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I. INTRODUCTION

Economic analysis tends to focus on the decisions of individuals. This emphasis likely stems from the underlying model of rational choice, which posits an autonomous individual who makes rational choices that maximize his satisfactions.[1] Yet much economic activity takes place within institutions for which groups often make decisions. Within the public corporation, for example, we see group decisionmaking at many levels of the corporate hierarchy. Indeed, with the emergence of quality circles and self-directed work teams as characteristic features of modern industrial organization, it is more accurate to describe large industrial corporations as a hierarchy of teams rather than one of individuals.[2]

At the apex of the corporate hierarchy stands yet another team—the board of directors. Curiously, corporate law scholarship rarely focuses on the board as a team production problem.[3] The default model of corporate governance envisioned by modern statutes demonstrably contemplates not a single hierarch, but rather a multimember body that typically will act by consensus.[4] Why?

Cognitive psychology has a long-standing tradition of studying individual versus group decisionmaking.[5] With the emergence of behavioral economics as a legitimate field of inquiry, moreover, experimental economists have begun looking at similar questions. Taken together with various strands of new institutional economics,

1. *See* RICHARD A. POSNER, THE PROBLEMS OF JURISPRUDENCE 353 (1990) (describing the rational choice model).

2. *See infra* note 16 and accompanying text.

3. Exceptions include Margaret M. Blair & Lynn A. Stout, *A Team Production Theory of Corporate Law*, 85 VA. L. REV. 247 (1999) and Donald C. Langevoort, *The Human Nature of Corporate Boards: Law, Norms and the Unintended Consequences of Independence and Accountability*, 89 GEO. L.J. 797 (2001).

4. *See infra* notes 8-11 and accompanying text.

5. *See infra* Part III (discussing studies).

these approaches shed considerable light on the role of the board of directors.

This Article begins by briefly describing the role of the board both in law and in practice.[6] Part II explores the distinction between consensus and authority as modes of institutional decisionmaking. As hierarchical institutions, corporations rely far more heavily on authority than on consensus. Yet, at the apex of the hierarchy is a collegial body that functions mainly by consensus.

Part III is the core of the Article. In order to evaluate corporate law's preference for collective decisionmaking, we need to know whether group decisionmaking is superior to that of individuals. A wealth of experimental data suggests that groups often make better decisions than individuals. Even more strikingly, the conditions under which groups outperform individuals in laboratory settings have important similarities to board decisionmaking.

It is surprising that corporate law scholarship has largely ignored the basic question from which this Article takes its title: Why a board? Part III argues that the board's existence follows logically from the evidence on group decisionmaking. Curiously, corporate law scholarship has almost uniformly ignored this important body of research.[7] Part IV asks whether the legal regimes governing boards are well-designed to encourage optimal board behavior. Two legal subregimes are examined. First is the seemingly formalistic statutory rules governing board of directors processes in light of the evidence on group decisionmaking. Those rules were the original impetus for this Article. Are they mere historical anachronisms—creatures of a long-dead era of formalism—or do they have an efficiency rationale? Part IV contends that most, if not all, statutory rules on board formalities turn out to be consistent with the learning on how groups can best make decisions. Second is the legal standard governing review of judicial decisions. As we shall see, the adverse consequences of judicial review for effective team function-

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6. My analysis focuses on large public industrial corporations. For a like-minded discussion of other organizational forms, see Daniel P. Forbes & Frances J. Milliken, *Cognition and Corporate Governance: Understanding Boards of Directors as Strategic Decision-Making Groups*, 24 ACAD. MGMT. REV. 489, 500-01 (1999) (discussing nonprofits, small firms, and high-tech firms).

7. An exception is ROBERT C. CLARK, CORPORATE LAW (1986), who acknowledged the potential utility of "empirical work of sociologists who have studied groups and organizations." *Id.* at 110. Other exceptions include Robert J. Haft, *Business Decisions by the New Board: Behavioral Science and Corporate Law*, 80 MICH. L. REV. 1, 50-67 (1981), and Note, *The Propriety of Judicial Deference to Corporate Boards of Directors*, 96 HARV. L. REV. 1894, 1896-97 (1983). Langevoort's work on boards of directors overlaps somewhat with the analysis herein, but relies mainly on a different hranch of behavioral science. *See* Langevoort, *supra* note 3, at 797-801.

ing turn out to be a partial explanation for the business judgment rule.

II. THE BOARD'S STATUTORY ROLE

A defining characteristic of public corporations is the so-called separation of ownership and control.[8] Shareholders, who are said to "own" the firm,[9] have virtually no power to control either its day-to-day operation or its long-term policies. Instead, the key players in the formal decisionmaking structure are the members of the board of directors. As the Delaware Code puts it, the corporation's business and affairs "shall be managed by or under the direction of a board of directors."[10] Accordingly, shareholders have essentially no power to initiate corporate action and, moreover, are entitled to approve or disapprove only a very few board actions.[11] The statutory decisionmaking model thus is one in which the board acts and shareholders, at most, react.

This separation of ownership and control has a strong efficiency justification. Kenneth Arrow has described two basic decisionmaking structures: "consensus" and "authority."[12] Consensus is utilized where each member of the organization has identical information and interests and will therefore select the course of action preferred by all of the other team members. In contrast, authority-based decisionmaking structures arise where team members have different interests and amounts of information. They are characterized by the existence of a central agency to which all relevant information is transmitted and which is empowered to make decisions binding on the whole. Given the collective action problems

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

9. In the dominant nexus of contracts theory of the firm, ownership is not a meaningful concept because shareholders are simply one of the inputs bound together by this web of voluntary agreements. *See generally* G. Mitu Gulati et al., *Connected Contracts*, 47 UCLA L. REV. 887 (2000) (discussing nexus of contracts theory); Thomas S. Ulen, *The Coasean Firm in Law and Economics*, 18 J. CORP. L. 301, 318-28 (1993) (same).

10. DEL. CODE ANN. tit. 8, § 141(a) (2000).

11. Under the Delaware Code, for example, shareholder voting rights are essentially limited to the election of directors and approval of charter or bylaw amendments, mergers, sales of substantially all of the corporation's assets, and voluntary dissolution. *See* DEL. CODE ANN. tit. 8, §§ 109, 211 (2000). As a formal matter, only the election of directors and amending the by-laws do not require board approval before shareholder action is possible. *See id.* In practice, of course, even the election of directors (absent a proxy contest) is predetermined by the existing board nominating the next year's board. To be sure, the shareholders' right to elect the board of directors can give the former de facto control even though the statute assigns de jure control to the latter.

12. KENNETH J. ARROW, THE LIMITS OF ORGANIZATION 68-70 (1974).

inherent in any large organization, it is difficult to imagine a corporation of any substantial size making effective use of consensus as a mode for organizational decisionmaking.[13] In order to effectuate an authority-based decisionmaking structure, however, ownership and control must be separated.

