
INSTITUTIONAL INVESTOR VOTING BEHAVIOR: A NETWORK THEORY PERSPECTIVE[†]

Luca Enriques^{*}
Alessandro Romano^{**}

This Article shows how network theory can improve our understanding of institutional investors' voting behavior and, more generally, their role in corporate governance. The standard idea is that institutional investors compete against each other on relative performance and hence might not cast informed votes due to rational apathy and rational reticence. In other words, institutional investors have incentives to free ride instead of "cooperating" and casting informed votes. We show that connections of various nature among institutional investors, whether from formal networks, geographical proximity, or common ownership, and among institutional investors and other agents, such as proxy advisors, contribute to shaping institutional investors' incentives to vote "actively." They also create intricate competition dynamics: competition takes place not only among institutional investors (and their asset managers), but also at the level of their employees and among "cliques" of institutional investors. Employees, who strive for better jobs, are motivated to obtain more information on portfolio companies than may be strictly justified from their employer institution's perspective, and to circulate it within their network. Cliques of institutional investors compete against each other. Because there are good reasons to believe that cliques of cooperators outperform cliques of noncooperators, the network-level competition might increase the incentives of institutional investors to collect information. These dynamics can enhance institutional investors' engagement in portfolio companies and also shed light on some current policy issues

[†] We wish to thank Carlo Drago, Ronald Gilson, Martin Gelter, Matteo Godi, Henry Hansmann, Alvin Klevorick, Karina Litvack, John Morley, Roberto Pardolesi, Ed Rock, Roberta Romano, Michael Schouten, Anna Tilba, Luigi Zingales, participants of workshops at the China University of Political Science and Law, the European University Institute, the Laboratoire d'Excellence Régulation Financière, NYU Law School, and the University of Oxford, and especially Ryan Bubb, for helpful comments and discussions. Usual disclaimers apply.

^{*} University of Oxford and ECGI.

^{**} Yale Law School.

such as the antitrust effects of common ownership and mandatory disclosures of institutional investors' voting.

TABLE OF CONTENTS

I.	INTRODUCTION	224
II.	SETTING THE SCENE: CORPORATE GOVERNANCE AND INFORMED VOTING	230
III.	EXPLAINING VOTING BY INSTITUTIONAL INVESTORS: THE ATOMISTIC APPROACH	233
IV.	HOW CONNECTIONS AFFECT INSTITUTIONAL INVESTOR VOTING DYNAMICS	242
	<i>A. Inter-Institutional Connections</i>	244
	<i>B. Formal Networks</i>	245
	<i>C. Geographically Linked Networks</i>	246
	<i>D. Employees' Personal Networks and Career Concerns</i>	247
	<i>E. Intra-Clique Cooperation and Inter-Clique Competition: Co-Ownership Ties</i>	250
	<i>F. Can Cooperation Emerge and Be Sustained?</i>	254
	1. <i>Formal Networks</i>	254
	2. <i>Information Sharing</i>	257
V.	POLICY IMPLICATIONS	261
	<i>A. Antitrust and Horizontal Shareholding</i>	262
	<i>B. Voting Disclosure</i>	266
VI.	CONCLUSION	267

I. INTRODUCTION

How can we predict whether singers will be rewarded by a standing ovation at the end of their opera performance? The problem can be framed as a binary choice of the audience members between standing up and applauding and remaining seated. By standing or sitting, members of the audience can send a binary signal (positive or not-so-positive) that reveals members' preferences. According to standard economic theory,¹ to predict whether a standing ovation

1. For a clear formulation of this standard view, see, for example, Geoffrey Brennan & Gordon Tullock, *An Economic Theory of Military Tactics: Methodological Individualism at War*, 3 J. ECON. BEHAVIOR & ORG. 225, 225 (1982) ("Two aspects of economic method are relevant here. The first is the individualistic perspective . . . [T]he *ultimate* unit of analysis is always the individual; more aggregative analysis must be regarded as only provisionally legitimate."). For a critique, see Alessandro Romano, *Micro-Meso-Macro Comparative Law: An Essay on the Methodology of Comparative Law*, 17 CHI. KENT J. INT. & COMP. L. 1, 5–7 (2016) (discussing the limits of such approach and how it is affected by a problem of infinite regress). To be sure, economic theory has long recognized the importance of patterns of interconnections among economic agents and firms. See, e.g., Daron Acemoglu et al., *Systemic Risk and Stability in Financial Networks*, 105 AM. ECON. REV. 564, 564 (2015) ("Since the global financial crisis of 2008, the view that the architecture of the financial system plays a central role in shaping systemic risk has become conventional wisdom."); Abhijit V. Banerjee, *A Simple Model of Herd Behavior*, 107 Q. J. ECON. 797 *passim* (1992) (on herding and information cascades). In rare cases, also legal scholars have attempted to account for patterns of interconnections in their works. See

is triggered, one ought to investigate the preferences of the individuals composing the audience and assess the quality of the opera. What is known in network theory literature as the Standing Ovation Problem suggests that this approach is inadequate. Predicting the behavior of interconnected agents requires accounting for patterns of connections among them.² In other words, the networks linking audience members one to the other and to other agents are key to whether they will stand or sit, a basic intuition that can be extended to analyze a number of social settings.

This Article is the first legal analysis that builds on this intuition and uses the tools of network theory to explain the incentives and behavior of one of the key players in today's corporate governance, namely institutional investors (hereinafter, also institutions). More specifically, we show that network theory can help understand how institutional investors determine whether to vote with or against management.³

Pension funds, whether state-sponsored or privately sponsored, mutual funds, banks' trust departments, hedge funds, and insurance companies are today the predominant holders of shares in U.S. (and non-U.S.) listed companies.⁴ Whether they stay passive or actively use their governance rights to influence portfolio companies' strategies can make an enormous difference for the prospects of capitalism in the U.S. This is why legal scholars and financial economists have since long enquired into how such players behave, and can be expected to behave, qua shareholders.⁵ We argue that the traditional atomistic focus on the incentives of *individual* institutional investors is inadequate to understand institutional investors' role in corporate governance. Like ties for audience members at the end of an opera, institutions' and their agents'⁶ interconnectedness is a key factor in shaping institutions' behavior vis-à-vis their portfolio companies and, more specifically, their voting decisions.

generally Alan Schwartz & Robert E. Scott, *Third-Party Beneficiaries and Contractual Networks*, 7 J. LEGAL ANALYSIS 325 (2015).

2. For a brief introduction to the Standing Ovation Problem see John H. Miller & Scott E. Page, *The Standing Ovation Problem*, 9 COMPLEXITY 8 (2004).

3. Although shareholders can vote "for," "against," "withhold," or "abstain," shareholder voting can be framed as a binary choice: for any practical purpose, "withhold" and "abstain" votes can be considered for or against management, depending on whether they are to be counted for quorum purposes.

4. See, e.g., Jan Fichtner et al., *Hidden Power of the Big Three? Passive Index Funds, Re-Concentration of Corporate Ownership, and New Financial Risk*, 19 BUS. & POLS. 298, 298, 302–06 (2017) (presenting extensive data on institutional investors patterns of ownership).

5. See *infra* Part III.

6. Some institutions manage their assets internally, through their own employees, but in many cases (and always in the case of mutual funds), they outsource asset management to a separate asset manager, who, especially in the case of pension funds, may or may not be in charge of making the choices that are relevant for the governance of portfolio companies. While the distinction outlined here is most relevant for regulatory purposes—see John D. Morley, *The Separation of Funds and Managers: A Theory of Investment Fund Structure and Regulation*, 123 YALE L.J. 1228 *passim* (2014)—in this Article, unless we specify otherwise, we refer to institutional investors to include their external agents and to their voting decisions as those made by the agent in charge thereof, be it an employee of the institution or an external asset manager.

To give a better sense of how interconnections influence behavior, let us exploit the standing ovation analogy further.⁷ First, consider the case of someone who has never seen an opera and is in the company of acquaintances that are renowned opera experts. She might decide to stand even if she has not enjoyed the show. If the experts signal their appreciation of the show by standing, it is unlikely that she will remain seated at the risk of revealing her ignorance. That immediately shows that individuals' taste is not the only factor affecting their behavior: personal ties as well as the tastes of the individuals one is connected with can influence one's decision on whether to stand or to sit. Like connections among audience members can determine the outcome, so connections of various kinds among institutional investors can lead to different voting decisions than they would reach independently of others. Think of personal links among different institutions' corporate governance teams due to affiliation to the same industry body, social club, and so on.

Second, the decision to stand might be affected by the personal ties that members of the audience have with the artists or the organizers: the fiancé of the soprano is most likely to stand no matter what, in the hope of triggering the standing ovation. Hence, not only ties with other members of the audience are relevant but also connections with other agents. Like audience members' connections with artists and organizers can trigger a standing ovation, so institutions' connections and business relationships with portfolio firms, and even the mere prospect thereof, can prompt a pro-management vote.⁸

Third, when deciding whether to stand, one might take information gathered before the opera into account. Reading an article of a worldwide famous critic stating that the opera is a disgrace might induce an agent without strong preferences to sit in order to signal that his tastes are as sophisticated as the critic's. Similar to how critics' reviews can influence audience members, so can proxy advisors and activist hedge funds, in different ways, affect institutions' voting decisions.⁹

Fourth, an individual that does not have a strong opinion about the opera will be more likely to stand if she observes that many people are sending the signal "stand." From this perspective, where the individual is sitting becomes important, because it determines whose signals she can observe (and who can observe her signal). If she is sitting in the last row, she will be able to observe the signal sent by all the other crowd members, but at the same time hardly anyone will notice her signal. On the other hand, if she is sitting in the first row,

7. As Miller and Page note, the Standing Ovation Problem is in fact an apt metaphor for situations in which interconnected agents make binary decisions. Miller & Page, *supra* note 2, at 9.

8. See, e.g., Rasha Ashraf et al., *Do Pension-Related Business Ties Influence Mutual Fund Proxy Voting? Evidence from Shareholder Proposals on Executive Compensation*, 47 J. FIN & QUANTITATIVE ANALYSIS 567, 568 (2012) (showing that funds that are connected to a corporation via business ties cast pro-management votes on executive compensation matters more often); Dragana Cvijanović et al., *Ties That Bind: How Business Connections Affect Mutual Fund Activism*, 71 J. FIN. 2933, 2934 (2016) (finding that mutual fund families that are connected via business ties with a corporation vote with the management more often in contested situations).

9. See *infra* note 91 and accompanying text.

all the audience members that are sitting in the back rows will observe her signal, whereas she cannot observe the signal of others without awkwardly turning back. In a similar fashion, the geographical distribution of institutional investors, whether decentralized or clustered in a given area, can affect their voting behavior.¹⁰

Last, whether a standing ovation is triggered depends on the opera house architecture.¹¹ For instance, if there are boxes, some members of the audience will be able to observe everyone else's signal, while not being as easily observed by those in the stalls. The structure of the opera house can be analogized to the institutional framework: rules that prohibit coordination or make it more expensive will affect the outcome.

The Standing Ovation Problem also sheds light on an important but often overlooked property of social systems, namely that sometimes the tail (of a distribution) can wag the dog.¹² Say, for instance, that the *average* perception of the opera's quality is not high enough to justify a standing ovation. Despite that, a standing ovation can still be triggered, provided that several well-connected members of the audience send a "stand" signal that is visible by many. In this vein, to increase the likelihood of a standing ovation at the end of the opera, self-confident organizers might assign front row seats to renowned experts that are likely to appreciate the show.

To summarize, we argue that the voting behavior of institutional investors is affected by their connections with other institutional investors and more generally with the agents that populate their networks (*e.g.*, proxy advisors, portfolio companies' management, etc.). Our approach to institutional investors' role in corporate governance builds upon a rich body of literature, as social scientists have long recognized that the actions of agents are shaped by their connections with other agents, by these other agents' connections, and so on.¹³ This Article is grounded on the intuition that this is true also for institutional investors, an intuition that recent empirical studies corroborate.¹⁴ Thus, network theory becomes a natural framework for the study of institutional investors' voting behavior.

10. Cf. Harrison Hong et al., *Thy Neighbor's Portfolio: Word-of-Mouth Effects in the Holdings and Trades of Money Managers*, 60 J. FIN. 2801, 2802 (showing that fund managers located in the same area tend to trade in a relatively similar way); Veronika K. Pool et al., *The People in Your Neighborhood: Social Interactions and Mutual Fund Portfolios*, 70 J. FIN. 2679, 2679 (2015) (finding that "socially connected fund managers have more similar holdings and trades"). See Section IV.C for a more detailed discussion of the relationship between the geographical location of institutional investors and their voting behavior.

11. There are of course many other factors that should be considered, such as theater lights, but for our purposes, it is superfluous even to mention them.

12. See Miller & Page, *supra* note 2, at 9 (stating that the "tendency of social scientists to rely on means it suggests that we may easily miss some key drivers of social systems—when social influences are present, the tail (of the distribution) may wag the dog").

13. See Cvijanović, *supra* note 8, at 2934; see also Hong et al., *supra* note 10, at 2802; Miller & Page, *supra* note 2, *passim*; Pool et al., *supra* note 10, at 2679.

14. See Alan D. Crane et al., *Institutional Investor Cliques and Governance*, J. FIN. ECON. (forthcoming 2018); Pool et al., *supra* note 10, *passim*.

Network theory is a lively area of research that lies at the intersection of many disciplines, including economics, physics, biology, sociology, and computer science. It has helped shed light on a wide range of very diverse phenomena such as criminal and terroristic organizations,¹⁵ professional communities,¹⁶ predator-prey interactions,¹⁷ and the diffusion of epidemics and sexually transmitted diseases.¹⁸ In the area of corporate governance and financial regulation, network theory has already been used, for example, to understand the diffusion of poison pills¹⁹ and golden parachutes²⁰ and to analyze the effects of Security and Exchange Commission (“SEC”) sanctions.²¹

Generally, network theory addresses three main questions: What is the architecture of connections among a given set of players? Why has that architecture emerged? What are the effects of the observed pattern of connections?²² In this Article, we focus mainly on the last question. More precisely, we show how network theory may help understand some of the dynamics that reduce institutional shareholders passivity.

To do so, Part II sets the scene by sketching out the function of shareholder voting and how information and coordination costs may be in the way of ensuring that shareholders make the “right” decisions for the corporation. Next, Part III looks into the phenomenon of voting by the predominant users of voting rights in today’s corporations, namely institutional investors. We briefly review some widely explored solutions to collective action problems affecting institutions’ propensity to cast informed votes.

In Part IV, which is the core of the Article, we use network theory to frame institutional shareholders’ voting behavior at U.S. corporations²³ and to

15. See, e.g., Valdis E. Krebs, *Mapping Networks of Terrorist Cells*, 24 CONNECTIONS 43 (2002); Matthew J. Salganik & Douglas D. Heckathorn, *Sampling and Estimation in Hidden Populations Using Respondent-Driven Sampling*, 34 SOC. METHODOLOGY 193 (2004) (studying networks of criminals).

16. See, e.g., James Coleman et al., *The Diffusion of an Innovation Among Physicians*, 20 SOCIOMETRY 253 (1957) (studying networks of physicians).

17. See, e.g., Neo D. Martinez, *Constant Connectance in Community Food Webs*, 139 AM. NATURALIST 1208 (1992).

18. See, e.g., Sunetra Gupta et al., *Networks of Sexual Contacts: Implications for the Pattern of Spread of HIV*, 3 AIDS 807 (1989); Alden S. Klovdahl et al., *Social Networks and Infectious Disease: The Colorado Springs Study*, 38 SOC. SCI. & MED. 79 (1994).

19. Gerald F. Davis, *Agents Without Principles? The Spread of the Poison Pill Through the Intercorporate Network*, 36 ADMIN. SCI. Q. 583, 591 (1991). In this widely cited article, besides showing that network theory can aid in understanding the pattern of diffusion of the poison pill defense, Davis argues that agency theory “fails to consider the broader intercorporate environment in which management acts. Agency theory implicitly relies on an atomistic or undersocialized view of managerial action as largely divorced from social context.” *Id.*

20. Gerald F. Davis & Henrich R. Greve, *Corporate Elite Networks and Governance Changes in the 1980s*, 103 AM. J. SOCIOLOGY 1, 1 (1997) (showing that the adoption of golden parachutes spreads through geographical ties).

21. Eugene Kang, *Director Interlocks and Spillover Effects of Reputational Penalties from Financial Reporting Fraud*, 51 ACADEMY MGMT. J. 537, 537 (2008) (showing that SEC sanctions have significant negative spillover effects on innocent firms that are connected to the guilty firm via director interlocks).

