potential capability of a securities landscape powered by blockchains. As the technology becomes more universally accepted, it is only a matter of time before managers and boards are faced with a decision regarding implementation.

274. EASTERBROOK & FISCHEL, *supra* note 5, at 70.