Although separation of ownership and control is a necessary precondition for efficient corporate decisionmaking, it is not a sufficient one. The modern public corporation is too big for the board to manage on anything resembling a day-to-day basis. Moreover, many directors of large corporations are outsiders who have full-time jobs elsewhere and therefore can devote relatively little time to the running of the business for which they act as directors. Section 8.01(b) of the Model Business Corporation Act (MBCA) reflects these basic truisms in two respects. First, section 8.01(b) provides that the "business and affairs of the corporation" shall be "managed under the direction of" the board. This formulation is intended to make clear that the board's role is to formulate broad policy and oversee the subordinates who actually conduct the business day-to-day.[14] Second, the statute also provides that corporate powers may be exercised "under the [board's] authority," which allows the board to delegate decisionmaking authority to corporate officers.[15] In turn, corporate officers may delegate some of their responsibilities to less senior employees, and so forth down the organizational chart. Consequently, public corporations traditionally have been characterized not by participatory democracy, but rather by hierarchies in which decisions are made on a more-or-less authoritarian basis.

Despite downsizing and the widespread adoption of employee involvement programs (such as quality circles),[16] public corporations remain hierarchical institutions. To be sure, with the growth of team production, many firms are more accurately described as hierarchies of teams rather than of individuals. Yet they are hierarchies just the same.

Hierarchy persists because it remains a high survival value adaptive response to the transaction costs associated with organizing production within a firm. In particular, hierarchy is a very effi-

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13. *See* Stephen M. Bainbridge, *Participatory Management Within a Theory of the Firm*, 21 J. CORP. L. 657, 664-67 (1996) (arguing that effective corporate decisionmaking requires authority-based governance institutions).

14. MODEL BUS. CORP. ACT ANN. § 8.01 cmt. (1998).

15. *Id.*

16. On these phenomena and their relationship to the economics of hierarchy, see Stephen M. Bainbridge, *Privately Ordered Participatory Management: An Organizational Failures Analysis*, 23 DEL. J. CORP. L. 979 (1998).

cient mechanism for information development and transmittal. Both new institutional economics and behavioral economics posit that decisionmakers are rational actors but that their cognitive powers are limited.[17] Among other things, bounded rationality implies that decisionmakers can only gather so much information from so many inputs before being overloaded. In the corporate context, bounded rationality thus specifically implies that an individual manager can gather information about the productivity and capacities of only a limited number of inputs and, consequently, that no supervisor should receive such information from more than a few subordinates.

Branching hierarchies are an efficient adaptation to bounded rationality.[18] They limit the span of control over which any individual manager has supervision to a small number of subordinates. Specifically, branching hierarchies put people into small groups, each member of which reports information to the same supervisor. That supervisor is likewise a member of a small group that reports to a superior and so on up to the top.[19] Such an organizational system gets reliable information to the right decisionmaker more efficiently than any other organizational system. Not surprisingly, some form of branching hierarchy therefore tends to be found in most public corporations; they could not make decisions without it.

In addition to its information production and transmission functions, hierarchy also provides an important constraint on agency costs within the firm. Although agents ex post have strong incentives to shirk,[20] ex ante they have equally strong incentives to agree to a corporate contract containing terms designed to prevent

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17. *See, e.g.*, OLIVER E. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM 45-46 (1985) (quoting Herbert Simon to the effect that economic actors are "intendedly rational, but only limitedly so"); Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051, 1075-76 (2000) (locating bounded rationality within a behavioral science framework); *see generally infra* Part III (discussing the phenomenon of bounded rationality).

18. *See generally* CLARK, *supra* note 7, at 801-16 (offering a detailed defense of corporate hierarchies).

19. No implication is intended that information is always funneled to the top of the hierarchy or that all decisions are made there. To the contrary, all corporate hierarchies are characterized by a degree of decentralization of decisionmaking, with numerous decisionmakers at various levels within the hierarchy being tasked with particular areas of responsibility. Indeed, firms most appropriately might be described as a set of many overlapping hierarchies. Roy Radner, *Hierarchy: The Economics of Managing*, 30 J. ECON. LITERATURE 1382, 1412 (1992). The point is only that branching hierarchies are an efficient means of ensuring that information flows to the correct supervisor.

20. Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305, 308 (1976).

shirking. In any organization, however, the familiar triad of contracting problems—uncertainty, complexity, and opportunism—precludes the organization and its agents from entering into the complete contract necessary to prevent shirking by the latter.[21] In large organizations, these transaction cost barriers to contracting are compounded by the equally familiar litany of collective action problems. Accordingly, organizations rely not on ex ante contracting but on ex post governance—creating mechanisms for detecting and punishing shirking. Specifically, managers of such organizations are tasked with monitoring the organization's members: management meters the marginal productivity of each member and responds as necessary to prevent shirking.[22]

Hierarchy's contribution to the monitoring function is especially evident in the most important form of business organization: the M-form corporation. Such firms have two defining characteristics: many distinct operating units and management by a hierarchy of salaried executives.[23] The board of directors delegates responsibility to top management and monitors its performance. The top managers in the firm's central office delegate responsibility to managers of operating units. In turn, the managers of each operating unit are responsible for monitoring the productivity of their unit. The process continues down to the foreman on the shop floor. Creating such a branching hierarchy addresses the problems of uncertainty, bounded rationality, and shirking faced by monitors by breaking the firm team into discrete segments, each of which is more readily monitored than the whole. At each hierarchical level, the responsible monitor is responsible for supervising only a few individuals, which usefully limits and focuses his task.

Despite the clear advantages to the public corporation of authority-based decisionmaking and hierarchical governance, at the apex of that hierarchy is not a single autocrat, but rather a multimember body that usually functions by consensus. To be sure, it is often said that, in the real world, boards are captured by senior management. According to this view, "managers dominate their boards by using their de facto power to select and compensate direc-

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21. *See generally* OLIVER E. WILLIAMSON, THE MECHANISMS OF GOVERNANCE 37 (1996) (opining that the lesson of bounded rationality is that "all complex contracts are unavoidably incomplete" (emphasis omitted)).

22. Armen A. Alchian & Harold Demsetz, *Production, Information Costs, and Economic Organization*, 62 AM. ECON. REV. 777, 782 (1972).

23. ALFRED D. CHANDLER, JR., THE VISIBLE HAND: THE MANAGERIAL REVOLUTION IN AMERICAN BUSINESS 1 (1977).

tors and by exploiting personal ties with them."[24] Even with that caveat, however, it seems useful to think of the board as a production team.[25]

What then does the board produce and how does it produce it?[26] First and foremost, the board monitors and disciplines top management.[27] Second, while boards rarely are involved in day-to-day operational decisionmaking, most boards have at least some managerial functions. Broad policymaking is commonly a board prerogative, for example. Even more commonly, however, individual board members provide advice and guidance to top managers with respect to operational and/or policy decisions. Finally, the board provides access to a network of contacts that may be useful in gathering resources and/or obtaining business. Outside directors affiliated with financial institutions, for example, apparently facilitate the firm's access to capital.[28]

The extent to which boards actually monitor management and effectively discipline subpar performance has been the subject of considerable dispute. As noted, conventional wisdom asserts that boards are captured by senior management. The board capture

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24. Barry Baysinger & Robert E. Hoskisson, *The Composition of Boards of Directors and Strategic Control: Effects on Corporate Strategy*, 15 ACAD. MGMT. REV. 72, 72-73 (1990).