22. SANJEEV GOYAL, CONNECTIONS: AN INTRODUCTION TO THE ECONOMICS OF NETWORKS 1 (2012).

23. Importantly, the analysis presented here is not necessarily valid beyond the U.S. Just like an ecological network is subject to constraints and laws of interactions, the regulatory framework in which the agents

identify additional ways by which institutions can address collective action problems and resolve the trade-off between minimizing the costs of becoming informed and independent decision-making. To do so, we highlight that institutional investors are embedded in a network formed by various agents, while also being connected with each other through a complex web of formal, geographical, and co-ownership ties. We also show how these connections affect institutional investors' incentives and ultimately their voting behavior. It does not only take place among institutional investors but also at a lower level among employees of institutional investors competing for better jobs, and at a higher level among groups, and more precisely cliques,²⁴ of institutional investors competing to outperform other cliques. The dynamics at the higher and lower level can enhance (or hinder) the level of institutional investor engagement.

Part V discusses policy implications. We show how network theory sheds light on two policy debates: (i) horizontal shareholdings and (ii) voting disclosure rules. A horizontal shareholding exists when an investor has significant stakes in firms that are horizontal competitors.²⁵ Recent studies suggest that passive institutional investors' horizontal shareholdings might lessen firms' incentives to compete.²⁶ As such shareholdings are ever more common,²⁷ the antitrust implications of horizontal shareholdings must be taken seriously.²⁸ In this vein, legal scholars have proposed radical changes of the status quo to reduce the level of horizontal shareholdings within the U.S. economy.²⁹ Framing the problem of institutional investor involvement in corporate governance in a network perspective allows us to show that these proposals are misguided.³⁰

We also explain why the rules on voting disclosure directly affect the extent to which institutional investors monitor their portfolio companies. Preventing institutional investors from disclosing their votes might *increase* the cost

operate shapes the network in which institutional investors are embedded. Thus, different laws and different social norms can produce different dynamics.

24. For a formal definition of cliques see *infra* note 119 and accompanying text.

25. For an extensive treatment of the problem see Einer Elhauge, *Horizontal Shareholding*, 129 HARV. L. REV. 1267 (2016), and Fiona M. Scott Morton & Herbert J. Hovenkamp, *Horizontal Shareholding and Antitrust Policy*, 127 YALE L.J. 2026 (2018).

26. José Azar et al., *Anticompetitive Effects of Common Ownership*, 73 J. FIN. 1513 (2018) (finding evidence that horizontal shareholding is associated with higher prices in the airline industry). *But see* Pauline Kennedy et al., *The Competitive Effects of Common Ownership: Economic Foundations and Empirical Evidence* 23 (July 24, 2017) (unpublished manuscript) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3008331) (using a dataset comparable to Azar, Schmalz, and Tecu's and finding that horizontal shareholding does not lead to higher prices). Additional evidence relates to the banking sector. *See* José Azar et al., *Ultimate Ownership and Bank Competition* 4 (July 23, 2016) (unpublished manuscript) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2710252).

27. *See infra* note 65.

28. Elhauge, *supra* note 25, at 1268 ("There is every reason to think that the problem of horizontal shareholding is pervasive across our economy because institutional investors like BlackRock, Vanguard, Fidelity, and State Street now own around 80% of all stock in S&P 500 corporations.")

29. The main proposals have been advanced by Elhauge, *supra* note 25, *passim*, and Eric A. Posner et al., *A Proposal to Limit the Anti-Competitive Power of Institutional Investors*, ANTITRUST L.J. (forthcoming). We discuss these proposals in more detail in Part V.

30. *See infra* Section V.A.

that they must bear to monitor their portfolio companies, whereas extending disclose duties might do the opposite.

Importantly, as our summary conclusion in Part VI reiterates, this is an exploratory study. It remains predominantly positive and descriptive, and we do not have the ambition to understand every nuance of the network in which institutional investors are embedded. This network is immensely complex, populated as it is by a vast array of different actors with different characteristics and incentives. Uncovering all its facets and dynamics would be for a much more ambitious and longer-term research project. Our purpose is more modestly to open a window on a promising way to frame a core corporate governance issue and suggest that scholars and policymakers abandon the atomistic focus on individual institutional investors, which most of them have been clinging on for decades.

II. SETTING THE SCENE: CORPORATE GOVERNANCE AND INFORMED VOTING

One of the main goals of corporate governance and corporate law is to maximize the benefits of two of a corporation's core features: delegation of management and investor ownership.³¹ Delegated management allows for decisions to be taken by specialized agents who may not have the financial means to own the company.³² Investor (or shareholder) ownership ensures that a relatively homogenous category of stakeholders has ultimate control over the company.³³

Reaching that goal, in turn, implies minimizing the agency costs arising from management delegation as well as the costs of having investors (shareholders) exercise their prerogatives as owners.³⁴ Agency costs arise from directors' and managers' conflicts of interest, misaligned incentives, and biases or incompetence.³⁵ The costs of shareholder engagement stem from the need to circulate information to shareholders (and therefore the public at large) and to have them process it despite their collective action problems, their necessarily lower degree of company-specific knowledge, and, often, their conflicts of interest.³⁶ We dub these "voting costs," because throughout the paper we focus mainly on shareholder voting as an essential and recurrent form of shareholder engagement.

31. See, e.g., John Armour et al., *Agency Problems and Legal Strategies*, in JOHN ARMOUR, LUCA ENRIQUES ET AL., *THE ANATOMY OF CORPORATE LAW* 29, 29–31 (3d ed. 2017).

32. See, e.g., ROBERT C. CLARK, *CORPORATE LAW* 23 (1986).

33. See, e.g., HENRY HANSMANN, *THE OWNERSHIP OF ENTERPRISE* 62–63 (1996).

34. See *id.* at 35–44; John Armour et al., *The Basic Governance Structure: The Interests of Shareholders as a Class*, in ARMOUR, ENRIQUES ET AL., *supra* note 31, at 49. See generally Zohar Goshen & Richard Squire, *A New Theory for Corporate Law and Governance*, 117 COLUM. L. REV. 767, 796 (2017).

35. Goshen & Squire, *supra* note 34, at 775–79.

36. See *id.* at 793. Nowadays, the out-of-pocket expenses and the opportunity costs of casting votes at a shareholder meeting have become trivial thanks to the use of information and communication technology. Robert B. Thompson & Paul H. Edelman, *Corporate Voting*, 62 VAND. L. REV. 129, 153 (2009).

Shareholder voting is justified for matters that would give rise to higher delegation costs if left to boards or managers. Intuitively, that will be the case for matters in which the interests of managers and shareholders inherently conflict or may lead to shareholder disenfranchisement, such as when it comes to the very selection of board members. In addition, there can be matters whose impact on the company's value may be better evaluated by a large number of detached, unbiased shareholders than by managers, who may have more access to hard-to-convey or commercially sensitive private information but at the same time are more likely prone to confirmation bias, hyperopia, and echo-chamber phenomena.³⁷

When publicly available information is not skewed or misleading and shareholders can use it in a decision-making process similar to the one they use to decide whether to invest in a given stock, their collective decision-making via voting can lead to better outcomes than a board's decision. That is an application of Condorcet's Jury Theorem ("CJT"), according to which, so long as each individual in a group has a higher than 50% chance of being right, the probability that a decision taken by a majority of that group is right approaches one as the number of group members tends to infinity.³⁸

The CJT works on a few assumptions: voters need to be informed, rational (able to reach the logical conclusion on how to vote based on the information they have), and sincere.³⁹ Moreover, the ability of the group to make the right decision depends on whether its members vote independently one from the other.⁴⁰ This condition only rarely holds in real life, as in most cases there are pre-voting communications among group members.⁴¹ In itself, this fact alone does not impair the applicability of the CJT because groups outperform individuals even when there is strong dependence among voters.⁴² It is important at this stage, however, to remark that the effect of this pre-voting information flow is twofold. On the one hand, it increases the competencies of the group members

37. See, e.g., Thompson & Edelman, *supra* note 36, at 149–50; see also Luca Enriques et al., *The Case for an Unbiased Takeover Law (with an Application to the European Union)*, 4 HARV. BUS. L. REV. 85, 94 (2014) (discussing managers' cognitive dissonance and hyperopia).

38. See, e.g., David Austen-Smith & Jeffrey S. Banks, *Information Aggregation, Rationality, and the Condorcet Jury Theorem*, 90 AM. POL. SCI. REV. 34, 34 (1996).

39. See, e.g., Michael C. Schouten, *The Mechanisms of Voting Efficiency*, 2010 COLUM. BUS. L. REV. 763, 773.

40. *Id.* More precisely, the probability of making the correct choice does not approach one when the group size tends to infinity if the votes are not independent. See Shmuel Nitzan & Jacob Paroush, *Collective Decision Making and Jury Theorems*, in 1 OXFORD HANDBOOK OF LAW AND ECONOMICS 494, 503–04 (Francesco Parisi ed., 2017).

41. See Sven Berg, *Condorcet's Jury Theorem Revisited*, 9 EUR. J. POL. ECON. 437, 445 (1993).

42. See *id.* at 438–39 (noting that this is subject to additional conditions that make this statement not universally valid). More generally, to iterate, the CJT is subject to a number of caveats. For instance, it is generally postulated that the members of the group have the same competences (*i.e.*, the same probability of being right). If this hypothesis is relaxed, it can happen that the best members of the group outperform the group as a whole, or even that increasing the size of the group reduces accuracy. Nitzan & Paroush, *supra* note 40, at 496–97. The most relevant point, however, is that the group still outperforms the *average* member of the group. Note also that even when the competences of group members are heterogeneous, the accuracy of the group tends to one when the size of the group tends to infinity. *Id.* at 496.

and improves their information set.⁴³ On the other hand, pre-voting communication decreases the probability that the group comes to the right decision due to psychological factors that reduce the independence of group members' votes.⁴⁴

Intuitively, mechanisms that reduce voting costs are an important component of an effective corporate governance system. Chief among voting costs is the cost of becoming informed, that is, of acquiring, processing, and assessing the implications of relevant information.⁴⁵ Such costs are borne by each shareholder, but the benefits of their informed voting accrue to all pro rata. That creates a collective action problem: absent some form of coordination, each shareholder will have an incentive to free ride on other shareholders' investment in information. And assuming free-riding away for a moment, it is easy to see that, with thousands of shareholders in a listed corporation, if each of them becomes informed independently of others, the multiplication of individual efforts will lead to a waste of resources. In this case as well, the only alternative is some form of coordination.

Yet if shareholders coordinate in the process of gathering and assessing information, the outcome will be a loss in voters' independence. As we have seen, that might reduce the ability of the group to make the right choice.⁴⁶ There can thus be a trade-off between the goal of overcoming collective action problems and minimizing information gathering and processing costs, on the one hand, and independent decision-making, on the other: if information is gathered and processed by one on behalf of all, let alone when the decision itself on how to vote is delegated, formally or informally, to one individual or a small group, then information costs are minimized, but the advantage from having a large number of scattered shareholders making the decision may vanish.

An additional, often overlooked factor is that the CJT considers the information set of the individuals as exogenous.⁴⁷ Individuals have less incentive to collect information, however, when the size of the group is large.⁴⁸ In other words, there is also a trade-off between group size and agents' information:⁴⁹ in larger groups, it is possible to aggregate information independently collected by more individuals, which increases the likelihood that the group reaches the correct decisions. Other things equal, though, members of larger groups have less incentive to collect information, thus reducing the likelihood that the group reaches the correct decision. There are therefore complex interactions between

43. Nitzan & Paroush, *supra* note 40, at 503–04.

44. *Id.* at 503 (“[S]ocial pressures, false persuasive arguments, threats, influential power or leadership charisma enhance conformity.”).

45. Thompson & Edelman, *supra* note 36, at 172.

46. In fact, even if groups remain superior to individual decision makers when the votes are not independent, positive correlation of the votes does reduce group accuracy. See Berg, *supra* note 41, at 444.

47. Bryan C. McCannon & Paul Walker, *Endogenous Competence and a Limit to the Condorcet Jury Theorem*, 169 PUB. CHOICE 1, 1 (2016).

48. See *id.* (“[I]f individual competence is endogenous, then increases in the group size encourage free riding. This trades off with the value of information aggregation.”).

49. *Id.*

information, coordination, and duplication costs, on the one hand, and the number and kind of agents involved in a decision and the amount of information that they produce and process, on the other. These interactions are mediated by pre-voting communications and, clearly, by the channels through which information flows. The rest of the paper aims to cast new light on how pre-voting communications and the channels through which information can flow affect these trade-offs in the context of shareholder voting. In particular, we focus on the incentives of institutional investors to “improve” their information set (that is, to gather information in order to cast an informed vote). By applying network theory to the voting dynamics of institutional investors, we show that the patterns of connections among institutional investors and between institutional investors and other agents populating their network have a significant impact on these trade-offs and ultimately on institutional investors’ voting behavior.

III. EXPLAINING VOTING BY INSTITUTIONAL INVESTORS: THE ATOMISTIC APPROACH

Corporate voting only makes sense if shareholders can be expected to vote on an informed basis, that is, having gathered the information that is necessary to make oneself an idea of whether approval of a given shareholder meeting proposal will increase the value of the company. If this condition is unfulfilled, there is no reason to expect that the majority of shareholders will get it right any more than if a coin were flipped. Yet it is far from obvious that shareholders in a corporation have sufficient incentives to cast informed votes. In fact, what went on for decades at U.S. companies was that shareholders, whether individuals or institutions, overwhelmingly voted with management or did not bother voting at all.⁵⁰ Such “shareholder passivity”⁵¹ was informed by rational apathy: becoming informed on how to vote was (and is) costly; with ownership widely dispersed, the likelihood of one’s vote being pivotal was extremely low; and the benefits from successfully casting an informed vote would be shared pro-rata with all other shareholders. It was therefore rational to do nothing or, if anything at all was done, to vote with managers.⁵²

Formally, rational apathy can be explained as follows: to cast an informed vote, a shareholder A holding a fraction of shares w_i in company i has to bear a cost c_i to acquire, process, and evaluate all the relevant information. Whoever casts an informed vote does so because she expects thus to increase the value of the portfolio company. Let b_i denote the aggregate expected benefits (the increase in market capitalization) of an informed vote.⁵³ If $c_i > w_i b_i$, A will not

50. See, e.g., CLARK, *supra* note 32, at 94.

51. *Id.*

52. See, e.g., Edward B. Rock, *The Logic and (Uncertain) Significance of Institutional Investor Activism*, 79 GEO. L.J. 445, 453–57 (1991).

53. Note that a shareholder can expect *her* vote to increase the value of a company (*i.e.*, $b_i > 0$) only when it is pivotal, *i.e.*, when it affects the voting outcome. For instance, assume that A is against a given management proposal but knows for sure that the proposal will be passed despite her opposition. In that case, the

collect information. Instead, when $c_i < w_i b_i$, A would be inclined to become informed and obtain an expected payoff of $w_i b_i - c_i > 0$.⁵⁴

With the concentration of ownership in the hands of institutional investors that has taken place in the last sixty years,⁵⁵ incentives would seem to play against informed voting even more than in the past. That is because institutional investors compete on *relative* performance,⁵⁶ *i.e.*, on how well they do compared to their competitors: incurring costs to improve performance at a portfolio company will worsen an individual institutional investor's performance compared to others'.⁵⁷ In our previous illustration, if A is an institutional investor, it might decide not to invest in information even when $c_i < w_i b_i$, so long as its competitors, such as institutional investors B and C , hold a comparable (or for simplicity, the exact same) percentage of shares in company i . In fact, B and C 's payoff would equal $w_i b_i$. If A decides to invest in information, B and C would gain a competitive advantage over A , in the form of a higher return on its investment in i , because $c_i > 0$. That is what Gilson and Gordon call rational reticence.⁵⁸ Clearly, stakes are not always similar across institutional investors, and when an institutional investor holds a disproportionately large w compared to its peers, rational reticence is less likely.⁵⁹ Despite this, rational reticence remains crucial, especially in light of the unrelenting trend toward passive (indexed) investment.⁶⁰ In fact, all passive institutional investors do not overweigh their investment in specific stocks, but rather replicate indexes like all their peers and almost exclusively compete on reducing costs.⁶¹

benefit of casting an informed vote is 0. The same is true if it is certain that the management proposal will be rejected even without A 's opposition. In other words, the lower the likelihood of being pivotal, the lower the incentives to become informed and cast one's vote.

54. Most recently, see, for example, Lucian A. Bebchuk et al., *The Agency Problems of Institutional Investors*, 31 J. ECON. PERSP. 89, 95–96 (2017). For a more formal treatment, see Bernard S. Black, *Shareholder Passivity Reexamined*, 89 MICH. L. REV. 520, 585–87 (1990).