25. Production teams (a/k/a work groups) are defined conventionally as "a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, [and] who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems . . . ." Susan G. Cohen & Diane E. Bailey, *What Makes Teams Work: Group Effectiveness Research from the Shop Floor to the Executive Suite*, 23 J. MGMT. 239, 241 (1997); *see also* Kenneth L. Bettenhausen, *Five Years of Groups Research: What We Have Learned and What Needs to Be Addressed*, 17 J. MGMT. 345, 346 (1991) (defining teams as "intact social systems that perform one or more tasks within an organizational setting").

Williamson's industrial organization matrix identifies two forms such teams may take: primitive and relational. In both, team members perform nonseparable tasks. WILLIAMSON, *supra* note 17, at 246-47. They are distinguished by the degree of firm-specific human capital possessed by such members. *Id.* In primitive teams, workers have little such capital; in relational teams, they have substantial amounts. *Id.* Most boards probably qualify as relational teams.

26. The following analysis tracks the taxonomy suggested by Johnson who map "directors' responsibilities into three broadly defined roles . . . labeled control, service, and resource dependence." Jonathan L. Johnson et al., *Boards of Directors: A Review and Research Agenda*, 22 J. MGMT. 409, 411 (1996). A similar taxonomy was adopted by Langevoort, *supra* note 3, at 801-05. Other taxonomies could be devised, of course. For example, Dallas adopts a two component taxonomy distinguishing between the board's monitoring and "relational" roles. Lynne L. Dallas, *Proposals for Reform of Corporate Boards of Directors: The Dual Board and Board Ombudsperson*, 54 WASH. & LEE L. REV. 91, 98-104 (1997).

27. *See* Bayless Manning, *The Business Judgment Rule and the Director's Duty of Attention: Time for Reality*, 39 BUS. LAW. 1477, 1494 (1984) (arguing that the board's role "does not consist of taking affirmative action on individual matters; it is instead a continuing flow of supervisory process, punctuated only occasionally by a discrete transactional decision").

28. Johnson et al., *supra* note 26, at 427-28 (summarizing studies supporting the hypothesis that board membership is used to facilitate access to capital).

phenomenon, however, seems less valid today than it once was. Modern CEOs are constrained both from below, by other members of the top management team, and from above, by the board.[29]

During the 1980s and 1990s, several trends coalesced to encourage more active and effective board oversight. Much director compensation is now paid in stock, for example, which helps align director and shareholder interests.[30] Courts have made clear that effective board processes and oversight are essential if board decisions are to receive the deference traditionally accorded to them under the business judgment rule, especially insofar as structural decisions are concerned (such as those relating to management buyouts).[31] Third, director conduct is constrained by an active market for corporate control, ever-rising rates of shareholder litigation, and, some say, activist shareholders.[32] As a result, modern boards of directors typically are smaller than their antecedents, meet more often, are more independent from management, own more stock, and have better access to information. These developments culminated in a series of high-profile board revolts against incumbent managers at such iconic American corporations as General Motors, Westinghouse, and American Express.[33] More recently, the firing of "Chainsaw Al" Dunlap by Sunbeam's board provides yet more anecdotal evidence of board activism.[34]

As boards become stronger and more independent of top management, moreover, the process builds momentum. For example, Westphal and Zajac have demonstrated that as board power increases relative to the CEO—measured by such factors as the

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29. For a review of research on top management teams, see Cohen & Bailey, *supra* note 25, at 265-76.

30. Charles M. Elson, *Director Compensation and the Management-Captured Board: The History of a Symptom and a Cure*, 50 SMU L. REV. 127, 134-35 (1996).

31. *See* Stephen M. Bainbridge, *Independent Directors and the ALI Corporate Governance Project*, 61 GEO. WASH. L. REV. 1034, 1068-81 (1993) (describing how judicial review of management buyouts and other conflict of interest transactions focus on role of independent directors).

32. *See* Forbes & Milliken, *supra* note 6, at 489. For a review of the literature on the corporate governance role of institutional investors generally and board reform specifically, see Johnson et al., *supra* note 26, at 414-16. For skepticism as to the merits and likely sustainability of institutional investor activism, see Stephen M. Bainbridge, *Constraints on Shareholder Activism in the United States and Slovenia*, *at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=228780 (May 17, 2000); Stephen M. Bainbridge, *The Politics of Corporate Governance*, 18 HARV. J.L. & PUB. POL'Y 671, 693-733 (1995).

33. *See* Ira M. Millstein, *The Evolution of the Certifying Board*, 48 BUS. LAW. 1485, 1488-90 (1993).

34. In most cases, of course, board oversight tends to be both less dramatic and more informal. Individual directors pass concerns onto the CEO, who in turn bounces ideas off board members. Rather than struggling to overcome the collective action problems that impede firing a CEO, an individual director tries to obtain better performance through a private reprimand.

percentage of insiders and whether the CEO also served as chairman—newly appointed directors become more demographically similar to the board.[35] In any event, the institutional structure created by corporate law allows, but does not contemplate, one-man rule. If it comes to overt conflict between the board and top management, the board's authority prevails as a matter of law, if not always in practice. Indeed, it is the necessity for retaining dismissal of senior management as a potential sanction that explains why the board is at the apex of the corporate hierarchy rather than functioning as an advisory committee off to the side of the corporate organizational chart.[36]

Whatever side one takes in this debate as an empirical matter, conceptualizing the board as a production team has important theoretical implications. The effort of an individual can be measured. How hard does he or she work? An individual's output is also observable, at least by proxy. How well has the firm performed under his or her stewardship? In contrast, monitoring the work of a production team is more difficult. In team production, inputs (e.g., effort) are difficult to measure and, because team tasks typically are nonseparable, individual output is not readily observable. The monitoring mechanisms applicable to a single individual thus are largely irrelevant as applied to a team. Instead, agency costs are constrained in the team setting mainly by internal team governance structures.[37]

In light of these monitoring problems, corporate law's preference for a collegial decisionmaking body rather than an individual autocrat seems puzzling. Yet, it gets worse. First, members of a production team often develop idiosyncratic working relationships with one another. In a sense, team members develop not only firm-specific human capital, but also team-specific human capital. Sanctions such as dismissal that disrupt these intrateam relationships thus may result in a substantial loss of efficiency.

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35. James D. Westphal & Edward J. Zajac, *Who Shall Govern? CEO/Board Power, Demographic Similarity, and New Director Selection*, 40 ADMIN. SCI. Q. 60, 78 (1995) (cautioning that CEO control over director selection remains the general rule).

36. One can imagine a structure of corporate authority identical to current norms except that the board acts as a mere advisory body to a single autocratic CEO. On the face of it, such a structure seemingly would preserve most of the informational and relational advantages of the current structure. Consequently, it is the board's power to hire and fire senior management that explains its position at the apex of the corporate hierarchy.