55. See, e.g., Bebchuk et al., *supra* note 54, at 91–93.

56. See 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, 889–90 (2013) (“[Institutional investors have a] desire to deliver competitively superior performance for their beneficiaries (pension funds) or shareholders (mutual funds) while minimizing costs. This competitive pressure will lead institutions to focus externally and internally on relative performance.”).

57. See *id.* at 889–95; see also Rock, *supra* note 52, at 473–75. For the sake of simplicity, we assume here that the institutional investor can charge higher fees such that its clients bear the full amount of c_i .

58. See Gilson & Gordon, *supra* note 56, at 867.

59. See, e.g., Peter Iliev & Michelle Lowry, *Are Mutual Funds Active Voters?*, 28 REV. FIN. STUD. 446, 447 (2015) (showing that mutual funds with higher net benefits from voting are less likely to passively follow proxy advisors. They use various proxies to test this idea, including the percentage of firm equity held by the fund); see also Bernard S. Black & John C. Coffee Jr., *Hail Britannia?: Institutional Investor Behavior under Limited Regulation*, 92 MICH. L. REV. 1997, 2048 (1994) (noting that institutional investors are not necessarily passive when they are “overweighted” in a stock, that is, when they “own[] a greater share of the specific company than [they] own[] of the market generally”).

60. See, e.g., Ian R. Appel et al., *Passive Investors, Not Passive Owners*, 121 J. FIN. ECON. 111, 112 (2016) (showing that in 2014 U.S. passive mutual funds represented 33.5% of mutual fund assets and 8% of total U.S. market capitalization, approximately four times than in 1998). There is widespread consensus that the trend towards passive investing is bound to continue. See, e.g., Bebchuk et al., *supra* note 54, at 94.

61. Bebchuk et al., *supra* note 54, at 98.

Despite this gloomy theoretical picture, in the last three decades, things seem to have considerably moved away from the rational apathy/reticence model of shareholder passivity. Nowadays, voting turnout at U.S. companies' shareholder meetings is high,⁶² and shareholders are far less inclined to rubberstamp managers' proposals than in the past.⁶³

What happened? Changes in ownership patterns, the emergence of new information intermediaries such as proxy advisors and activist hedge funds, political pressures, and regulatory initiatives all have contributed to the outcome.⁶⁴

Ownership is much more concentrated in the hands of institutions, as opposed to individuals, than in the prototypical Berle and Means corporation.⁶⁵ But is a larger average w sufficient to explain the increase in informed voting that we observe? Even ignoring rational reticence for a moment, a higher average w does imply a higher likelihood of being pivotal and a larger benefit for the individual institution. Yet most of the benefits accrue to an institutional investor's beneficial owners/clients, not to those, be they its employees or an external asset manager, in charge of making the voting decisions: for instance, in the case of separation between asset owners and managers, only a small fraction of the benefits will go, in the form of higher asset under management-based fees, to the asset managers themselves.⁶⁶ In addition, asset managers will also bear any share of the costs that they are unable to transfer on owners or clients in the form of higher fees.⁶⁷

Nevertheless, size alone might still help explain part of the behavior of the largest institutional investors, such as BlackRock, Vanguard, American Funds, and State Street, who tend to develop autonomous voting policies and to not follow proxy advisors blindly.⁶⁸ These institutions are simply too-big-to-be-

62. See, e.g., Dragana Cvijanović et al., *Free-Riders and Underdogs: Participation in Corporate Voting* 19 (Sept. 29, 2017) (unpublished manuscript) (available at <https://ssrn.com/abstract=2939744>) (reporting an average voting participation of 77% at Russell 3000 firms between 2003 and 2013).

63. See, e.g., Stuart L. Gillan & Laura Starks, *Corporate Governance Proposals and Shareholder Activism: The Role of Institutional Investors*, 57 J. FIN. ECON. 275, 277 (2000) (finding an increase in the number of votes cast in favor of shareholder proposals between 1987 and 1994); Joseph A. McCahery et al., *Behind the Scenes: The Corporate Governance Preferences of Institutional Investors*, 71 J. FIN. 2905, 2913 (2016) (finding that more than half of the large institutional investors they surveyed had voted against management at a portfolio company in the previous five years); Cvijanović et al., *supra* note 62, at 20 (finding that management-sponsored proposals obtain an average of 60% of votes in favor).

64. Gillan & Starks, *supra* note 63, at 277–80.

65. See, e.g., Gilson & Gordon, *supra* note 56, at 886–88.

66. Cf. Investment Advisers Act of 1940, Ch. 686, 789, 852 § 205(a)(1) (codified as amended at 15 U.S.C. § 80b-6 (2012)) (prohibiting “compensation to the investment adviser on the basis of a share of capital gains upon or capital appreciation of the funds”).

67. See, e.g., Bebczuk et al., *supra* note 54, at 96 (also noting that mutual fund managers “are not permitted to collect incentive fees on increases in the value of their portfolio”).

68. See Ryan Bubb & Emiliano Catan, *The Party Structure of Mutual Funds* 3, 14, 23 (Apr. 16, 2018) (unpublished manuscript) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3124039); Stephen Choi et al., *Who Calls the Shots? How Mutual Funds Vote on Director Elections*, 3 HARV. BUS. L. REV. 35, 61–63 (2013) (reporting voting independence in director elections for Vanguard, Fidelity, and American Funds). For BlackRock and State Street, see *infra* note 90.

passive.⁶⁹ it would be politically unacceptable if their humongous voting power was de facto exercised by an external advisor with no direct or indirect stake in the company.⁷⁰ Existing regulations ensure public awareness about such institutions' voting policies by mandating their disclosure.⁷¹

In addition, information costs have considerably gone down. One of the main factors contributing to the reduction of information cost is the surge of proxy advisors.⁷² The core function of proxy advisors is to offer institutional investors relatively cheap suggestions on how to vote portfolio companies' shares.⁷³ Mechanically following proxy advisors' voting recommendations has become the voting policy of at least some institutional investors.⁷⁴ That allows them to keep the cost of processing the relevant information very low, namely equal to the (contained) fee they pay the proxy advisor.⁷⁵

Proxy advisors simply did not exist until the mid-1980s and became prominent only one decade later,⁷⁶ also following policy measures that came very close to mandating the exercise of voting rights by some categories of institutions: that was first the case for pension funds, pursuant to the Department of Labor's Avon Letter, in 1988, and then for mutual funds, following a 2003 SEC rule. The former qualified voting rights as pension plan assets to be voted in accordance with the plan trustee's fiduciary duties.⁷⁷ The latter required mutual funds and other investment companies registered under the Investment Company Act to (1) adopt and disclose the policies and procedures that they use to determine how to vote proxies relating to securities held in their portfolios and (2) annually disclose voting records.⁷⁸

69. For other reasons we do not need to focus on here, they are also too-big-to-be-activist. *See generally* John D. Morley, *Too Big to Be Activist* (2018) (unpublished manuscript) (on file with the Yale Law School).

70. To be sure, institutional investors also have a minimal economic exposure to their portfolio companies. *See* Bernard S. Sharfman, *Mutual Fund Advisors' 'Empty Voting' Raises New Governance Issues*, OX. BUS. L. BLOG (Aug. 10, 2017), <https://www.law.ox.ac.uk/business-law-blog/blog/2017/08/mutual-fund-advisors-empty-voting-raises-new-governance-issues>. It is also open to debate whether a corporate governance department at a large institutional investor has better incentives than proxy advisors' staff in deciding how to vote.

71. *See infra* note 78.

72. *See* Alan R. Palmiter, *Mutual Fund Voting of Portfolio Shares: Why Not Disclose?*, 23 CARDOZO L. REV. 1419, 1478 (2002).

73. *See* Stephen Choi et al., *The Power of Proxy Advisors: Myth or Reality?*, 59 EMORY L.J. 869, 870 (2010).

74. *Id.* at 871–72.

75. *Id.* at 884–85.

76. To the best of our knowledge, the first scholarly article to record the widespread use of proxy advisory services is Palmiter, *supra* note 72, at 1430. Ten years before, John Coffee argued for mandating the use of a proxy advisor by institutional investors. At the time, their position in the market was so marginal that, advancing the proposal, Coffee added: “[S]uch a professional already exists, and the market for its services is growing.” John C. Coffee Jr., *Liquidity Versus Control: The Institutional Investor as Corporate Monitor*, 91 COLUM. L. REV. 1277, 1353 (1991).

77. *See* U.S. Dep't of Labor, Pension & Welfare Benefit Program, Opinion Letter to Mr. Helmuth Fandl, Chairman of the Retirement Board of Avon Products, Inc., at 3 (Feb. 23, 1988), *as reprinted* in 15 Pension Rep. (BNA), No. 9, 391 (Feb. 29, 1988).

78. *See* Proxy Voting by Investment Advisers, 68 Fed. Reg. 6585 (Feb. 7, 2003) (to be codified at 17 C.F.R. pt. 275).

These requirements, while stopping short of mandating voting,⁷⁹ are a powerful nudge in that direction for all institutions to which they apply. Smaller institutions, to reduce the costs involved, have a strong incentive to just follow proxy advisors' recommendations.⁸⁰ The SEC rules themselves have pushed in that direction in that they specify that a mutual fund manager "could demonstrate that the vote was not a product of a conflict of interest if it voted client securities, in accordance with a pre-determined policy, based upon the recommendations of *an independent third party*,"⁸¹ such as a proxy advisor.

Nowadays, virtually all institutional investors buy services from proxy advisors.⁸² Many of them just purchase the untailed voting recommendation service, which is based on proxy advisors' own general policies and analyses.⁸³ Because institutional investors are their patrons, proxy advisors' general policies tend to reflect institutional investors' own widely shared corporate governance preferences, or at least the preferences of the largest and the most strong-minded among them.⁸⁴ This is a clear case where information-costs reduction comes at the price of a loss in voters' independence: all such votes are most likely based on the same analysis and cast in the same direction.⁸⁵

To make things slightly less worrisome, ISS, the leading proxy advisory firm, develops separate voting policies, which cater to the preferences of different subsets of institutional investors.⁸⁶ Hence, they are less likely to provide *all* their clients with exactly the same voting recommendations.

79. As the SEC clarified in 2014. See SEC, Proxy Voting: Proxy Voting Responsibilities of Investment Advisers and Availability of Exemptions from the Proxy Rules for Proxy Advisory Firms, Staff Legal Bulletin No. 20 (IM/CF) (June 30, 2014), <https://www.sec.gov/interps/legal/cfslb20.htm>.

80. In fact, even relatively large institutions (with assets under management in the hundreds of millions of dollars) do not shy away from declaring that they follow proxy advisors' recommendations as a matter of voting policy, albeit sometimes in limited circumstances. For instance, American Money Management, LLC, an investment company with \$239 million of assets under management, declares in its proxy voting policy that it "has delegated responsibilities for decisions regarding proxy voting for securities held by the Funds to ISS. ISS will vote such proxies in accordance with its proxy policies and procedures." See American Money Management, LLC, Proxy Voting Policies and Procedures (Mar. 22, 2018) (on file with the authors); *American Money Management, LLC*, BRIGHTSCOPE, <https://www.brightscope.com/financial-planning/firm/27992/American-Money-Management-LLC/> (last visited Sept. 23, 2018). An example of partial blind reliance on proxy advisors is in the proxy voting policy of Schroders (with \$447 billion assets under management), which declares that "where a fund has widely diversified holdings that, in aggregate with other funds controlled by Schroders, would only represent a minimal percentage of a company's share capital the interests Schroders control will be voted in accordance with the recommendations of a third party (currently ISS)." See *Annual Results 2017 Date Pack*, SCHRODERS (Jan. 3, 2018), <http://www.schroders.com/en/investor-relations/results-and-reports/results-reports-and-presentations/>; see also *UK Stewardship Code*, SCHRODERS (Apr. 2014), <http://www.schroders.com/en/ch/asset-management/fund-centre/esg/uk-stewardship-code/>.

81. Proxy Voting by Investment Advisers, *supra* note 78, at 6588 (emphasis added).

82. See Choi et al., *supra* note 68, at 41.

83. See Choi et al., *supra* note 73, at 870–71.

84. *Id.* at 883.

85. See Schouten, *supra* note 39, at 828–29.

86. See Choi et al., *supra* note 73, at 883. For instance, ISS, in addition to its U.S., European, and International "Benchmark" policies, has United States Taft-Hartley U.S. Voting Guidelines, Public Fund U.S. Voting Guidelines, Socially Responsible U.S. Voting Guidelines, Faith-Based U.S. Voting Guidelines, and Sus-

More importantly, not all institutional investors have simply outsourced their voting decisions to proxy advisors: as hinted, many of them, including the largest ones, have devised their own voting policies and set up their own corporate governance departments which make their own final decisions on how to vote on individual resolutions.⁸⁷ Yet, to lower voting costs, even investors with their own voting policies avail themselves of proxy advisory firms.⁸⁸ In this case, the proxy advisor's task is to process company-specific information relating to individual votes in order to find out how an institutional investor client, based on its voting policies, should vote.⁸⁹ But, especially for contested votes, such investors' corporate governance departments still evaluate the proxy advisor's recommendation on contentious matters and therefore maintain a certain degree of autonomy in voting decisions.⁹⁰

tainability U.S. Voting Guidelines. See *2017 Policy Information*, INSTITUTIONAL SHAREHOLDER SERVS., <https://www.issgovernance.com/policy-gateway/2017-policy-information/> (last visited Nov. 1, 2018).

87. See, e.g., Edward Rock, *Institutional Investors in Corporate Governance*, in OXFORD HANDBOOK OF CORPORATE LAW & GOVERNANCE 363, 368–71 (Jeffrey N. Gordon & Wolf-Georg Ringe eds., 2018). To be sure, some scholars have argued that such governance departments are seriously understaffed. See, e.g., Bebhuk et al., *supra* note 54, at 100; Dorothy Shapiro Lund, *The Case Against Passive Shareholder Voting* 23–24 (Coase-Sandor Working Paper Series in Law and Economics, Working Paper 846, 2017). The size of such teams, however, has been steadily increasing, at least at the largest institutions. See MORNINGSTAR, PASSIVE FUND PROVIDERS TAKE ACTIVE APPROACH TO INVESTMENT STEWARDSHIP 19 (2017), <http://www.morningstar.com/>

[lp/passive-providers-active-approach](http://www.morningstar.com/lp/passive-providers-active-approach) (reporting that BlackRock's team has grown from twenty in 2014–2015 to thirty-three in 2017 and Vanguard's from ten to twenty-one in the same period). In addition, not all large investment management firms centralize their voting decisions within governance departments, which may rather play the role of “safeguard[ing] the reputation of the firm as a whole,” e.g., by preventing individual portfolio managers from issuing “public statement[s] on a sensitive corporate governance dispute unless the [rest of the management company's] central voting office agrees to take the same position as well.” Morley, *supra* note 69, at 13. At BlackRock, for instance, the Investment Stewardship team “of over 30 specialists operates as an integral part of the firm's investment function. Their decisions in monitoring portfolio companies and voting proxies are made in collaboration with the firm's 125 investment teams, whether the holding is in active or passive portfolios.” John C. Wilcox, *Getting Along with BlackRock*, HARV. L. SCH. F. ON CORP. GOVERNANCE & FIN. REG. (Nov. 6, 2017), <https://corpgov.law.harvard.edu/2017/11/06/getting-along-with-blackrock/>; see also Jill Fisch et al., *Passive Investors* 27 (ECGI Working Paper Series in Law, Working Paper No. 414, 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3192069 (providing explanations for the seemingly low number of employees in Corporate Governance Departments at large passive institutional investors).

88. See ISS, BEST PRACTICE PRINCIPLES FOR PROVIDERS OF SHAREHOLDER VOTING RESEARCH & ANALYSIS. ISS COMPLIANCE STATEMENT 3 (2017), <https://www.issgovernance.com/file/duediligence/best-practices-principles-iss-compliance-statement-april-2017-update.pdf> (reporting that “ISS manages and applies over 400 custom policies for clients” and that “over 75% of our top 200 clients subscribe to at least one custom research policy service from ISS”).

89. See, e.g., Paul H. Edelman et al., *Shareholder Voting in an Age of Intermediary Capitalism*, 87 S. CAL. L. REV. 1359, 1400–01 (2014).

90. See Shapiro Lund, *supra* note 87, at 24 (“BlackRock reports that its governance team relies on ISS and Glass Lewis to help summarize proxy statements and devotes close analysis only when those services have identified an issue.”). For State Street, see STATE STREET GLOBAL ADVISORS, 2017 GLOBAL PROXY VOTING AND ENGAGEMENT PRINCIPLES 3 (2017), <https://www.ssga.com/global/en/about-us/asset-stewardship.html> (reporting that State Street completely delegates voting based on its Guidelines to ISS as regards “most routine proxy voting items (e.g., ratification of auditors),” but in other cases will have its Corporate Governance Team “evaluate the proxy solicitation to determine how to vote based on facts and circumstances”). For empirical evidence supporting these claims, see Michael C. Schouten, *Do Institutional Investors Follow Proxy Advice Blindly?* 1 (Jan. 4, 2012) (unpublished manuscript) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1978343) (“Funds tend to deviate from voting recommen-

The empirical evidence on the role of proxy advisors confirms, though, that a significant fraction of the shares held by institutional investors are voted mechanically, following proxy advisers' advice. ISS alone is able to swing around one-fifth of the votes in the direction of its recommendations,⁹¹ with over 25% of mutual funds indiscriminately voting in line with ISS according to one study.⁹² Yet that influence is likely to be overstated, because there is no way of telling whether any of those voting according to ISS recommendations would have voted any differently without it.⁹³ Proxy advisors are bound to devise voting policies and recommend votes that are in line with the tastes of their clients to begin with.⁹⁴

Another source of reduction in information costs comes from hedge fund activism.⁹⁵ Activist hedge funds, with their powerful incentive compensation arrangements and heavily overweighted investment in target companies, unearth information that is meant to undermine incumbent management's record and support an alternative strategy, which they propose to implement often by submitting a short slate of candidates for the board.⁹⁶ Unlike proxy advisors, hedge funds act as partisan information processors, whose credibility is backed by their heavy investment in the target and their track record.⁹⁷

At the core of their campaigns there is usually a strategic decision, such as whether to merge with another company, find a buyer for the company or some of its divisions, or increase leverage.⁹⁸ The effects of such changes on a company's share price are bound to be huge, hence leading to institutional inves-

dations more often when they hold a large stake in the portfolio firm, when the firm performs relatively poorly and when the proposal has potentially significant value implications"). To be sure, there is the risk that the proxy advisor will do a bad job gathering and processing information, or worse, may selectively convey it to (each of) its customized services clients. See Choi et al., *supra* note 73, at 882. But as the authors note, quite apart from product market pressures (which may be weak, because of the concentration in the industry and the barriers to entry stemming from the fact that, in order to gain clients from incumbents, one has to cover a high number of issuers from the start), "the company itself has a strong incentive to correct [proxy advisors'] inaccuracies, and the media is likely to report any substantial errors." *Id.* at 882 n.79. Yet if the bias is pro-management due to conflicts of interest, competition would seem to be the necessary constraint. See Tao Li, *Outsourcing Corporate Governance: Conflicts of Interest Within the Proxy Advisory Industry*, 2018 MGMT. SCI. 2951, 2952 (2018).

91. See, e.g., Jie Cai et al., *Electing Directors*, 64 J. FIN. 2389, 2404 (2009) (19% for director elections); Jennifer E. Bethel & Stuart L. Gillan, *The Impact of the Institutional and Regulatory Environment on Shareholder Voting*, 31 FIN. MGMT. 29, 46 (2002) (13.6 to 20.6%, depending on the proposal); Robert M. Daines et al., *Rating the Ratings: How Good are Commercial Governance Ratings?*, 98 J. FIN. ECON. 439, 460 (2010) (16%).

92. Iliev & Lowry, *supra* note 59, at 454. For a survey of the empirical literature on proxy advisors' influence over voting in uncontested elections, see 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, 61–62 (2017).

93. Choi et al., *supra* note 73, at 883–85.

94. See Fisch et al., *supra* note 87, at 24.

95. See Gilson & Gordon, *supra* note 56, at 896–902.

96. John C. Coffee Jr. & Darius Palia, *The Wolf at the Door: The Impact of Hedge Fund Activism on Corporate Governance*, 41 J. CORP. L. 545, 560 (2016).

97. *Id.* at 555.

98. *Id.* at 551.

tors' attention on the merits of the campaign.⁹⁹ Further, the fact itself that an alternative strategy is on the table makes it possible for institutional investors to reconsider managers' records: without a readily available alternative, a negative vote on the CEO (when it is binding) would be a self-inflicted wound because it would leave the company without a guide and a strategy until a replacement is found. In other words, hedge funds make alternatives to the status quo viable, thus reducing the cost of a vote against management.

Yet if an institutional investor has reason to doubt that its competitors will similarly engage with the activist hedge fund, rational reticence would be the dominant strategy for the individual institutional investor considering, in isolation from the others, whether to invest in information. While a lot of information may have been unearthed by the activist, the incumbent management will put forward its own views, scenarios, estimates, and facts. Assessing and comparing the two will be costly for the individual institutional investor.¹⁰⁰ Hence, hedge funds alone should not be able to prompt an institution to become informed when rational reticence is at work.

The presence of corporate governance intermediaries such as proxy advisors and hedge funds has reduced the cost of informed voting by institutional investors. At the same time, overweighting and sheer size may explain why institutional investors appear to exercise their voting rights in an informed way. But more is at play to explain why collective action problems do not paralyze investors.

One possibility is that institutions worry about their clients' perception of their corporate governance record. So long as clients (beneficial owners) have a preference for a proactive stance on the part of their asset managers, the latter will be active, lest they lose clients to competition. Yet, an individual institution's clients, whether retail or institutional themselves, are also rationally apathetic and no less reticent: while collectively, as a class, they would gain from informed voting, they are better off switching to other institutions and free-riding on active institutions' efforts.¹⁰¹

Some of the institutional asset owners that outsource asset management services to investment advisors may well not conform to this description: *union* and *public* pension funds, unlike *corporate* ones, do often have strong views about corporate governance issues and may expect their asset managers to vote accordingly.¹⁰² But, again, such clients may find that the best way to combine an independent view of investee companies management's record and strategies with costs control is for their asset managers to follow (tailored) proxy advisors' recommendations, especially because those pension funds' views on corporate governance issues are likely to be one-size-fits-all. Still, there might be a subset of institutional clients that always prefer informed voting as an ex-

99. Gilson & Gordon, *supra* note 56, at 897 & n.116.

100. Cf. Shapiro Lund, *supra* note 87, at 2 (evaluating activists' proposals is costly, especially for passive funds with little familiarity with individual investee companies).

101. Bebchuk et al., *supra* note 54, at 98.

102. *Id.* at 102.

pression of responsible investment/ownership and therefore prize truly informed voting in its own right.¹⁰³ Pressures from such clients may explain the move away from shareholder passivity by some institutions as a marketing strategy to retain those clients and possibly expand the client base among others with similar views.

In addition to market factors, policy developments have had a role in pushing institutional investors in the direction of active voting. We have seen already that policymakers have nudged some categories of institutions into voting their shares by making voting virtually mandatory.¹⁰⁴ Further, measures have been enacted in the last twenty-five years that have reduced (informed) voting costs and greatly facilitated communications among shareholders.

The expansion of mandatory disclosures has made it less costly for institutional investors, financial analysts, and proxy advisors to have information available that enables them to form an opinion about a company's management and strategy.¹⁰⁵ In addition, the prohibition on selective disclosures¹⁰⁶ has made institutions less dependent on access to managers for material information about portfolio companies.¹⁰⁷

Finally, while rules still exist that stifle shareholders' coordinated action to affect voting outcomes, such as those providing a broad definition of "group" for the purposes of ownership disclosure and insider trading rules,¹⁰⁸ simple exchanges of information and contacts among shareholders have ceased to be relevant for the purposes of proxy voting regulations since 1992.¹⁰⁹ Intuitively, the extent to which institutional investors can communicate with each other without triggering costly regulatory burdens is key for their ability to cooperate with other agents in the network.¹¹⁰

103. See Shapiro Lund, *supra* note 87, at 36 (actively voting shares may "help funds attract assets and clients, especially from pension funds or other groups that view governance as a priority").

104. See *supra* notes 76–79 and accompanying text.

105. See, e.g., 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. 1465, 1548–53 (2007) (detailing the increase in scope and depth of U.S. mandatory disclosures).

106. Regulation Fair Disclosure, 17 C.F.R. §§ 243.100–243.103.

107. See, e.g., Zohar Goshen & Gideon Parchomovsky, *The Essential Role of Securities Regulation*, 55 DUKE L.J. 11, 746 (2006).

108. Securities Exchange Act of 1934, 17 C.F.R. 240.13d-3; 15 U.S.C. 78m(d)(3) (2012); see, e.g., Coffee & Palia, *supra* note 96, at 562–63, 568–70 (noticing how the interpretation of the group concept has narrowed throughout the years, but still arguing that a broader interpretation would be more in line with the regulation's legislative intent). McCahery et al.'s survey of asset managers shows that institutions do worry about these constraints. See McCahery et al., *supra* note 63, at 2922. According to Ed Rock, this is the reason why many of the largest institutional investors never consult other institutions in order to decide on how to vote. Interview with Edward B. Rock, Martin Lipton Professor of Law, N.Y. Univ. Sch. of Law, at Hebrew Univ., Jerusalem (May 26, 2017); see also Morley, *supra* note 69, at 22–24 (discussing how Section 13(d) affects institutional investors); *infra* note 116.

109. For an overview, see, for example, Coffee & Palia, *supra* note 96, at 559–61, 568–70. See also *id.* at 553–58, 570–72, for an account of other legal changes that, by empowering shareholders, spurred hedge fund activism, which in turn facilitated informed voting. See *supra* text accompanying and following notes 99–101.

110. Part IV discusses how institutional investors can coordinate and how being part of a network can shape their voting strategies.

In this Part, we have discussed a number of factors that have arguably contributed to the partial shift from passivity to informed voting by (many) institutional investors and shown how proxy advisors, while contributing to a reduction in the voting costs, also lead to less independent voting. In the next Part, after introducing network theory, we show how the network of relationships in which institutional investors are embedded provides additional mechanisms to address the trade-off between duplication costs avoidance and voting independence.

IV. HOW CONNECTIONS AFFECT INSTITUTIONAL INVESTOR VOTING DYNAMICS

We now investigate how connections among institutional investors influence their incentives to collect information and their voting behavior. We argue that, because (i) institutional investors are embedded in a complex network of connections, and (ii) these connections influence their payoffs and behavior, network theory is a natural framework to study the behavior of institutional investors. More precisely, we suggest that network theory can help explain how cooperative behavior can emerge among such institutions and be sustained.¹¹¹

Let us define “cooperation” among institutional investors as casting an informed vote at a portfolio company when they can be expected to be rationally reticent,¹¹² that is, when investing in information on a portfolio company benefits other institutional investors holding shares in that portfolio company more than the informed institutional investor itself, because competitors do not bear the costs of becoming informed but reap the benefits of the increased value associated with the informed vote.¹¹³

111. As previously hinted, our analysis is merely qualitative: we do not attempt to prove, let alone quantify, how (much) of the cooperation we observe is due to institutional investor connections.

112. Institutional investors can invest resources in many ways to engage with their portfolio companies. As noted by McCahery, Sautner, and Starks, much of the activity takes place behind the scenes. See McCahery et al., *supra* note 63, at 2905. In this Article, however, we focus on voting because, as then Chairwoman of the SEC Mary Shapiro put it, “The proxy is often the principal means for shareholders and public companies to communicate with one another, and for shareholders to weigh in on issues of importance to the corporation.” See Press Release, U.S. Securities and Exchange Commission, SEC Votes to Seek Public Comment on U.S. Proxy System (July 14, 2010), <https://www.sec.gov/news/press/2010/2010-122.htm>.

113. Cooperation as defined here should not be confused with the kind of coordination underlying the definition of “group” for securities regulation purposes. According to section 13(d)(3) of the Securities Exchange Act of 1934, “[w]hen two or more persons act as a partnership, limited partnership, syndicate, or other group for the purpose of acquiring, holding, or disposing of securities of an issuer, such syndicate or group shall be deemed a ‘person.’” 15 U.S.C. § 78m(d)(3) (2012). This definition, however vague, presupposes coordinated action with respect to a given issuer. Instead, cooperation as we define it merely implies that one institutional investor collects information despite the free-riding and rational reticence problems. Cooperation might imply that the cooperator shares information with other shareholders. Communication of this kind, in any event, is no longer relevant for the purposes of proxy voting regulations, and is, *per se*, insufficient to qualify communicating institutions as members of a “group.” See *supra* note 112 and accompanying text. Cf. Coffee & Palia, *supra* note 96, at 569 (“[I]f sophisticated parties independently reach the same investment strategy, no group arises, even if they actively discuss their investment strategy for the company among themselves.”) (emphasis added).

A burgeoning literature on social networks shows that cooperative behavior that benefits others can be sustained even if it harms the cooperator, provided that the population of agents is sufficiently interconnected.¹¹⁴ Therefore, the level of free-riding does not depend only on the size of the potential group of cooperators,¹¹⁵ but also on the existing connections among group members. In other words, highly interconnected groups are more likely to display cooperative behavior. And, given that institutional investors are increasingly interconnected,¹¹⁶ this insight might help explain why they are casting informed votes more frequently. In fact, an institutional investor that is gathering information when it should be paralyzed by rational reticence is—at first glance—engaging in cooperative behavior that increases the fitness of its competitors at the cost of its relative performance.¹¹⁷ In line with the literature on social networks, we argue that connections among institutional investors and between institutional investors and other agents involved in the voting process help explain this behavior.

In its bare form, a network can be represented as a series of points connected by lines. In the social sciences literature, the points (“nodes” or “vertices”) represent the *actors*, whereas the lines are called *ties* (or edges). The term “actor” is used for both individual agents and organizations. Following this terminology, below, we refer to institutional investors, hedge funds, proxy advisors, and portfolios firms’ management as actors. When a tie connects two actors, we refer to them as “neighbors.”¹¹⁸ The largest group of actors each having ties with all other actors is known as a “clique” (see Figure 1, left panel).¹¹⁹ In our context, institutional investors form a clique when they are thus interconnected. When two actors are not directly connected, we refer to them as “non-neighbors.”

FIGURE 1: EXAMPLE OF SUB-NETWORKS

114. See generally Bin Wu et al., *Evolution of Cooperation on Stochastic Dynamical Networks*, 5 PLOS ONE 1 (2010).

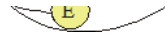
115. See CLARK, *supra* note 32, at 1.

116. See José Azar, *A New Look at Oligopoly: Implicit Collusion Through Portfolio Diversification* 3 (May 2012) (unpublished Ph.D. dissertation, Princeton University) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1993364).

117. The parallelism between biology and economic theory has long been recognized. Many biological models use the concept of “Individual as Maximizing Agent” (“IMA”) that is a close relative of the *homo economicus*. See, e.g., Stuart A. West et al., *Sixteen Common Misconceptions About the Evolution of Cooperation in Humans*, 32 EVOLUTION & HUM. BEHAV. 231, 233 (2011) (“[I]ndividuals should appear as if they have been designed to maximize their inclusive fitness.”).

118. Note that in network theory, the idea of neighbors is not necessarily connected with geographical proximity. For instance, two actors can be connected via the internet, and hence be considered “neighbors” even if they are located thousands of kilometers away from each other.

119. See ROBERT A. HANNEMAN & MARK RIDDLE, *INTRODUCTION TO SOCIAL NETWORK METHODS* 174 (2005). A more formal definition of clique is “a maximal subset of the vertices in an undirected network such that every member of the set is connected by an edge to every other.” MARK E. J. NEWMAN, *NETWORKS: AN INTRODUCTION* 193–94 (2010).



The left panel represents a clique. The right panel does not.

In this Article, we focus on four kinds of ties: formal networks, geographical proximity, employee connections, and co-ownership. Two institutions are connected via a formal tie if they belong to the same formal network (Section IV.B), via a geographical tie if they are located in the same area (Section IV.C), and via a co-ownership tie if they both own a stake in the same portfolio company (Section IV.E). In addition, institutional investors' employees may have incentives of their own to communicate with other members of the investment community and spread their "voting ideas" (Section IV.D).

A. *Inter-Institutional Connections*

The literature on social networks offers a comprehensive set of analytical tools to understand the complex dynamics and the constant interplay among the various agents that contribute to shape the voting strategies of institutional investors. In particular, network theory helps shed light on how patterns of connections affect the interplay between group size, free-riding, information and coordination costs, and the amount of information collected by agents before a vote.

Institutional investors can be connected with each other in a number of ways. In this Article, we focus on four kinds of ties: formal, geographical, employee, and co-ownership ties. We leave aside other ties, such as through proxy advisors, hedge fund activists, and portfolio firms' management. Such actors can all be seen as acting as connections among institutions prior to shareholder meetings.¹²⁰ The reason for omitting these ties from our analysis is not that they are less consequential than the ones we focus on, but rather that their role in molding voting decisions has already been widely analyzed in the literature.¹²¹ And while such literature does not rely on network theory, how such theory is a useful lens to understand these phenomena should by now be intuitive to the reader.