37. *See infra* Part IV.

Second, the phenomenon known as social loafing[38] strongly suggests a preference for individual rather than multiple decisionmakers. In a famous 1913 study which measured how hard subjects pulled a rope, members of two-person teams pulled to only ninety-three percent of their individual capacity, members of trios pulled to only eighty-five percent, and members of groups of eight pulled to only forty-nine percent.[39] This phenomenon is partially attributable to the difficulty of coordinating group effort as size increases. (Too many cooks spoil the soup.) Social loafing is also attributable, however, to the difficulty of motivating members of a group where identification and/or measurement of individual productivity are difficult[40]—i.e., where the group functions as a production team. While board decisionmaking differs rather dramatically from tug-of-war, members of a multimember board likely engage in a certain amount of social loafing. To be sure, unlike a team in a tug-of-war game, board members probably do not get into each other's way. Accordingly, it is unlikely that there will be physical coordination problems. Yet because social loafing is also attributable to the difficulty of motivating members of a team with nonseparable outputs and nonobservable inputs,[41] it nevertheless can be expected with respect to the workings of a relational team like the board.

If board-based governance is a useful construct, there must be countervailing considerations that make group decisionmakers preferable to individuals. Further, it must be demonstrated that groups are likely to be more effective decisionmakers in settings analogous to those in which boards operate. If so, the economics (and/or psychology) of group decisionmaking may shed light on a variety of legal issues relating to the board's function as a production team.

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38. *See* Bibb Latané et al., *Many Hands Make Light the Work: The Causes and Consequences of Social Loafing*, 37 J. PERSONALITY & SOC. PSYCHOL. 822, 828-32 (1979).

39. David A. Kravitz & Barbara Martin, *Ringelmann Rediscovered: The Original Article*, 50 J. PERSONALITY & SOC. PSYCHOL. 936, 938 (1986).

40. Bettenhausen, *supra* note 25, at 360-61.

41. Group settings that involve task nonseparability both prevent supervisors from evaluating individual performance and limit the ability of workers to obtain individual feedback, thereby diminishing the reinforcing effects of praise and criticism. *See* Kate Szymanski & Stephen G. Harkins, *Social Loafing and Self-Evaluation with a Social Standard*, 53 J. PERSONALITY & SOC. PSYCHOL. 891, 891 (1987) (stating that "individual outputs were 'lost in the crowd,' and participants could receive neither credit nor blame for their performances").

III. WHY A BOARD? GROUP VERSUS INDIVIDUAL DECISIONMAKING

Acting alone, an individual director "has no power of his own to act on the corporation's behalf, but only as one of the body of directors acting as a board."[42] Moreover, as the MBCA puts it, "directors may act only at a meeting unless otherwise expressly authorized by statute."[43] Why this emphasis on collective rather than individual action?

The MBCA's drafters offer the following answer: "The underlying theory is that the consultation and exchange of views is an integral part of the functioning of the board."[44] Or, as Forbes and Milliken opine, "The very existence of the board as an institution is rooted in the wise belief that the effective oversight of an organization exceeds the capabilities of any individual and that collective knowledge and deliberation are better suited to this task."[45] These arguments run afoul of the old joke that a camel is a horse designed by a committee, but they find considerable support in the literature on individual versus group decisionmaking.

A. Groups Versus Individuals: Experimental Evidence

Experimental psychologists and economists have found that group decisionmaking, under certain circumstances, can be superior to decisionmaking by individuals. Indeed, numerous studies have found that group decisions are not only superior to those of the average member, but also to those made by the very best individual decisionmakers within the group. Because this literature has received little attention in legal scholarship, the following discussion recounts in some detail the findings of leading experiments conducted by several generations of researchers.

In the 1930s, Shaw conducted a classic experiment in which four-person teams of undergraduates solved various problems with single, self-confirming solutions (so-called "Eureka" problems). One set of problems involved three variants on the classic missionaries and cannibals game.[46] The other set of problems required subjects

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42. RESTATEMENT (SECOND) OF AGENCY § 14C cmt. b (1958).

43. MODEL BUS. CORP. ACT ANN. § 8.20 cmt. (1984 & Supp.).

44. *Id.*

45. Forbes & Milliken, *supra* note 6, at 490.

46. In this game, subjects were given three disks representing missionaries and three disks representing cannibals. The missionaries and cannibals are on one side of a river. The decisionmaker must get all six to the other side of the river using a boat that can only carry two disks at a time. All missionaries and one cannibal can row. Cannibals must never outnumber missionar-

to solve two word puzzles and another involving spatial relationships. The proportion of correct solutions was significantly higher in a sample of groups than in a sample of individuals working alone.[47]

A much more recent study, with a radically different design, yielded comparable findings. In an article critical of their fellow economists for paying too little attention to group decisionmaking, Blinder and Morgan report a pair of laboratory experiments demonstrating that group decisionmaking is superior to that of individuals.[48] The first experiment involved a purely statistical problem requiring even less exercise of critical judgment than Shaw's Eureka problems. In this experiment—intended to replicate situations in which decisionmakers must choose between acting or waiting for new information—students were presented with computer-generated urns containing an equal number of blue and red balls. They were told that at some point in the experiment the composition would shift either to seventy percent red and thirty percent blue or vice versa. Students were allowed to draw up to forty balls from the urn, having been told that the change would occur after one of the first ten draws. Students earned points for correctly guessing the direction in which the composition had changed. In order to measure the speed of decisionmaking as well as its accu-

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ies in any location for obvious reasons, albeit politically incorrect ones. *See* Marjorie E. Shaw, *A Comparison of Individuals and Small Groups in the Rational Solution of Complex Problems*, 44 AM. J. PSYCHOL. 491, 492-93 (1932) (describing problems).

47. *Id.* at 496-504 (summarizing results). Some subsequent researchers claimed Shaw's data did not conclusively establish group superiority. In reviewing Shaw's data, they claimed that Shaw's groups rarely exceeded, and often fell short of, a theoretical baseline for predicting group performance. *See* Frederick C. Miner, Jr., *Group Versus Individual Decision Making: An Investigation of Performance Measures, Decision Strategies, and Process Losses/Gains*, 33 ORGANIZATIONAL BEHAV. & HUM. PERFORMANCE 112, 114 (1984) (summarizing argument). Consequently, they claimed, rather than being a more efficient way of making decisions, group decisionmaking suffered from a phenomenon referred to as "process loss." *Id.*

In order for board-based governance to be preferred to that of a single autocrat, of course, group performance need only be superior to that of individuals, it need not be optimal relative to some theoretical model. The baselines used by Shaw's critics, moreover, are problematic with respect to choosing between individual and group decisionmaking outside the laboratory. Two commonly used baselines are the performance of the best individual member of the group and statistical pooling of individual performances. Both require individual pretests unlikely to occur in the real world. Consequently, "such indicators should not be used to prescribe one process over another since they are posterior indicators of performance" that are not discernable by decisionmakers. Miner, *supra*, at 114. Perhaps a more substantial criticism, because many studies finding groups to be superior also used individual pretests, is that many studies dispute these findings, concluding that interacting groups outperform both baselines. *See infra* notes 89-114.