A standard finding of social network theory is that cooperation is more likely in networks with a high clustering coefficient.¹²² The clustering coeffi-

120. Technically, they act as "bridges." See *infra* notes 184–88 and accompanying text.

121. See, e.g., Bubb & Catan, *supra* note 68 (exploring ties created through proxy advisors); Stephen Choi et al., *Directors Elections and the Role of Proxy Advisors*, 82 S. CAL. L. REV. 649 (2009) (same); Choi et al., *supra* note 68 (same); see also, e.g., Brian R. Cheffins & John Armour, *The Past, Present, and Future of Shareholder Activism by Hedge Funds*, 37 J. CORP. L. 51 (2011) (exploring ties created through hedge funds); Gilson & Gordon, *supra* note 56 (same); Fisch et al., *supra* note 87, at 17 (highlighting that activist hedge funds regularly engage in a dialogue with the large passive investors); THE SHAREHOLDER FORUM, SURVEY ON INVESTOR COMMUNICATION PRIORITIES FOR VOTING DECISIONS 4 (2010), http://www.shareholderforum.com/emtg/Program/20101006_report.htm (finding high demand among investors for informal meetings of managers and investors prior to shareholder meetings).

122. See Salvatore Assenza et al., *Enhancement of Cooperation in Highly Clustered Scale-Free Networks*, 78 PHYSICAL REV. E 1, 4 (2008) ("[A] significant enhancement of cooperation is shown when the clustering coefficient of the network is high."). For a formal definition of clustering coefficient and how it relates to the number of triangles in a network, see NEWMANN, *supra* note 119, at 198–201.

cient of a network measures the degree to which the nodes in the network tend to cluster together and can be defined as “the probability that two neighbours of a given node share also a connection between them.”¹²³ In our setting, this translates into the idea that cooperative behavior might be sustained when institutional investors are embedded in a highly clustered network. When such a network exists, we can predict a tendency to invest in information rather than to free ride on other institutional investors.¹²⁴ One intuitive reason for this is that the likelihood that one institutional investor’s investment in information will be pivotal (*i.e.*, affect the voting outcome) is higher if the investor is part of a network and can use its ties and influence to persuade other nodes to vote in the same direction.

B. Formal Networks

Institutional investors are often connected via formal channels. Associations of institutional investors of various kinds and with different goals are mushrooming in the United States and in the rest of the world.¹²⁵ One prominent example is the Council of Institutional Investors (“CII”), which is not only a forum to develop and discuss corporate governance best practices and an effective advocacy group for public and labor pension funds, but also a facilitator of interactions among members and asset management industry players.¹²⁶ Currently, the CII has more than 120 members with combined assets of over US\$3 trillion.¹²⁷ A number of empirical studies have analyzed whether the action of the CII has an impact on the value of the companies that are in its members’ portfolios. Most of these studies concentrate on the effects of the CII “Focus List” of underperforming companies.¹²⁸ The goal of the CII is to get its members to engage in collaborative efforts to induce managers of Focus List firms to improve performance.¹²⁹ Two studies out of three conclude that CII’s action increases the value of portfolio companies.¹³⁰

123. See Assenza et al., *supra* note 122, at 1.

124. See Crane et al., *supra* note 14, at 14–18. See also *infra* Section IV.B.

125. See, e.g., DANYELLE J. GUYATT, ROTMAN INT’L CTR. FOR PENSION MGMT., IDENTIFYING AND MOBILIZING WIN-WIN OPPORTUNITIES FOR COLLABORATION BETWEEN PENSION FUND INSTITUTIONS AND THEIR AGENTS (2012), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2033516 (studying over thirty networks of institutional investors of various kinds).

126. *Members*, COUNCIL OF INSTITUTIONAL INVESTORS, <http://www.cii.org/members> (last visited Nov. 1, 2018) (also describing the advantages of “Associate Membership,” which is open to market players, such as investment advisers, other than public and union pension funds).

127. *General Members*, COUNCIL OF INSTITUTIONAL INVESTORS, http://www.cii.org/general_members (last visited Nov. 1, 2018).

128. Over the years, giants like IBM, Kodak, and Sears were included in CII’s focus list. See Tim C. Opler & Jonathan S. Sokobin, *Does Coordinated Institutional Activism Work? An Analysis of the Activities of the Council of Institutional Investors 2* (Dice Ctr. For Research in Fin. Econ., Working Paper No. 95-5, 1995), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=46880.

129. Gary L. Caton et al., *The Effectiveness of Institutional Activism*, 57 FIN. ANALYSTS J. 21, 21 (2001) (“CII’s intent is that the attention will lead to a collaborative effort by members to compel company managers to step up efforts to improve performance.”).

130. *Id.* at 21 (finding that for underperforming companies that have the potential to improve their performances, inclusion in the focus list is followed by significant positive stock returns); Opler & Sokobin, *supra*

Another example is the British Local Authority Pension Fund Forum (“LAPFF”), which claims to be “one of the leading voices in corporate governance and responsible investment in the UK.”¹³¹ LAPFF routinely engages in proxy voting matters, favoring coordination among its seventy-one members. More specifically, one of its core functions is issuing “voting alerts” that provide nonbinding advice to its members on how to vote at the annual general meeting of a portfolio company.¹³² Two obvious questions are why these institutions are created and why institutional investors are willing to bear a cost to become members. We address these questions in Section IV.F.

C. Geographically Linked Networks

Black and Coffee suggest that during the 1990s, British institutional investors might have become more active voters also to prevent American institutions from determining the outcome of British companies’ shareholders meetings.¹³³ This strategy required cooperation, as otherwise the institutional investors that actively voted would have become less competitive than their domestic competitors that would remain passive.¹³⁴ That suggests that institutional investors can also cooperate when they operate in the same geographical area. This is because cooperation might be easier among geographically proximate institutional investors, as information can circulate more easily via informal channels.

Economists have gone beyond anecdotal evidence and produced a number of studies showing that the spatial distribution of institutional investors affect their behavior.¹³⁵ Pool, Stoffman, and Yonker find that when funds are located

note 128, at 2 (“In the year after being [included in the focus list], these firms experienced an average share price increase of 11.6% above the S&P 500. Given that the mean equity market value of Council listed firms was \$3.42 billion we estimate a total abnormal dollar gain of these firms of \$39.7 billion. This increase is broadly consistent with the view that coordinated institutional activism creates shareholder wealth.”). *But see* Wei-Ling Song & Samuel H. Szewczyk, *Does Coordinated Institutional Investor Activism Reverse the Fortunes of Underperforming Firms?*, 38 J. FIN. & QUANTITATIVE ANALYSIS 317, 320–21 (2003) (finding no evidence that the shareholder activism triggered by the focus list is effected).

131. *See LAPFF History*, LOCAL AUTH. PENSION FUND FORUM, <http://www.lapfforum.org/about-us/history-of-lapff/> (last visited Nov. 1, 2018).

132. LOCAL AUTHORITY PENSION FUND FORUM, ANNUAL REPORT 2016 18 (2016), <http://www.lapfforum.org/wp-content/uploads/2017s/03/LAPFF-Annual-Report-2016.pdf>.

133. Black & Coffee, *supra* note 59, at 2040 (“British institutions have observed the American voting practices and also realize that if they do not vote, the votes of American institutions, who own a significant fraction of British equities, could dictate the outcome of shareholder votes.”). Black & Coffee also list other facts that could explain the greater activism of British institutional investors at the time of their writing. Most notably, their increased stakes and the self-regulatory rules introduced by the Institutional Fund Managers’ Association. *Id.*

134. *Id.* at 2002 (“[T]he world of British institutional investors is close-knit. Communication among them is easy and unregulated. This reduces the coordination costs and free rider problems that plague collective action in the United States.”).

135. *See* Hong et al., *supra* note 10, at 2801 (“A mutual fund manager is more likely to buy (or sell) a particular stock in any quarter if other managers in the same city are buying (or selling) that same stock.”); Pool et al., *supra* note 10, at 2679 (finding that managers residing in the same neighborhood have more similar holdings and trades).

in the same area, their employees have more frequent occasions of meeting in both formal and informal settings, thus building personal relationships that help information circulate across institutions.¹³⁶ Further, Iliev and Lowry provide additional support for the idea that information travels across geographical ties. They show that funds located in a Metropolitan Statistical Area in which funds concentration is high are significantly less likely to be passive voters.¹³⁷ This suggests that information on how to vote circulates via geographical networks, inducing institutional investors that are clustered in a given area to become more active voters.

D. Employees' Personal Networks and Career Concerns

Competition does not take place only among individual institutional investors, but also among their employees. In a nutshell, at the employer level the institutional investor compares the expected increase in the value of the holding from casting an informed vote with the expected cost of becoming informed. Instead, the employee compares the anticipated effect of her behavior on her career prospects with the personal cost of becoming informed.¹³⁸ Clearly, the reality is way more nuanced than this, and the distinction between employer and employee incentives is more blurred.¹³⁹ Introducing an artificial bright-line distinction between employers and employees, however, helps emphasize that also in this context the tail may wag the dog. Even in a situation where no institutional investor has incentives to collect information, a vote against management departing from the suggestion of proxy advisors might be cast if an employee of an institutional investor triggers an information cascade.

The argument presented in this Section is composed of two separate claims. First, career concerns can shape the behavior of funds' employees that are in charge of voting shares held by their employer (hereinafter, "stock voters"). For instance, stock voters might decide to go the extra mile and invest personal resources, such as their free time, to investigate a portfolio company. Second, this information produced at the employee level can circulate within the network and affect the behavior of other institutional investors. After separately analyzing these two claims, we discuss the reliability of information produced at the employee level.

First, while there are no empirical studies that focus explicitly on stock voters, there is significant evidence that career concerns shape the behavior of actively managed funds' managers (hereinafter, "stock pickers") and of other actors within institutional investor networks. Chevalier and Ellison focus on the portfolio choices of fund managers and find that the probability of being termi-

136. See Pool et al., *supra* note 10, at 2680.

137. Iliev & Lowry, *supra* note 59, at 455.

138. We remark that there is no reason to postulate that the cost-benefit calculus of the employer and of the employee will always point to the same direction.

139. In fact, some of the arguments and empirical evidence presented in this section overlap with the ones discussed in Section IV.E on geographical ties.

nated increases when their returns are lower.¹⁴⁰ Hong, Kubik, and Solomon report similar findings with regards to financial analysts.¹⁴¹ Moreover, Hong and Kubik find that analysts issuing accurate forecasts are more likely to be promoted or to move to a more prestigious employer than analysts issuing inaccurate forecasts.¹⁴² These results show that stock pickers and financial analysts have incentives to work harder to outperform—or at least not be outperformed by—their peers. Although these findings do not directly relate to stock voters, this evidence still seems a sufficiently solid ground to build upon. Stock voters operate in the same environment as stock pickers, and it is safe to assume that they are as interested in their career as anybody else. It is thus reasonable also to assume that their actions are shaped by career concerns. Someone working in the governance department of a fund manager might be interested in moving to a larger asset management company or in moving to a different and higher-paid job within the asset management industry or in other areas of finance. Discussing ideas on how to handle a given controversial issue at an informal meeting appears to be a good opportunity for an employee to impress potential employers. The possibility of a better career might provide incentives to investigate a portfolio company even when it would not be expected to produce an immediate monetary return for the employee or her employer.¹⁴³ Thus, as stated above, stock voters' career concerns might be sufficient to induce them to collect information and communicate it.

We now turn to the second claim and investigate whether information produced by employees is likely to move across the network. An employee cannot hope to derive career benefits from information privately produced unless it discusses it with some potential employers.¹⁴⁴ At the same time, employers might find it cheaper to receive already processed information, instead of having to collect it.¹⁴⁵

A last piece of the puzzle would be how information circulates among individuals working in different funds. The literature has found that information can be passed via different kinds of ties. For instance, information can circulate

140. Judith Chevalier & Glenn Ellison, *Career Concerns of Mutual Fund Managers*, 114 Q. J. ECON. 389, 391 (1999). According to the authors, a manager is “terminated” if he loses his job and is hired by a smaller fund or abandons fund management.

141. Harrison Hong et al., *Security Analysts' Career Concerns and Herding of Earnings Forecasts*, 31 RAND J. ECON. 121, 123 (2000).

142. Harrison Hong & Jeffrey D. Kubik, *Analyzing the Analysts: Career Concerns and Biased Forecasts*, 58 J. FIN. 313, 315–16 (2003).

143. This might not be true in those cases in which the potential employer can assess whether the behavior of the stock voter is also in the interest of his current employer. The potential employer might not be interested in hiring someone who is wasting the human resources of his current employer. We remain agnostic on how often the potential employer would be able to assess this.

144. Recall that we are focusing on information on how to vote shares and not on information relative to stock trading.

145. The empirical evidence supporting this claim is inevitably similar to the one discussed in Section IV.C on geographical ties.

through educational networks¹⁴⁶ and geographical networks of employers¹⁴⁷ or employees.¹⁴⁸

In sum, competition among stock voters is very likely to affect their behavior, giving them incentives to seek information and transmit it to other agents in the network via various forms of connections, such as geographical proximity and educational ties.

An important question is whether the information produced due to competition among employees improves or deteriorates the quality of information that circulates in the network of institutional investors. This chiefly depends on whether (i) employees have incentives to collect and communicate *reliable* information and (ii) other agents have an incentive to listen and process that information. If an employee discloses unreliable information and other agents, ignoring their own information, follow the employee's lead, the quality of information within the network is reduced. On the contrary, if the employee truthfully communicates valuable information and the recipients do not uncritically endorse it but rather process and evaluate it independently, then the quality of information within the network likely improves.

To frame this problem, it is useful to compare the incentives of the employees with those of proxy advisors, another very relevant source of information. To begin with, employees face much more competition in their labor market than ISS and Glass Lewis experience in the proxy advisory services market.¹⁴⁹ At first glance, this seems to suggest that stock voters are more likely than proxy advisors to collect the relevant information rather than adopting one-size-fits-all heuristics.¹⁵⁰ Exactly because the stock voters face higher competitive pressures, however, they have stronger incentives to conform to the priors of their potential employer. For example, if it is known that a potential employer's boss has strong environmental concerns, a stock voter might have more chances of being hired by forcefully criticizing an oil company management for underinvesting in alternative sources, irrespective of whether greater investment now is that company's best strategy from a strict shareholder value standpoint. Although proxy advisors similarly have an incentive to cater to the priors of their customers,¹⁵¹ they might be in a better position to resist this

146. Lauren Cohen et al., *The Small World of Investing: Board Connections and Mutual Fund Returns*, 116 J. POL. ECON. 951 *passim* (2008).

147. Pool et al., *supra* note 10, *passim*.

148. Hong et al., *supra* note 10, *passim*.

149. It could be argued that the employees of ISS and Lewis might have similar incentives. For the employee of a proxy advisor, however, it could be more problematic to circulate information for the simple reason that proxy advisors are paid to have and communicate their opinions to others on each and any shareholder meeting resolution. Assume, for instance, that ISS suggested to vote "for" a given proposal, while an employee finds out that voting "against" would be better from a shareholder perspective. By disclosing this information, the employee would be openly contradicting her employer, something which potential employers, independently of the value of new information, are unlikely to consider positively for recruiting purposes.

150. For evidence in support of the fact that proxy advisors issue blanket recommendations, see Iliev & Lowry, *supra* note 59, at 448 (proxy advisors issue blanket recommendations when "they uniformly recommend for or against certain governance or compensation policies across all companies").

151. See *supra* note 89 and accompanying text.

temptation both because they face less competitive pressure and because their client base is wider than the set of potential employers for the stock voter. Therefore, from this perspective, proxy advisors might be a more reliable source of information. In short, it is hard to predict the quality of information produced by the employees, even relative to the information generated by other sources like proxy advisors.

In a similar way, it is hard to make generalized predictions on the behavior of the recipients of the message. While it might be wise for them to evaluate the information received from employees working for competitors, there are also good reasons to expect the recipients to herd. First, there is ample empirical evidence that stock pickers and financial analysts herd, especially younger ones,¹⁵² and it is hard to see why stock voters might behave differently. Second, there is evidence that stock analysts at heavily diversified firms herd more, because they face a more complex task.¹⁵³ In this vein, it is plausible to expect stock voters to sometimes herd, given that they deal with a vast portfolio of firms operating in different sectors.

Regardless of its quality, information spread by institutional investors' employees is an inherent and inevitable characteristic of the network in which institutional investors are embedded. To conclude, an institutional investor's voting decisions can be affected not only by large and visible sources of information such as proxy advisors but also by the behavior of other institutional investors' employees. Especially when institutional investors have a weak private signal, they might decide to ignore their private information and herd. In these cases, the tail will wag the dog and the information produced by an individual based on a private cost-benefit calculus will affect institutional investors' voting behavior.