48. ALAN S. BLINDER & JOHN MORGAN, ARE TWO HEADS BETTER THAN ONE?: AN EXPERIMENTAL ANALYSIS OF GROUP VS. INDIVIDUAL DECISIONMAKING (Nat'l Bureau of Econ. Research, Working Paper No. 7909, 2000), *at* http://www.nber.org/papers/w7909.

racy, students were penalized for each draw made after the urn had changed composition.[49] The subjects were given an incentive by linking their compensation to their score. Groups of five undergraduate students were pretested by playing the game individually. Then each set of five played the game as a group permitted to communicate freely. Three further rounds followed: individual play, group play using the opposite decision rule from that used in the first group round, and a final round of individual play.[50]

In this experiment, Blinder and Morgan tested two hypotheses of interest for our purposes.[51] First, they sought to determine whether groups would make decisions more slowly than individuals. Using the number of draws following the actual change in composition as the measurement of decision lag, they found that groups actually made decisions faster than individuals. The difference, however, was not statistically significant.[52] Of course, the absence of a statistically significant difference between the speed of individual and group decisionmaking is itself highly relevant, because it tends to disprove the common intuition that it takes groups longer to make decisions.

Second, Blinder and Morgan asked whether groups made better decisions. On average, group scores were 3.7% higher than individual scores, which was a statistically significant difference.[53] Because scores reflected both speed and accuracy, Blinder and Morgan also looked at whether the groups or individuals were more likely to have correctly guessed the direction in which the urn's composition shifted. Groups got it right 89.3% of the time, while individuals did so only 84.3% of the time. This difference also was statistically significant.[54]

Blinder and Morgan acknowledge the artificiality of this setting but contend that it allowed them "to isolate the pure effect of individual versus group decision-making."[55] The extent to which one can rely on laboratory experiments is a pervasive problem in ex-

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49. *Id.* at 6-8.

50. *Id.* at 9-11. A learning effect was noted in early rounds. *Id.* at 18. As to whether the ordering of the experimental design affected the outcome, see *id.* at 20-21.

51. In addition, they tested whether unanimity or majority rule was superior. *Id.* at 16. There was no statistically significant difference as to either score or accuracy between unanimous and majority rule. *Id.*

52. *Id.* at 13. The use of draws rather than elapsed clock time as a measurement of lag, of course, complicates efforts to generalize Blinder and Morgan's findings to the board setting, where time is often of the essence.

53. *Id.* at 15.

54. *Id.*

55. *Id.* at 6.

perimental economics and psychology.[56] Indeed, some critics call into question the validity of the entire enterprise. Judge Posner, for example, relied on this tactic in critiquing the somewhat similar experiments used to demonstrate the endowment effect:

> Most individuals, including virtually all university students—the principal experimental subjects of behavioral economics, which relies much more heavily than standard economics does on experiments—are buyers but not sellers. When we do have something to sell, we usually sell through middlemen, such as real estate brokers, rather than directly to the ultimate consumer. Experimental situations in which the subjects are asked to trade with each other are artificial, and so we cannot have much confidence that the results generalize to real markets.[57]

Fair enough—the behavior of undergraduates swapping coffee mugs probably does not tell us very much about the behavior of institutional investors buying IPO stocks in the primary capital market. Yet such criticisms are neither original to Posner nor even new. Both cognitive psychologists and experimental economists long have acknowledged "the artificial nature of the groups, tasks, or settings in which the research has been conducted."[58] Some of the studies recounted herein address aspects of the problem by using MBA students or managerial personnel instead of undergraduates.[59] In addition, some of the evidence recounted in this Article is taken from studies of real-world groups, such as work teams within business firms. In any case, where empirical data is hard to obtain, experimental data are surely better than nothing. Given the universality of boards of directors in public corporations, the wide variety of board roles and functions, and the difficulty of collecting useful empirical data on boards, the present context seems to be just such an area.[60]

Returning to the data, Blinder and Morgan's second experiment required somewhat greater expertise and arguably somewhat greater exercise of critical judgment. Students with at least one un-

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56. *See* Jennifer Arlen, *Comment: The Future of Behavioral Economic Analysis of Law*, 51 VAND. L. REV. 1765, 1769 (1998) ("[W]e cannot be confident an observed bias really does affect actual decisions—as opposed to being simply an artifact of experimental design—until we can explain why the bias exists.").

57. Richard A. Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 STAN. L. REV. 1551, 1566 (1998).

58. Larry K. Michaelsen et al., A *Realistic Test of Individual Versus Group Consensus Decision Making*, 74 J. APPLIED PSYCHOL. 834, 834 (1989).

59. Consistent with Posner's critique, one study using managerial personnel as its subjects found that group performance was inferior to that of individuals. *See* John P. Campbell, *Individual Versus Group Problem Solving in an Industrial Sample*, 52 J. APPLIED PSYCHOL. 205, 209 (1968).

60. *Cf.* Forbes & Milliken, *supra* note 6, at 492 ("Because of the strictly confidential and highly interpretive nature of board activity, it is likely to be extremely difficult for researchers to measure the task performance of boards in ways that are both reliable and comprehensive.").

dergraduate course in macroeconomics were presented with a computer-generated model requiring them to make economic policy decisions. Specifically, students were required to set interest rates so as to meet both inflation and unemployment targets.[61] As with the urn experiment, individual and group play rounds alternated.

Again, there was no statistically significant difference in the speed with which groups and individuals made decisions.[62] Again, group scores were higher than individual scores.[63] Notably, when subjects acted alone, the "ersatz monetary policymakers moved interest rates in the wrong direction" more often than did groups.[64]

One significant finding is that the average performance of the five individuals making up the group had almost no explanatory power with respect to how well the group performed.[65] Even more striking, the performance of the best member of the group did not predict group performance.[66] As we shall see in the next section, these findings take on considerable importance in evaluating the merits of decisionmaking by interacting groups.

In sum, Blinder and Morgan conclude "two heads—or, in this case, five—are indeed better than one. Society is, in that case, wise to assign many important decisions to committees."[67] Still, Blinder and Morgan's research cannot conclusively establish that society is wise to assign corporate decisionmaking to boards rather than individuals. Their experiments relied on dichotomous decision tasks, merely requiring subjects to make probabilistic estimates using simplistic decisionmaking processes.[68]

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61. BLINDER & MORGAN, *supra* note 48, at 23-28.
62. *Id.* at 30-31.
63. *Id.* at 32.
64. *Id.* at 33.
65. *Id.* at 41.
66. *Id.* at 46.
67. *Id.* at 47.
68. One early literature review identified several categories of decision tasks experimenters had studied, with the following results: (1) learning and concept-attainment tasks, at which groups are consistently superior to individuals, Gayle W. Hill, *Group Versus Individual Performance: Are N + 1 Heads Better than One?*, 91 PSYCHOL. BULL. 517, 520-22 (1982); (2) concept mastery and creativity tasks, at which groups tended to outperform individuals, although some studies found that groups did not outperform their best members, *id.* at 522-23; (3) abstract problem solving, such as Shaw's experiment, in which the extent to which groups outperform even their best member increases with the complexity of the problem, *id.* at 524-25; (4) brainstorming over abstract problems, with no single correct answer, at which statistically created groups outperform actual groups, *id.* at 525-27; (5) complex problems, such as the winter survival exercise, at which groups outperform individuals but did not exceed baseline measurements of potential created by statistical pooling, *id.* at 527-29.

Studies of the sort conducted by Shaw or Blinder and Morgan thus are of somewhat limited utility with respect to corporate governance. Most board decisionmaking does not involve problems with a single correct solution, let alone a self-confirming one. Instead, relevant experiments are those requiring the creative exercise of evaluative judgment with respect to complex problems having a range of solutions. Unfortunately, many experiments in this area focus on descriptive rather than evaluative judgments.[69]

In contrast, Miner devised an experiment explicitly intended to test the ability of groups to exercise evaluative judgment vis-à-vis that of individuals. Miner's experiment required sixty-nine self-selected groups, each composed of four undergraduate business students, to solve the so-called winter survival exercise. This exercise, which is variously attributed, has become something of a benchmark standard in the field. The subject group is told that they are survivors of an airplane crash at a remote location. They first must decide whether to walk out or remain at the crash site. They then must rank the utility of fifteen survival aids. In Miner's case, a group of four military winter survival experts was used to validate the exercise's purported correct solution.[70]

Although Miner's experiment does not directly implicate corporate governance, it has certain instructive features. First, it used business students, who presumably resemble corporate directors more closely than other plausible experimental subjects. Second, the subjects knew one another before becoming members of the group and were allowed to form their own groups, both of which somewhat replicate the process by which boards form. Finally, and most importantly, the subjects shared a single goal (i.e., survival). Granted, the experiment thus did not require them to aggregate preferences as to which there might be value differences, but rather to pool their collective knowledge and use that knowledge to evaluate alternatives in light of the shared goal. If we assume that directors generally share a primary goal of shareholder wealth maximization, however, this experimental condition also replicates corporate governance.[71]

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69. Miner, *supra* note 47, at 114-15.

70. *See id.* at 116-17 (describing experiment).

71. Admittedly, the assumption that directors pursue shareholder wealth maximization is contested. *See generally* Stephen M. Bainbridge, *In Defense of the Shareholder Wealth Maximization Norm: A Reply to Professor Green*, 50 WASH. & LEE L. REV. 1423, 1434-35 n.39 (1993) (contending that corporate managers' training and socialization lead them to internalize shareholder wealth maximization as a decisionmaking norm). Obviously, Miner's results are less instructive with respect to board decisions involving conflicted interests.

Even the limitations of Miner's study bear some resemblance to corporate boards, at least insofar as outsider-dominated boards are concerned. Student subjects bring to the task only general human capital, and the experimental design cannot capture any equivalent to firm-specific human capital. Yet, outside directors accumulate significant firm-specific knowledge and human capital only after very long tenure. The subjects also had relatively little stake in the outcome, but many outside directors likewise lack a direct economic stake in the firm.[72]

Miner found that group rankings were more accurate than those of the average individual subject.[73] Group rankings, however, tended to be less accurate than those of the best decisionmaker within each group.[74] At first blush, Miner's results suggest a preference for individual decisionmaking, but the ability to identify the "best" individual decisionmaker is solely an artifact of the experimental design. Individual evaluations could be scored by comparison to the correct solution and ranked by the experimenter. Yet as discussed below, identifying a superior decisionmaker is far more problematic in the real world.

Hiltz, Johnson, and Turoff ("the Hiltz group") also conducted an experiment using the winter survival scenario, although apparently not in an effort to replicate Miner's study (which they do not even cite).[75] Their results even more clearly favor the superiority of group decisionmaking. Of the sixteen groups studied, eleven produced better decisions as a group than any of their individual members were able to make in a pretest, one equaled the performance of its best member, and the remainder did worse than their best individual. Comparable results were obtained by other researchers who replicated their experimental design.[76]

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72. *See* Haft, *supra* note 7, at 11. This is less true than it was when Haft wrote, due mainly to the increased use of stock-based compensation. *See supra* note 30 and accompanying text. In addition, Haft overlooked the reputational and other nonpecuniary stakes the director has in firm performance. *See* Bainbridge, *supra* note 31, at 1059-60 (discussing incentive structure faced by independent directors). On balance, however, the point probably remains a fair one.

73. Miner, *supra* note 47, at 118. Miner's results were replicated by Roger J. Volkema & Ronald H. Gorman, *The Influence of Cognitive-Based Group Composition on Decision-Making Process and Outcome*, 35 J. MGMT. STUD. 105, 114 (1998).

74. Miner, *supra* note 47, at 118; *see also* Ernest J. Hall et al., *Group Problem Solving Effectiveness Under Conditions of Pooling vs. Interaction*, 59 J. SOC. PSYCHOL. 147, 152 (1963) (finding that the best individual performance was equal to or exceeded that of the group in seventeen of twenty-two cases).

75. *See* Starr Roxanne Hiltz et al., *Experiments in Group Decision Making: Communication Process and Outcome in Face-to-Face Versus Computerized Conferences*, 13 HUM. COMM. RES. 225, 231 (1986).

76. *Id.* at 225.

In sum, groups appear to outperform their average member consistently, even at relatively complex tasks requiring exercise of evaluative judgment. There is contested evidence as to whether groups outperform their best member, which the next section evaluates in more detail. Accordingly, it seems fair to conclude that group decisionmaking often is preferable to that of individuals. In addition to the specific studies recounted above, which are corroborated by those described in following sections, a number of comprehensive literature reviews confirm that conclusion.[77] Corporate law's strong emphasis on collective decisionmaking by the board thus seems to have a compelling efficiency rationale.

B. Why Are Groups Superior?

Assuming group decisionmaking is advantageous, why might that be so? Surprisingly, the behavioral literature on group decisionmaking frequently offers quite rudimentary theories as to why groups outperform individuals. One contribution of the present research is its use of new institutional economics to develop a theory of group superiority that can be related to corporate law issues.

In this section, we consider three answers to that question. These explanations are complementary, not competing, and overlap to a considerable degree. Yet it nonetheless seems helpful to break them out individually. Among other reasons, separate treatment helps identify the circumstances under which group decisionmaking is most likely to be preferable to that of individuals.

1. Bounded Rationality

Decisionmaking requires the use of scarce resources for four purposes: (1) observation, or the gathering of information; (2) memory, or the storage of information; (3) computation, or the manipulation of information; and (4) communication, or the transmission of information.[78] How do groups minimize these transaction costs vis-à-vis individual decisionmakers? Multiple sources of information may make it less costly to gather information, but it seems unlikely that directors qua directors do much to facilitate the observation process. Any such savings, moreover, likely are offset by increased communication costs. By decentralizing both access to information

77. *See supra* note 68; *infra* note 98.