*E. Intra-Clique Cooperation and Inter-Clique Competition:
Co-Ownership Ties*

Networks of institutional investors created by co-ownership ties only recently started attracting the attention of economists. Some recent articles focus on co-ownership ties and show that these connections are relevant to understand institutional investor behavior. For instance, Bajo, Croci, and Marinelli show that institutional investors that are more connected via co-ownership ties create more value (as measured by Tobin's Q).¹⁵⁴ They argue that occupying a special position in a network can increase the status and the reputation of an agent.¹⁵⁵ In this vein, institutional investors that are central and better connected

152. See Hong et al., *supra* note 141, at 123.

153. See Chansog Kim & Christos Pantzalis, *Global/Industrial Diversification and Analyst Herding*, 59 FIN. ANALYSTS J. 69, 69 (2003).

154. See Emanuele Bajo et al., *Institutional Investor Networks and Firm Value 1* (Feb. 1, 2017) (unpublished manuscript) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2633541) (“[W]e document that when a more central institutional investor owns a firm stake, the firm value is higher.”). Tobin's Q is a standard measure of firm value introduced by the Nobel Prize winner economist James Tobin.

155. *Id.*

can be assumed to have a better reputation and can therefore provide a certification of the quality of a company when they acquire its shares.¹⁵⁶

Crane, Koch, and Michenaud identify roughly twenty cliques of institutional investors¹⁵⁷ and show that members of the same clique tend to use voice more often and to vote together on proxy items.¹⁵⁸ This finding supports the hypothesis that institutional investors form a highly clustered population and that the presence of cliques of institutional investors connected by co-ownership ties increases the likelihood of cooperation.

The fundamental question then becomes why interconnected competitors should cooperate. One possible explanation is the idea—standard in sociobiology—that cooperators fare worse than defectors within a group, but that groups of cooperators fare better than groups of defectors.¹⁵⁹ To see why this logic would apply to institutional investors' voting, let us return to the example described in Part II. Let us now introduce companies j and k . Let us further assume that A and B own a fraction $w_{i,A} = w_{i,B}$ of company i shares, A and C own a fraction $w_{j,A} = w_{j,C}$ of company j shares, and B and C own a fraction $w_{k,B} = w_{k,C}$ of company k shares. For the sake of simplicity, we consider $w_{i,A} = w_{j,A} = w_{k,B}$.¹⁶⁰ Using network terminology, in this example, A , B , and C form a triangle in which the vertices (the institutional investors) are connected by co-ownership ties.¹⁶¹ We assume that institutional investors D , E , and F form a similar triangle connected by co-ownership ties in *other* portfolio companies (*i.e.*, they do not own shares in i , j , and k). Further, we assume that D , E , and F do not cooperate, and hence they do not cast an informed vote, which, again by assumption, translates into a payoff of 0.

C might consider investing c_j to acquire information only if an informed vote can increase the value of j by b_j , so that $c_j < w_j b_j$.¹⁶² C , however, faces a trade-off. Investing in information would make it more competitive vis-à-vis institutional investors that do not hold shares in j (B , D , E , and F) by $w_j b_j - c_j > 0$, but less competitive vis-à-vis its neighbor A by c_j . Similarly, B will investigate company k if it might increase its share value by b_k , so that $c_k < w_k b_k$. Also, in this case, B might decide not to invest even with $c_k < w_k b_k$, if it considers that becoming less competitive vis-à-vis its neighbor C is more relevant than the gains vis-à-vis institutional investors that do not hold shares in k (A , D , E , and F). If A , B , and C decide not to invest in infor-

156. *Id.*

157. Crane et al., *supra* note 14, at 2, 9–10. Identifying cliques in large networks poses significant methodological problems. Crane et al. rely on the Louvain algorithm to perform the task. *Id.* at 10.

158. *Id.* at 3.

159. See, e.g., David S. Wilson & Edward O. Wilson, *Rethinking the Theoretical Foundation of Sociobiology*, 82 Q. REV. BIOLOGY 327, 328 (“Selfish individuals might out-compete altruists within groups, but internally altruistic groups out-compete selfish groups.”).

160. As noted above, asymmetric stakes might ameliorate the collective action problem. See *supra* note 58 and accompanying text.

161. The number of triangles in a network is a key determinant of its clustering coefficient. See *supra* note 122 and accompanying text.

162. Clearly, C applies a similar logic when deciding whether to invest in i , while A also considers investing in j , and so on. We present this more stylized version to simplify exposition.

mation, their payoff will be equal to 0 and therefore they will not outperform *D*, *E*, and *F*.

Let us now assume that *A*, *B*, and *C* acknowledge that they form a triangle and cooperate so that *A* collects information on *i*, *B* collects information on *k*, and *C* gathers information on *j*. *A*'s payoff would be equal to $w_i b_i + w_j b_j - c_i$, *B*'s payoff would be $w_i b_i + w_k b_k - c_k$, and *C*'s would equal $w_j b_j + w_k b_k - c_j$. Assuming for the sake of simplicity that the costs of collecting information are similar across the three portfolio companies for *A*, *B*, and *C*, then they will increase their performance relative to their non-neighbors without becoming less competitive vis-à-vis their neighbors.

Therefore, under the necessary assumption that informed voting by institutional investors increases value, cliques of cooperators (*A*, *B*, and *C*) will outperform cliques of defectors (*D*, *E*, and *F*). This finding can explain why clique members decide to cooperate and, correspondingly, engage in competition vis-à-vis other cliques.

The idea that costly cooperation among some of the competing firms can make them more competitive vis-à-vis the rest is standard in both the economic and the management literature on research collaboration among firms. For instance, two competing firms sharing technology and know-how become more competitive vis-à-vis all the firms not involved in the exchange.¹⁶³ There are similarities between the two settings: in both cases firms make costly investments in research and share the output with some of their competitors (neighbors) to gain an advantage over the rest of the competitors (non-neighbors). We argue that the same dynamic applies to institutional investors' voting behavior: the presence of cliques might help explain why institutional investors sometimes use their voice despite rational reticence.¹⁶⁴

We can draw three inferences from this stylized illustration. First of all, the network structure affects the relationship between group size and free-riding, as discussed in the CJT literature.¹⁶⁵ Remember that in the CJT framework, incentives to free ride increase with group size.¹⁶⁶ Network theory shows that connections among members can help overcome free-riding. Thus, apart from group size, also the existing patterns of connections among group members influence the levels of cooperation and ultimately whether institutional investors cast informed votes. Second, "higher" level competition among cliques of institutional investors defined by co-ownership ties might explain Crane and others' result that clique members tend to use voice more often.¹⁶⁷ Third, cliques allow for division of labor among institutional investors and each clique member will concentrate its monitoring efforts on a subset of companies in its portfolio. It seems reasonable to hypothesize that each institutional investor

163. See GOYAL, *supra* note 22, at 245–66.

164. See Crane et al., *supra* note 14, at 3 (discussing the relation between clique ownership and voice and finding that belonging to the same clique leads institutional investors to use voice more often).

165. McCannon & Walker, *supra* note 47, *passim*.

166. See *supra* text accompanying notes 38–44.

167. Crane et al., *supra* note 14, at 3.

will concentrate on companies for which it has a comparative advantage in terms of investigation costs. Notably, leaving aside antitrust concerns, division of labor among a clique's members also improves welfare.¹⁶⁸ In fact, absent cooperation, the sum of the payoffs of all players is 0 if A , B , and C defect.¹⁶⁹ Instead, if A , B , and C cooperate, the aggregate welfare will be higher.¹⁷⁰

One could argue, however, that this result only applies to the specific example above, and that it has no general validity. In the example, we have implicitly assumed that institutional investors can process information received by other clique members without incurring any cost. This assumption is unreasonable, unless one further assumes that clique members blindly follow their clique peers. If that is the case, however, the efficiency of cooperation can be questioned on the basis of the CJT. If institutional investors blindly follow other members of their clique, then cooperation might crowd out information production by institutional investors. Or, to put it differently, cooperation would prevent efficient aggregation of private information, leading shareholders to take the wrong decision more frequently. That is unconvincing.

To begin with, although the cost of processing information received by other clique members (define it as α_i , α_j , and α_k , respectively) is positive, it remains strictly smaller than the cost of *collecting* and processing it anew.¹⁷¹ Thus, even relaxing the assumption that processing information is costless, cooperation remains a more efficient alternative to the duplications of costs associated with the scenario in which each institutional investor independently collects information on each portfolio company. Clearly, however, cooperation will not *always* be the best strategy. For instance, when the benefits are lower than the costs, passivity will be preferable.

Let us now turn to the second part of the counterargument, namely that institutional investors might blindly follow other clique members. The problem would be that, by crowding out the production of private information, cooperation also entails a cost. More precisely, cooperation of this kind would reduce the likelihood that the shareholder meeting makes the "right" (*i.e.*, the value-maximizing) decision. This cost is borne by the shareholders themselves, and in our example, it would translate into lower b_i , b_j , and b_k . At the same time, compared to the scenario in which each institutional investor must investigate every portfolio company independently, cooperation allows institutional investors to save on information costs. More precisely, the institutional investor C saves $(c_k - \alpha_k) > 0$. Clique members will therefore have to make a choice between the reduced probability of getting the right voting outcome and the cost savings. Clique members will only cooperate when the cost savings ensured by cooperation more than compensate for the reduced probability of making the right decision. In other words, institutional investors engage in intra-clique cooperation only when it gives a benefit to clique members vis-à-vis other institu-

168. Although, to be sure, this is merely our working assumption.

169. We recall that the payoffs of D , E , and F equal 0 in every scenario.

170. In particular, $2w_j b_j + 2w_k b_k + 2w_i b_i - c_i - c_j - c_k > 0$.

171. Gilson & Gordon, *supra* note 56, *passim*. In our framework, $c_i > \alpha_i$, $c_j > \alpha_j$ and $c_k > \alpha_k$.

tional investors. Thus, clique members would simply have no incentives to engage in cooperation when the reduction in b_i , b_j , and b_k outweighs the costs savings from cooperation.

F. *Can Cooperation Emerge and Be Sustained?*

The fact that cooperation might be beneficial for network members does not automatically imply that it will emerge and be sustained. In previous sections, though, we have seen both examples of real-world formal networks and reported empirical evidence of behavior consistent with intra-network cooperation in the presence of geographical and co-ownership ties. In this Section, we provide some intuitions for why such cooperation does emerge and can be sustained.

1. *Formal Networks*

As we noted in Section IV.B, cooperation can be mediated and facilitated by formal institutions. Two questions that we left unanswered there are, first, why these institutions emerge and, second, why institutional investors are willing to pay fees to become members.¹⁷² Network theory can help answer both questions.

We have seen that cooperation can increase the payoffs of the institutional investors that are invested in the same company. Patterns of cooperative behavior might collapse, however, due to imperfect monitoring or ineffective sanctions for free riders. Thus, if the potential gains from cooperating are large enough, the relevant players might decide to invest resources in the creation of a public monitoring institution that increases the chances that those patterns of cooperative behavior are sustained across time.¹⁷³ The decision taken in 1985 to create the CII can also be seen as an attempt to introduce such a monitoring institution.¹⁷⁴

An objection would be that common portfolio investments are not permanent. Although many institutional investors hold shares for a relatively long time,¹⁷⁵ their portfolios are bound to evolve over time.¹⁷⁶ In this vein, one may

172. For instance, CII membership fees range between \$3,000 and \$30,000, depending on institutional investor size. See GUYATT, *supra* note 125, at 94.

173. See Maximilian Mihm et al., *What Goes Around Comes Around: A Theory of Indirect Reciprocity in Networks* 31 (Ctr. for Analytical Econ., Working Paper No. 09-07, 2009), <https://www.econstor.eu/handle/10419/70450> (“[P]layers may be willing to pay up to 60% of the benefit from a maintained relationship for a public monitoring institution that supports network enforcement.”). The percentage that they derive is clearly dependent on the characteristics of the model and the effectiveness of the supervising institution. The gist of the argument, however, is that players might be willing to bear a cost in order to ease cooperation.

174. For a brief overview of the history of CII, see *History*, COUNCIL OF INSTITUTIONAL INVESTORS, http://www.cii.org/cii_history (last visited Nov. 1, 2018).

175. See *infra* note 203.

176. The same logic applies to other kind of ties, such as geographical and formal ties. In fact, institutional investors might move some of their offices or join (quit) a formal network.

wonder why an institutional investor should invest resources for the creation of a monitoring institution together with other investors with which it might not share co-ownership ties in the future. This is a very standard problem in network theory because networks are often very complex and agents have limited knowledge about the characteristics, or even the identity, of their present and future neighbors.¹⁷⁷

Institutional investors have at least four reasons to form a monitoring institution despite their imperfect information about the future structure of the network. First, although an institutional investor cannot know which institutional investors it will be connected to in, say, ten years' time, it knows that it will most likely have *some* connections. When an individual decides whether to invest time and resources in learning a language, she does not know with whom (or with how many people) she will speak that language during her life. Yet, in most cases, she knows that she will be able to speak the new language with *some* people, and she might even have a rough estimate of their number. This is often sufficient to justify the investment. An institutional investor is in a similar position. It does not know who its neighbors will be, yet it might still have an interest in creating a multilateral platform to communicate with its neighbors because it will most likely have *some* neighbors.¹⁷⁸

Second, in relative terms the cost that each institutional investor bears to set up a monitoring institution is likely to be minuscule compared to the value of its portfolio. Therefore, if cooperation (*i.e.*, informed voting) increases the value of portfolio assets, however marginally, the benefits derived from cooperation would most likely outweigh the costs borne by each investor to establish the monitoring institution.¹⁷⁹

Third, a monitoring institution might have a significant impact on the likelihood of cooperation. Although it is now possible to observe all the votes cast by each mutual fund, this form of ex-post monitoring is still imperfect. Cooperation might collapse if institutional investors are not able to identify with sufficient accuracy the instances in which other neighbors cast an informed vote. From this perspective, pre-voting communication might greatly

177. Cf. GOYAL, *supra* note 22, at 49 (noting that “firms located in research networks or scientists in co-author networks typically have fairly limited information on the networks”). Another example are technologies like a phone app or the internet, as their utility clearly depends on the number of adopters (*i.e.*, agents in the network), yet it is often impossible to know this number in advance.

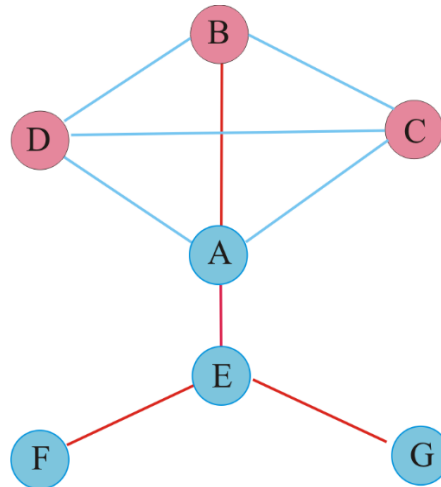
178. Organizations like the CII are also established to facilitate lobbying. To some extent, all institutional investors share similar preferences in terms of lobbying, and it is therefore clear why they want to unite forces. To the extent, however, that some of their goals are affected by the composition of their portfolio or their management style (*e.g.*, whether active or passive), their preferences on some issues might be heterogeneous. In the latter case, the analogy with learning a language works also with respect to lobbying: why would any institutional investors create a lobbying association, given that their interests are fluid and depend at least in part on their management styles and the companies that they have in their portfolio at any given moment? The answer is that an institutional investor will most likely share similar goals with *some* other institutional investors at each point in time. Thus, it might still have an interest in creating a multilateral platform to communicate with other institutional investors.

179. Given how negligible the fees are, this is most likely true even accounting for the fact that the majority of the benefits from an increase in the value of the portfolio do not accrue to the fund manager, but to its clients.

improve the ability of neighbors to detect deviations. By discussing portfolio companies matters with other members of the clique, it should often be possible to infer whether others have done their “homework” or rather know nothing about any of their portfolio companies and merely plan to rubberstamp managers’ proposals or blindly follow proxy advisors’ recommendations.¹⁸⁰

Finally, from a pure network perspective founding or joining the monitoring institution at an early stage can allow the institutional investor to obtain a better position in the network. It is a standard finding of the literature on networks that one actor’s payoff depends on her position within the network.¹⁸¹ In particular, it has been shown that *ceteris paribus* firms bridging structural holes generally perform better than other firms.¹⁸² A firm bridges structural holes when it connects firms that would otherwise be unconnected. In Figure 2, firms *A* and *E* occupy a structural hole because in their absence, firms *B*, *C*, *D*, *F*, and *G* would not be connected.