78. Roy Radner, *Bounded Rationality, Indeterminacy, and the Theory of the Firm*, 106 ECON. J. 1360, 1363 (1996).

and decisionmaking power, group decisionmaking requires additional resources.

If groups have an advantage relevant to the institution of the board of directors, it therefore seems most likely to arise with respect to either memory and/or computation. As to the former, groups develop a sort of collective memory that consists not only of "the sum of individual memories, but also the awareness of who knows what."[79] Consequently, institutional memory is superior when the organization is structured as a set of teams rather than as a mere aggregate of individuals. There is some laboratory evidence, moreover, that the collective memory of groups leads to higher quality output. Group members, for example, seem to specialize in memorizing specific aspects of complex repetitive tasks.[80]

In a particularly striking demonstration of this phenomenon, Vollrath, Sheppard, Hinsz, and Davis ("the Vollrath group") used a mock trial scenario to test group versus individual memory. Subjects listened to a tape-recorded mock trial for assault and then were tested to determine how well they recalled facts presented. Group memory was superior to that of individuals as to accuracy, volume of information retained, ability to reproduce testimony verbatim, and even the order in which information was presented.[81]

As to the relationship between group decisionmaking and computation-based costs, the key question is whether board decisionmaking is an efficient adaptive response to the problem of bounded rationality. Neoclassical rational choice theory assumes that individuals act so as to maximize their expected utility, acknowledging no cognitive limits on their power to do so.[82] In contrast, both behavioral and new institutional economics posits that the limitations of human cognition often result in decisions that fail to maximize utility.[83] Hence, the phenomenon of "bounded rationality,"[84] which asserts that all humans have inherently limited memories, computational skills, and other mental tools.

Bounded rationality becomes a particularly significant constraint on decisionmaking under conditions of complexity and uncertainty. A problem may be complex either because it involves

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79. Cohen & Bailey, *supra* note 25, at 259.

80. *Id.*

81. David A. Vollrath et al., *Memory Performance by Decision-Making Groups and Individuals*, 43 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 289, 298 (1989).

82. Korobkin & Ulen, *supra* note 17, at 1075-76.

83. *See supra* text accompanying note 17.

84. The term bounded rationality was coined by Herbert Simon. *See* HERBERT A. SIMON, *Rationality and Administrative Decision Making*, *in* MODELS OF MAN 196, 196-98 (1957).

many options, or because a limited number of initial options cascade into a decision tree with many branches. A closely related problem is that of ambiguity, or uncertainty, which exists when decisionmakers are uncertain about the content of the alternatives available to them or otherwise lack the information necessary to make an optimizing choice.

Under conditions of uncertainty and complexity, bounded rational decisionmakers are unable to devise either a fully specified solution to the problem at hand or to assess fully the probable outcomes of their action.[85] In effect, cognitive power is a scarce resource that the inexorable laws of economics tell us decisionmakers will (to the best of their ability) seek to allocate efficiently. Consistent with that prediction, there is evidence that actors attempt to minimize effort in the face of complexity and ambiguity.[86] Ironically, this is a rational adaptation to bounded rationality—in response to the limits on their cognitive powers, decisionmakers seek to reduce both the likelihood of error and the costs of decisionmaking.

An actor can economize limited cognitive resources in two ways: first, by adopting institutional governance structures designed to promote more efficient decisionmaking, and second, by invoking shortcuts, i.e., heuristic problem-solving decisionmaking processes. Here we focus on the former approach, positing that group decisionmaking appears in the corporate context when a collective governance structure provides more efficient decisionmaking than would a single individual. Put another way, group decisionmaking may be an adaptive response to bounded rationality, creating a system for aggregating the inputs of multiple individuals with differing knowledge, interests, and skills. In the corporate context, the board of directors thus may have emerged as an institutional governance mechanism to constrain the deleterious effect of bounded rationality on the organizational decisionmaking process.

Does the process of social interaction at least help the cream to rise to the top, so that the group seizes upon the best ideas each member brings to the table? Or does group decisionmaking have even more dramatic effects, such as generating synergies allowing groups to outperform even their best members?

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85. *See* OLIVER E. WILLIAMSON, MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS 23 (1975) (showing that, under conditions of uncertainty and complexity, it becomes "very costly, perhaps impossible, to describe the complete decision tree").

86. *See* Korobkin & Ulen, *supra* note 17, at 1078 (citing studies).

Shaw explained the superiority of groups in her classic experiment on grounds that multimember teams balance individual biases and detect errors by individuals.[87] Proposed solutions put forward by one member of the group were three times more likely to be rejected by another group member than by the initial proponent of that solution. Among the proposals put forward, moreover, five times as many incorrect solutions were rejected as were correct ones. Accordingly, she concluded that "one point of group supremacy is the rejection of incorrect ideas that escape the notice of the individual when working alone."[88]

Shaw's analysis, of course, is more in the way of informed intuition than an explicit quantitative analysis of how social interaction affects group versus individual performance. Closer to the mark is an interesting study by Hall, Mouton, and Blake ("the Hall group"). At that time, in 1963, the apparent superiority of group decisionmaking was commonly hypothesized to be an artifact of statistical pooling.[89] One could create a statistical group by pooling (averaging) the decisions of multiple individuals. If group interaction had no synergistic effects, the decisions of real groups should not differ significantly from those of such statistically created groups. The Hall group devised an interesting experiment to test this hypothesis.

The Hall group showed their subjects a portion of the classic movie *Twelve Angry Men*. Recall that the holdout juror voting "not guilty" brings the other eleven jurors over to his point of view one-by-one. Acting alone, subjects were asked to predict the order in which the eleven in the majority would capitulate to the minority view. Statistical groups were then created by pooling the individual responses. Subjects were then brought together for group discussion, in which they were asked to reach a unanimous ranking.[90] This is a nice problem for our purposes because it offers a complex issue as to which there is a preferred answer, but not one that is either self-confirming or even objectively correct. The actual groups produced a more accurate score than the average of pooled individual scores, with the difference being statistically significant.[91] The

87. Shaw, *supra* note 46, at 502.

88. *Id.* The Vollrath group likewise found evidence that, as to memory tasks, groups corrected errors by individual members. Vollrath et al., *supra* note 81, at 299. However, they also found evidence of a group polarization effect. *Id.*

89. *See, e.g.*, Irving Lorge & Herbert Solomon, *Two Models of Group Behavior in the Solution of Eureka-type Problems*, 20 PSYCHOMETRIKA 139, 147-48 (1955).

90. *See* Hall et al., *supra* note 74, at 150-51 (describing experiment).

91. *Id.* at 152.