FIGURE 2: BRIDGE FIRMS *A* AND *E* CONNECT FIRMS *B*, *C*, *D* TO FIRMS *F* AND *G*



In our context, an institutional investor *A* joining a formal network would bridge structural holes between its pre-existing neighbors and the institutional investors, like *E*, that are part of the formal network but are not connected to

180. Notably, a network can sustain cooperation even when there are uncooperative fringes, provided that cooperative players are sufficiently patient and closely connected. See Matthew Haag & Roger Lagunoff, *Social Norms, Local Interaction, and Neighborhood Planning*, 47 INT’L. ECON. REV. 265, 268 (2006).

181. GOYAL, *supra* note 22, at 143 (“[W]e observed that individuals occupying certain positions in a network have access to substantial advantages.”).

182. See RONALD S. BURT, *STRUCTURAL HOLES: THE SOCIAL STRUCTURE OF COMPETITION* 5 (1992).

Connecting across structural holes increases the risk of productive accident—the risk of encountering a new opinion or practice not yet familiar to colleagues, the risk of envisioning a new synthesis of existing opinion or practice, the risk of finding a course of action through conflicting interests, the risk of discovering a new source for needed resources. Bridging structural holes creates a vision advantage in detecting and developing productive opportunities. The advantage is manifest in standard performance metrics.

Id.

A's neighbors. Institutions bridging structural holes might outperform other institutions for two reasons. First, they have a wider access to information and therefore potentially to more innovative ideas and know-how.¹⁸³ This factor is crucial for mutual fund managers and similar institutional investors.¹⁸⁴ Second, institutions may hesitate to cast a vote against management due to fear of retaliation.¹⁸⁵ An institution that is part of a group that together votes against the management faces a lower risk of retaliation from managers.¹⁸⁶ In line with this hypothesis, Matvos and Ostrovsky find evidence of a strong peer effect in fund managers' voting decisions.¹⁸⁷ Funds are more likely to oppose management if their peers are also opposing it.¹⁸⁸ Bridging structural holes allows one to be part of more groups and this, in turn, reduces the risk of retaliation against voting choices.¹⁸⁹

An obvious corollary is that the level of interconnection of a network is not the only factor that matters: it is also the case that agents' location within the network influences their payoffs and incentives and therefore affects the overall amount of information that circulates within the network as well as the cost at which it is produced.

2. *Information Sharing*

One might argue that an institutional investor will have insufficient incentives to share valuable information with competitors. In addition, should information be shared, the recipient might decide not to trust it, given that it comes from a competitor. For sure, an asset manager that has strong reasons to believe that the price of a stock will increase in the coming months might have some

183. Akbar Zaheer & Geoffrey G. Bell, *Benefiting from Network Position: Firm Capabilities, Structural Holes, and Performance*, 26 STRATEGIC MGMT. J. 809, 811 (2005).

184. *Id.* (noting that while at first glance one might conclude that for funds this factor may not be that relevant, "mutual fund companies rely to a great extent on innovative new products and services to distinguish themselves from their competition"). The gist of their argument is that new products and services cannot be patented, and therefore, funds are constantly looking for opportunities to differentiate themselves from their competitors.

185. Gerald F. Davis & E. Han Kim, *Business Ties and Proxy Voting by Mutual Funds*, 85 J. FIN. ECON. 552, 552 (2007) (showing that funds that "[a]ggregate votes at the fund family level indicate a positive relation between business ties and the propensity to vote with management").

186. Gregor Matvos & Michael Ostrovsky, *Heterogeneity and Peer Effects in Mutual Fund Proxy Voting*, 98 J. FIN. ECON. 90, 91–92 (2010) (noting that it is harder for the management to retaliate against a larger number of funds).

187. *Id.*

188. *Id.*

189. Assume that a first pair of institutional investors, *A* and *B*, are both invested in company *i*, whereas a second pair, *C* and *D*, are both invested in company *j*. Assume further that institutional investor *E* acts as a bridge among these two pairs, having invested in both *i* and *j*. Now, suppose that *A* and *B* want to vote against management at portfolio company *i*, whereas *C* and *D* want to vote against management at portfolio company *j*. As *E* is connected to both pairs (*A–B* and *C–D*), it will always be part of a coalition of three institutional investors if it decides to vote against management at either *i* or *j*. Instead, *A*, *B*, *C*, and *D* might find themselves in a coalition of two if *E* does not endorse their strategy. As retaliation from management is harder when opposition comes from a larger coalition, bridging structural holes allows more freedom in voting against management.

incentives to conceal this information from its competitors so as not to improve their relative performance. Similarly, its competitors may question the truthfulness of the voting-related information if she decides to disclose it. The trust problem among asset managers is, however, routinely overcome when they have frequent interactions. In fact, Pool et al. show that information travelling through informal personal relationships affect the investment decisions of managers that live in the same area.¹⁹⁰ This result can be obtained only if there is some degree of trust among asset managers living in the same area, even if they work for competing institutional investors.¹⁹¹ There is no sound theoretical reason to argue that this dynamic applies to stock trading but not to stock voting. If anything, the value of information on voting strategies increases when it spreads around because greater diffusion makes it likelier that a majority shares the position of the active institutional investor. Thus, an institutional investor that has collected information on how to vote on a given company has all the incentives to share it with competitors.

Let us go back to our example in Section IV.E¹⁹² and, for simplicity, let us assume that company i issues 100 shares and both A and B (but not C , D , E , and F) hold 30% of them ($w_i = 0.3$). Let us further assume that the cost of acquiring information $c_{i,A} = c_{i,B} = 50$. By investing $c_{i,A}$, A discovers that if the management proposal is rejected, the company's value will increase by 300 ($w_{i,A}b_{i,A} = 90$).¹⁹³

There are three possible scenarios:

- (1) Firm A does not invest in information. The relative performances of the funds will not change; however, A will forego the possibility to gain 40 vis-à-vis the funds that do not own shares in company i .
- (2) Firm A invests in information and shares it with firm B . B is persuaded and votes with A . Therefore, the strategy is implemented. In this case, A gains 40 vis-à-vis C , D , E , and F , while B gains 90 and A loses 50 relative to B : A and B reap the same benefits, but only A has borne the costs.
- (3) Firm A invests in information, does not share it with B , and B votes with management. In this case, assuming that a majority of the other shareholders also vote with management, A 's preferred strategy is not implemented. In this scenario, A foregoes the possibility of gaining 40 vis-à-vis C , D , E , and F . In addition, it loses 50 relative to every competitor.

While the choice between (1) and (2) depends on the information ex ante available to A on who its closest competitors are, and on whether A and B are part of

190. See Pool et al., *supra* note 10, at 2679 (“[S]ocially connected fund managers have more similar holdings and trades.”).

191. *Id.*

192. See *supra* notes 160–64 and accompanying text.

193. For the sake of simplicity, in this example we are assuming that A expects its vote to be pivotal.

a clique that cooperates, it is clear that scenario (2) dominates scenario (3).¹⁹⁴ Thus, once an institutional investor has voting-related information that is likely to improve the performance of a portfolio company, it has very direct and clear incentives to share it with other shareholders.¹⁹⁵

From this perspective, an institutional investor that obtains information acts as an imperfect surrogate of an activist hedge fund à la Gilson-Gordon.¹⁹⁶ According to Gilson and Gordon, hedge funds have the role of formulating proposals and presenting them to institutional investors so that the latter only have to respond to a proposal, instead of having to come up with one. Here, an institutional investor would act as an imperfect surrogate of a hedge fund because it would give other institutional investors a recommendation on how to vote, allowing them to merely process the information they receive instead of having to search for it.¹⁹⁷ Clearly, the key word here is “imperfect.” Institutional investors have no interest in embarking in an expensive campaign to persuade other shareholders and, unlike hedge funds, they are generally unwilling to put an alternative strategy on the table. Therefore, their action might not be as strong and as persuasive as that of an activist hedge fund. Institutional investors investing in voting-related information, however, do have the incentives to share it—directly or indirectly—with other institutional shareholders. In turn, that reduces the cost of casting an informed vote for the other institutional shareholders and *ceteris paribus* increases the level of active voting.

Having established that there can be sufficient incentives to circulate information within the network, let us focus on whether intra-clique cooperation specifically is sustainable. Recent works on network theory show that cooperative strategies are sustainable in the presence of highly interconnected networks.¹⁹⁸ In other words, the presence of clusters within the network increases the likelihood of cooperative behavior. Given that the density of the network of institutional investors is rapidly increasing, that should be the case also in our setting.¹⁹⁹

194. The only exception would be when the cost of informing *B* exceeds the weighted benefits of the strategy. Yet, were communication so costly, Hong et al. would not have observed the word of mouth effect among stock pickers. Hong et al., *supra* note 10, at 2801.

195. We explore elsewhere in this Article some of the reasons that might prompt the institutional investor to acquire information in the first place, such as informational cascades triggered by employees and inter-clique competition. See *supra* Section IV.D; Section IV.E.

196. Gilson & Gordon, *supra* note 56, at 896–902.

197. *Id.*

198. See Crane et al., *supra* note 14, at 8; Assenza et al., *supra* note 122, at 4.

199. Network density is related to the clustering of a network because it expresses the ratio between the existing ties and all potential ties. For our purpose, it is important to note that the density of the institutional investor network defined in terms of co-ownership ties is rapidly growing. For instance, it has more than tripled between 2000 and 2010. See Azar, *supra* note 116, at 3. Technically speaking, if institutional investors are large enough to own shares in an extremely high number of firms, one might end up with a single gigantic clique. Realistically, however, a minimum level of co-investment may be needed in order for co-ownership ties to be relevant for coordination purposes. While it cannot be ruled out that there will be ever more concentration within the asset industry market in the future, the multi-decade trend has been the opposite according to Crane et al., and there are natural limits to aggregate passive investment. See Crane et al., *supra* note 14, at 2; see also

In addition, the rate of cooperation significantly increases when the game is repeated,²⁰⁰ even more so when the game is repeated among experienced players.²⁰¹ That is, when players are experienced, the prospect of future rounds has a stronger effect on cooperation rates than with inexperienced players.²⁰² From this perspective, it must be noted that mutual fund managers and other institutional investors often hold shares in portfolio companies for a relatively long time.²⁰³ This gives them the opportunity to repeat the game multiple times while keeping cliques relatively stable. In addition, because most institutional investors hold shares in a very high number of companies, their stock voters can quickly gain a significant experience on how to play the game. As the voting game is repeated a high number of times and played by experienced players, collaboration is likely to emerge.

Consider also that, while until 2003 institutional investors could not observe how any other institution voted in each portfolio company, after the SEC required mutual funds to disclose their votes,²⁰⁴ public monitoring of this subset of institutions has become possible. That, in turn, entails a significant increase in the likelihood of cooperation.²⁰⁵

Finally, some large institutional investors make their voting intentions available to the public *prior* to shareholders meetings.²⁰⁶ This can be seen as an

Memorandum from Howard Marks on Investing Without People to Oaktree Clients (June 18, 2018) (available at <https://www.oaktreecapital.com/insights/howard-marks-memos>).

200. Pedro Dal Bó, *Cooperation under the Shadow of the Future: Experimental Evidence from Infinitely Repeated Games*, 95 AM. ECON. REV. 1591, 1591 (2005) (finding strong evidence that the probability of continuing the game greatly affects cooperation rates).

201. Pedro Dal Bó & Guillaume R. Fréchette, *On the Determinants of Cooperation in Infinitely Repeated Games: A Survey*, 56 J. ECON. LITERATURE 60, 66–67 (2018).

202. *Id.* at 68 (“Hence, having repeated interactions with an uncertain horizon has an important impact on the ability of subjects to support cooperation once they have gained experience.”).

203. Passive funds are by definition quasi-permanent shareholders. For instance, the CEO of Vanguard once stated,

Our favorite holding period is forever. We’re going to hold your stock when you hit your quarterly earnings target. And we’ll hold it when you don’t. We’re going to hold your stock if we like you. And if we don’t. We’re going to hold your stock when everyone else is piling in. And when everyone else is running for the exits.”

F. William McNabb III, *Getting to Know You: The Case for Significant Shareholder Engagement*, HARV. L. SCHOOL F. ON CORP. GOVERNANCE AND FIN. REG. (June 24, 2015), <https://corpgov.law.harvard.edu/2015/06/24/getting-to-know-you-the-case-for-significant-shareholder-engagement/>. Active mutual funds might have a somewhat shorter time horizon. Large funds, however, tend to be simultaneously connected via many co-ownership ties, thus keeping the core of the cliques relatively stable. For instance, it is implausible to expect Fidelity to suddenly sell all of its shares of firms in which also Vanguard is a shareholder.

204. *See supra* notes 78–79 and accompanying text.

205. Dal Bó & Fréchette, *supra* note 201, at 63–64; Masaki Aoyagi et al., *The Impact of Monitoring in Infinitely Repeated Games: Perfect, Public, and Private*, AM. ECON. J.: MICROECONOMICS (forthcoming 2019) (manuscript at 10) (“[T]he lack of common knowledge of histories becomes a major obstacle for cooperation.”).

206. For example, the California Public Employees’ Retirement System (CalPERS) attempts to publish its voting decisions prior to shareholder meetings. *See* James McRitchie, *CalPERS Discloses Proxy Votes in Advance of Meetings*, CORPGOV.NET (Dec. 22, 2015), <https://www.corpgov.net/2015/12/calpers-discloses-proxy-votes-in-advance-of-meetings/>. CalPERS is not the only institutional investor to behave this way. Domini Social Investment posts “its votes approximately two weeks prior to each company’s annual meeting.” *See Domini Social Investments Continues Push for Increased Corporate Accountability*, DOMINI (Mar. 21, 2002), <https://>

attempt to give credibility to their commitments. Casting a different vote after their voting intention has been made public would most likely carry a significant reputational hit. Thus, if institutional investors implicitly or explicitly agree to cooperate and gather information, they can then signal that they do not intend to passively rubber-stamp management's proposals or blindly follow proxy advisors' recommendations by declaring their voting intentions.

V. POLICY IMPLICATIONS

In the previous Sections we have shown how network theory can help understand institutional investor voting behavior. It is now time to ask whether these insights have any normative implications.²⁰⁷ We venture in this direction with some hesitance, though, for at least two reasons.

First of all, we have been so far quite agnostic as to the fundamental question of whether institutional investors' engagement with portfolio companies is welfare-improving or, otherwise put, whether policymakers should craft rules pushing them in the direction of either more or less involvement in portfolio companies' governance. Our admittedly cautious starting point was that, so long as rules require shareholders to vote, it is intuitively better if their voting is informed rather than uninformed (Part II). We do not depart from our cautiously neutral stance in this Part.

Second, the main contribution of this Article is to propose network theory as an appropriate tool to study the voting behavior (and, more generally, the corporate governance role) of institutional investors. While we advance many arguments to explain why a new door should be opened, we cannot predict with certainty what lies across it. To put it differently, fine-grained policy recommendations built on network theory can only be developed after a significant number of careful empirical studies has been carried out. This Article is an attempt to stimulate more of these studies.

Until more such studies are carried out, we must be very cautious in drawing policy conclusions. Hence, we refrain from extending our normative analysis to policy areas where network theory might be thought to provide new insights, such as in defining the ties that may cement a "group" for the purposes of ownership disclosure rules or in evaluating current policies on shareholder communications. Suffice it to say that our framework highlights the absolute centrality of these policy issues.

With these caveats in mind, we restrict our focus on two recent policy proposals pertaining to institutional investors' shareholdings, namely the pro-

www.domini.com/insights/domini-social-investments-continues-push-for-increased-corporate-accountability. Similarly, the Florida State Board of Administration "discloses all proxy voting decisions once they have been made, typically seven to ten calendar days prior to the date of the shareowner meeting." See CORPORATE GOVERNANCE PRINCIPLES, FLA. STATE BOARD OF ADMIN. 10 (2016), https://www.sbafla.com/fsb/Portals/FSB/Content/CorporateGovernance/ProxyVoting/2016_SBA CorpGovPrinciplesProxyVotingGuidelines.pdf.

207. The practical implications, which we leave aside here, are self-evident: network theory can support management, activists, and their advisors in identifying key nodes in a company's shareholder base, *i.e.*, those institutional investors with the greatest potential for influencing their peers due to their position in the network.

posal that common shareholdings within concentrated industries should be regulated out of antitrust concerns and the recommendation for greater disclosure over institutional investors' voting.

A. Antitrust and Horizontal Shareholding

A recent strand of literature has discussed the alleged anticompetitive effects of the presence of the same institutional investors as the largest shareholders of companies within concentrated industries.²⁰⁸ The basic argument is simple. Given that large institutional investors hold some of the largest stakes in virtually all listed firms, they often own shares in all firms competing in the same market.²⁰⁹ The phenomenon is known as “horizontal shareholding.”²¹⁰ Horizontal shareholding can harm competition because the horizontal shareholder's interest might be in maximizing the joint surplus of the horizontal competitors instead of encouraging fierce competition among them (hereinafter, the “horizontal shareholding hypothesis”).²¹¹

To clarify the point, Elhauge discusses the example of two restaurants, R_1 and R_2 , located in the same area.²¹² If R_1 and R_2 have different owners, they will be competing to attract new customers. For instance, R_1 might lower its prices to steal some of R_2 customers. If enough customers switch from R_2 to R_1 , then R_1 will increase its profits even if the margin per customer goes down following the reduction in prices. Elhauge argues that the situation changes dramatically when R_1 and R_2 have a similar shareholder base. In this scenario, the shareholders of the two restaurants will have an incentive to maximize the joint value of R_1 and R_2 . The horizontal shareholders would dissuade R_1 and R_2 managers from competing and instead induce them to maximize their joint profits by raising prices. Eventually, managers will understand that this is what their shareholders want with no need for the latter to express their preference for a cartel-like behavior among competitors. There is some empirical evidence supporting the horizontal shareholding hypothesis. In particular, Azar, Schmalz, and Tecu find that horizontal shareholding in the airline industry is associated with higher prices at the route level.²¹³

Building on this, Posner, Morton, and Weyl have proposed that institutional investors be required to hold shares only in one firm in each oligopolistic

208. For a survey of this literature, see Martin C. Schmalz, *Common-Ownership Concentration and Corporate Conduct* (CESifo Working Paper Series, Working Paper No. 6908, 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3046829.

209. Einer Elhauge, *The Growing Problem of Horizontal Shareholding*, CPI ANTITRUST CHRONICLE, June 2017, at 2 (“The evidence also shows that in recent decades the level of institutional shareholding passed a tipping point, such that the probability that two competing firms have a common shareholder holding at least 5% of each has increased from 16% in 1999 to 90% by the end of 2014.”).

210. *Id.*

211. See, e.g., Azar et al., *supra* note 26, at 1.

212. Elhauge, *supra* note 25, at 1269.

213. Azar et al., *supra* note 26, at 3. *But see* Kennedy et al., *supra* note 26, at 23 (using the same dataset as Azar, Schmalz, and Tecu and finding that horizontal shareholdings do not lead to higher prices).

market, with two exceptions.²¹⁴ First, they would be allowed to own shares in horizontal competitors provided that they abide to a very stringent cap (no more than 1% of the total size of the industry).²¹⁵ Second, they would be allowed to commit to never vote their shares or to vote them in proportion to the votes cast by other shareholders.²¹⁶ Posner and his coauthors argue that, with such rules in place, most large institutional investors would prefer to hold shares in a single firm in each market.²¹⁷

Elhauge's suggestion is rather to rely on the Clayton Act § 7 to limit horizontal shareholdings: when horizontal shareholdings exceed a certain threshold, institutional investors should be exposed to antitrust liability.²¹⁸ According to Elhauge, because the efficiency gains associated with an increase in horizontal shareholdings above the threshold he identifies would almost never be sufficient to compensate for their anticompetitive effects,²¹⁹ the only way for institutional investors to be entirely safe from antitrust claims would be to refrain from horizontal investments.²²⁰

Thus, both proposals would largely have the same effect: inducing institutional investors to concentrate their assets in one single firm in each oligopolistic market. Another important similarity between the two proposals is that they would apply to all oligopolistic markets in exactly the same way. In other words, both Elhauge and Posner, Morton, and Weyl propose a one-size-fits-all approach for all oligopolistic markets.

Before discussing the problems associated with these proposals, it is important to note that horizontal shareholding relies on a key assumption: managers and institutional investors do not need to communicate, as managers know that horizontal shareholders prefer higher prices.²²¹ In fact, if institutional investors and managers explicitly agreed to reduce quantities and increase prices, horizontal shareholding would be no different from any cartel, and therefore *per se* illegal.²²² In turn, this presupposes another hidden and very strong as-

214. Posner et al., *supra* note 29, at 10.

215. *Id.*

216. *Id.*

217. *Id.* (arguing that institutional investors would not frequently opt for the safe harbor of pure passivity).

218. See Elhauge, *supra* note 26, at 1302–04.

219. *Id.* at 1303.

The grounds for challenging horizontal shareholdings are in one important sense stronger than the grounds for challenging mergers. A true merger creates integrative efficiencies that might offset any anticompetitive effect from increasing concentration. In contrast, stock acquisitions that create horizontal shareholdings generate no such offsetting integrative efficiencies. There is thus little reason to allow horizontal shareholdings if they have any significant anticompetitive potential.

Id.

220. *Id.* at 1314–16.

221. See Einer Elhauge, New Evidence, Proofs, and Legal Theories on Horizontal Shareholding 1 (Jan. 4, 2018) (unpublished manuscript) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3096812).

The new economic proofs show that, without *any need for coordination or communication*, horizontal shareholding will cause corporate managers to lessen competition to the extent they care about their vote share or reelection odds and will cause executive compensation to be based less on firm performance and more on industry performance.

Id. (emphasis added).

222. *Id.* at 32.

sumption: all (sufficiently large) institutional investors prefer higher prices in *all* markets. Otherwise, if institutional investors preferred less competition only in some, managers would need some signals to know which markets they should reduce competition in. Based on insights from network theory, this assumption is unreasonable.²²³

The assumption that horizontal shareholders want higher prices in all markets holds if and only if institutional investors consider individual products and services markets the fundamental unit of analysis around which to devise their strategies.²²⁴ Yet institutional investors clearly have no reason to do so.

In the restaurants example, the horizontal shareholder's interest is to maximize the joint value of R_1 and R_2 , and therefore to charge higher prices. The ability to raise prices is constrained by the elasticity of demand. If prices are too high, the potential customers might decide to do grocery and eat at home, or they might prefer a fast food chain (F_1). If the horizontal shareholder, however, is a large institutional investor such as BlackRock, the constraint imposed by demand elasticity assumes a very different meaning.²²⁵ As BlackRock owns shares in a very high number of firms, it will most likely have significant stakes also in fast food and supermarket chains. Thus, unlike traditional monopolists, BlackRock can recapture consumers across markets. In this vein, instead of maximizing the joint value of the firms within a single market (in this example R_1 and R_2), BlackRock has every reason to take inter-market spillovers into account and attempt to maximize the overall value of its portfolio.

In addition, because institutional investors compete on relative performance, they are affected by the composition of their competitors' portfolios. Assume that at t_0 institutions A and B own relatively larger stakes in R_1 than in R_2 and F_1 . Assume further that institution C owns relatively more shares in R_2 and F_1 than in R_1 . In such a case, A and B might have an incentive to induce R_1 to compete aggressively and steal customers from R_2 and F_1 . This would allow A and B to improve their relative performance vis-à-vis C , given that the latter has a larger stake in R_2 and F_1 and a smaller stake in R_1 . Assume now, however, that at t_1 , A and B buy a large stake in another fast food chain (F_2).²²⁶ This might change their behavior also in the restaurants market: by lowering prices at R_1 , they would also harm F_2 . How could a manager know that A and B prefer R_1 to compete aggressively at t_0 and not at t_1 without any communication from the two institutional investors? As hinted, if institutional investors explicitly informed their portfolio firms managers operating in a given market that they must raise prices and reduce output, this would be a traditional cartel. To put it

223. Alessandro Romano, Horizontal Shareholding: The End of Markets and the Rise of Networks 5 (Sep. 26, 2018) (unpublished manuscript) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3255948).

224. *Id.* at 3–4.

225. *Id.* at 20–22 (discussing a similar example involving the airline industry).

226. Note also that BlackRock and Fidelity might have an incentive to cooperate and split the costs of monitoring R_1 and F_2 .

differently, institutional investors have incentives to consider the effects of a given strategy on firms operating in various markets. As in this simplified example, one institutional investor might prefer more aggressive competition in some markets and higher prices in others depending on the web of ownership ties.

The structure of co-ownership ties is also relevant: it is costly for an institutional investor to find out which strategy maximizes the value of a portfolio company, and in an atomistic world, they would rarely incur this cost. In the previous example, for instance, *A* would not invest in monitoring of R_1 and F_2 because that would worsen its performance relative to *B*. In fact, the latter would reap the benefits from *A*'s costly effort without incurring any cost itself. But network theory puts things in a different light. On the one hand, if *A* and *B* belong to the same clique, they can divide labor and split the burden of monitoring R_1 and F_2 .²²⁷ On the other hand, the strategy that *A* prefers for R_1 and R_2 might be different from that of another institutional investor that owns stakes in those companies but is part of a different clique and has a different portfolio composition. Therefore, network effects are important to understand institutional investors' preferences over competition choices.²²⁸

In this Article, we have focused on the structure of the network in which institutional investors are embedded and showed that it is an important determinant of their behavior *qua* shareholders. In particular, we have highlighted four kinds of ties that are likely to affect how and when institutional investors use their voice: (i) formal networks, (ii) geographical ties, (iii) connections among employees, and (iv) co-ownership ties. These four kinds of ties, which are just meant to be illustrations of how networks can affect behavior, are largely independent of the boundaries of the portfolio firms' markets. There is no reason to think that formal networks are joined by institutional investors based on the market in which their portfolio firms compete. Geographical ties and connections among employees favor the diffusion of information and increase the likelihood of cooperation among institutional investors. Also, in this context market boundaries appear to play a very limited role. Finally, co-ownership ties need not involve firms operating in the same markets, and cliques can be formed also via connections to portfolio firms operating in different markets.

Because institutional investors cannot generally be assumed to devise their preferences over portfolio firms' competition strategies based on industry boundaries, they cannot be assumed to prefer higher prices in all markets in which their portfolio firms operate either. In this vein, reforms focusing on market structure are ill-advised, especially if they hit all the oligopolistic markets in the same way.²²⁹ If structural reforms aimed at preventing the anticompetitive effects of horizontal shareholding are at all needed, they should account for the structure of the network in which institutional investors are embedded.

227. See *supra* Section IV.E.

228. Romano, *supra* note 223, at 30–34 (showing that Posner et al.'s proposal might paradoxically result in *more* collusion across markets).

229. Romano, *supra* note 223, *passim*.

In this vein, relevant factors for policymakers to focus on would-be issues such as the symmetry and number of co-ownership ties between institutional investors within and across markets, the stability of connections and cliques over time, the presence and the characteristics of formal networks, and so on. Admittedly, current knowledge appears to be insufficient to understand how accounting for such factors would justify one policy solution or the other. Indeed, one contribution of this Article is to present network theory as an appropriate tool to study the governance behavior of institutional investors and stimulate additional empirical studies also to support policymakers' agenda.

B. *Voting Disclosure*

Some leading scholars worry not that institutional investors may wield too much influence on management, as implicitly postulated by those advocating the horizontal shareholding hypothesis, but rather that they have too little.

Most notably, Bebchuk, Cohen, and Hirst have suggested increasing disclosure duties of institutional investors in two directions.²³⁰ First, currently only mutual funds are required to disclose how they vote.²³¹ They suggest extending this requirement to other institutional investors. Second, they call for mandating more extensive disclosures, including on business ties between investment managers and the corporations in which they invest.²³² In turn, this would increase public awareness of agency problems.²³³ In the traditional view, mandating disclosure can be an effective disciplining device only to the extent that investors (clients) vote with their feet, and walk away from institutional investors that either passively follow proxy advisors and management or vote in conflict of interest.²³⁴ Yet there are good reasons to believe that investors will rarely vote with their feet.²³⁵ On the one hand, due to collective action problems, they might prefer staying on with passive managers to switching to a more active one correspondingly charging higher fees.²³⁶ On the other hand, at least retail investors are unlikely to read, process, and then act upon such disclosures.²³⁷

If one places great emphasis on the stewardship role that institutional investors can play, a network perspective offers a more convincing rationale for requiring all institutional investors to disclose their vote: facilitating shareholder cooperation within a formal network, a geographic area, or a clique. As stated above, public disclosure introduces public monitoring in the game played by

230. Bebchuk et al., *supra* note 54, at 108.

231. *Id.*

232. *Id.*

233. *Id.*

234. *Id.*

235. See *supra* note 88 and accompanying text for the qualification that some pension funds and other similarly governance-sensitive intermediate owners may actually do so.

236. Cf. Bebchuk et al., *supra* note 54, at 98 (showing that investors are rather likely to vote with their feet when asset managers do expend resources to monitor portfolio companies); see also *supra* notes 102–04 and accompanying text.

237. See generally JOHN ARMOUR ET AL., PRINCIPLES OF FINANCIAL REGULATION 218 (2016).

institutional investors.²³⁸ Given that cooperation is much more likely when the game involves also public monitoring, mandating disclosure to all institutional investors could facilitate cooperation and increase monitoring.

Clearly, if one believes that cooperation should be discouraged, the opposite logic applies. Institutional investors should be required *not* to disclose how they vote, in order to remove public monitoring from the game.

VI. CONCLUSION

During the last decades, institutional investors have increasingly become key players in U.S. corporate governance. Key to their influence upon portfolio companies is institutional investors' exercise of voting rights. Empirical evidence shows that patterns of connections affect institutional investors' behavior, including in the exercise of voting rights: an atomistic focus is therefore insufficient to fully understand their governance role. This Article has moved in the direction of shedding light on institutional investor voting behavior by using network theory, which is *the* methodology to analyze settings in which patterns of connections are relevant. Because ours is an exploratory study, we have stopped short of capturing every nuance and have limited ourselves to the more modest task of uncovering some relevant insights. In particular, we have shown that competition among nodes in the institutional network takes place at multiple levels (inter-employees, inter-firm, and inter-cliques), and that connections at each of these levels can shape institutional investors' interactions and decisions, including on how to vote.

From within individual institutions, employees compete for better jobs, and by doing so obtain relevant information on portfolio companies and spread it through their network. We have also seen, however, that this information is not necessarily always reliable and can trigger undesirable information cascades.

Institutional investors also compete with each other. The literature has traditionally focused on this level of competition.²³⁹ The key problem is that, even when institutional investors have an incentive to obtain information on their portfolio companies, they might be paralyzed by rational reticence and rational apathy. Inter-clique competition might help explain why the problems of rational reticence and rational apathy are at times overcome. While an individual institution that invests in monitoring (*i.e.*, a cooperator) might become less competitive vis-à-vis institutions that do not (*i.e.*, defectors), a clique of cooperators might outperform a clique of defectors. Therefore, this kind of network dynamic might increase the incentives of institutional investors to cast informed votes at portfolio companies.

238. See *supra* notes 206–07 and accompanying text.

239. See Kennedy et al., *supra* note 26, at 22.

Adopting network theory to study the voting behavior of institutional investors has also allowed us to derive normative implications on two topical debates: (i) horizontal shareholdings and (ii) voting disclosure rules.

First, a network approach shows that the reforms proposed by either Elhauge or Posner and his coauthors to address the anticompetitive concerns caused by horizontal shareholdings are ill-advised. Both reforms would push institutions towards concentrating their ownership in one firm in each industry. Reforms targeting all oligopolistic markets in the same way, however, would be justified only under the assumption that institutional investors devise their portfolio strategies based on products and services markets boundaries, which is unrealistic. Instead, the analysis presented in this Article shows that institutional investors' payoffs and the incentives are affected by their connections with other institutional investors and with the other agents that populate their networks (proxy advisors, portfolio companies' management, etc.). As these connections transcend market boundaries, regulators should abandon a market-centric view in favor of one more cognizant of network effects. To be clear, we do not advocate invasive structural reforms based on network theory to address the anticompetitive concerns that might be associated with diffuse institutional ownership. On the one hand, tailored reforms might be more effective when there is evidence of harm in a given context.²⁴⁰ On the other, current knowledge of the network of institutional investors does not allow for the crafting of detailed network-based structural reforms. Nevertheless, if policymakers intend to take the path of structural reforms, they should take network effects into account.

Second, network theory helps elucidate the real function of voting disclosure mandates: by reducing the costs of intra-network monitoring, they can work as a tool to facilitate inter-institutional cooperation.

To summarize, atomistic explanations of institutional investor voting, which have dominated so far in legal scholarship, do not fully account for the dynamics underlying such key players' behavior and, more broadly, their corporate governance role. This Article has illustrated how network theory can help legal scholars as well as policymakers and practitioners gain a better understanding of how institutional investors decide whether and how to vote.

240. See Romano, *supra* note 223, at 37–39 (proposing to open the U.S. airline market to foreign competitors).