Hall group therefore concluded that group interaction fostered critical evaluation of individual judgments.[92]

As an alternative to the pooling hypothesis, some researchers assert that the apparent superiority of group decisionmaking is merely a function of the ability of one or more members to solve the problem in question. Put another way, interpersonal interactions have no synergistic effect. Instead, group performance is attributable solely to the abilities of the best decisionmaker in the group.[93]

As suggested by the experiments recounted in the preceding section, the evidence on this score is mixed. Miner's results from the winter survival exercise, for example, give some support to the best member rather than the synergy hypothesis.[94] In contrast, recall that the Hiltz group found that groups tend to outperform even their best members in the winter survival exercise.

As between Miner and the Hiltz group, deciding whose results deserve greater credence is difficult. Miner used business students, while the Hiltz group used unspecified undergraduates. Miner also used a larger number of groups than did the Hiltz group. Moreover, while the Hiltz group used a single experimental sequence in which individual pretests preceded group discussion, the order varied in Miner's survey.[95] In addition, Miner's finding is corroborated by the Hall group's, whose results from a different experimental design also tend to support the best member hypothesis.[96] On the other hand, the Hiltz group's results are supported by a number of other studies also using different experimental designs. Their findings, for example, are consistent with those of Blinder and Morgan.[97]

Prior literature reviews have failed to resolve the best member versus synergy debate.[98] Not surprisingly, testing therefore con-

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92. *Id.* at 153.

93. *See, e.g.*, Lorge & Solomon, *supra* note 89, at 140; Norman R.F. Maier & James A. Thurber, *Innovative Problem-Solving by Outsiders: A Study of Individuals and Groups*, 22 PERSONNEL PSYCHOL. 237, 248 (1969) (concluding that a group's product depends on having "one good problem-solver present").

94. *See* Miner, *supra* note 47, at 116-17, 120-22 (noting qualifications, including problems identifying the group's best member).

95. Blinder and Morgan reported slightly significant evidence that the ordering of the rounds mattered. BLINDER & MORGAN, *supra* note 48, at 20-21. Most studies, however, have found that the order of individual versus group actions does not affect the results. Miner, *supra* note 47, at 115.

96. *See supra* note 74.

97. *See* BLINDER & MORGAN, *supra* note 48, at 44-46 (concluding that the best performer explanation for group superiority was not supported by their data).

98. *Compare* Haft, *supra* note 7, at 9-10 (summarizing studies finding that groups generally outperform even their best individuals, *with* James H. Davis, *Some Compelling Intuitions About*

tinues. For example, Yetton and Bottger used the NASA moon problem, which is similar to the arctic survival scenario, to examine the best member hypothesis.[99] Their subject pool mixed mid-level corporate managers and graduate management students. As usual, individuals ranked the survival items and then repeated the task in interacting groups. In one version of the study, individual group members were asked to identify the group's supposed best member. In a second, the group as a whole selected its supposed best member.[100] A number of findings are of interest. First, interacting groups outperformed nominal groups, which tends to disprove the statistical pooling hypothesis, and nominal groups outperformed their average member, which tends to demonstrate group superiority.[101] Second, on average, the true best members of the groups outperformed the groups, although the difference was not statistically significant.[102] This finding thus weakly supports the best member hypothesis. Third, in the version in which individuals acting alone identified the supposed best member of the group, the average score of the supposed best members was below that of interacting groups, which is inconsistent with the best member hypothesis.[103] Fourth, in the version in which the group collectively identified its supposed best member, the groups' average score was higher than that of the supposed best members, but the difference was not statistically significant. The authors hypothesize that the process of identifying the group's supposed best member generates a commitment to implementing the chosen person's solution,[104] which would be consistent with both the best member hypothesis and a social preference for group decisionmaking.

Michaelsen, Watson, and Black ("the Michaelsen group") designed an interesting experiment the results of which suggest that group decisionmaking has synergistic effects. Their sample con-

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Group Consensus Decisions, Theoretical and Empirical Research, and Interpersonal Aggregation Phenomena: Selected Examples, 1950-1990, 52 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 3, 6-8 (1992) (supporting the best member hypothesis). One comprehensive literature review concludes that "group performance was generally qualitatively and quantitatively superior to the performance of the average individual[,]" but that "the performance of one exceptional individual can be superior to that of a committee." Hill, *supra* note 68, at 535.

99. Philip W. Yetton & Preston C. Bottger, *Individual Versus Group Problem Solving: An Empirical Test of a Best-Member Strategy*, 29 ORGANIZATIONAL BEHAV. & HUM. PERFORMANCE 307, 311 (1982).

100. *See id.* (describing experiment).

101. *See id.* at 312-13 (discussing results).

102. *Id.* at 313.

103. *Id.*

104. *Id.* at 318.

sisted of 222 team-learning groups from organizational behavior courses. The subjects devoted the vast majority of class time to problem-solving tasks, some conducted by groups and others individually. Students were randomly assigned to a single group for the entire course, spent at least thirty-two hours working together, and solved a variety of problems. The data collected were scores from objective tests taken throughout the semester. The tests were taken first as individuals and then as a group. Both individual and group scores counted towards the grade.[105] The mean group score was 89.9, which exceeded both the mean average individual (74.2) and best individual (82.6) scores.[106] Strikingly, all 222 groups outperformed their average member and 215 of the 222 groups outperformed their best member. Both findings were statistically significant.[107] The Michaelsen group's results thus tend to disprove both the pooling and best member hypotheses, while lending support to the claim that group decisionmaking has synergistic effects.

Note that several features of the Michaelsen group's experimental design replicate certain aspects of board decisionmaking. As with boards, for example, their groups interacted episodically over an extended period. In addition, the task resembled the board's information processing function. Group members were required to elicit information from one another, to evaluate critically that information, and to achieve consensus. Boards must engage in such processes with respect to both their strategic planning and monitoring functions.[108] On the other hand, despite the researchers' efforts to devise tests that required a high degree of cognitive effort, the task at issue here differs from those of boards both in its simplicity and the existence of a single correct answer. Finally, the study also replicates organizational settings by linking both individual and group performance to a significant reward (i.e., higher grades), although the partial separability of the task diverges from the board setting.

My own view is that the best member hypothesis debate does not tell us very much about optimal corporate governance. As noted above, the ability to identify the "best" individual decisionmaker is solely an artifact of the experimental design. In the corporate setting, there are no individual pretests that allow one to identify the

105. *See* Michaelsen et al., *supra* note 58, at 835 (describing experiment).

106. *Id.* at 836.

107. *Id.*

108. *Cf.* Baysinger & Hoskisson, *supra* note 24, at 74 ("Operationally, directors must draw inferences about the merits of top management on the basis of the financial performance of the firm or their direct observations of the decision-making process.").

best decisionmaker in a sample. Many organizational tasks involve team production, moreover, in which task non-separability and the infeasibility of effort monitoring preclude identification of superior decisionmakers.

It is particularly unlikely that a group itself can ex ante accurately identify the best decisionmaker among its members. Bias, information asymmetries, and various collective action problems can all skew selection of the superior individual decisionmaker. Members of subject groups, for example, tend to believe they are superior to other group members.[109] Yet, "all the children in Lake Wobegon cannot really be above average."[110] This so-called overconfidence bias thus likely skews selection of superior decisionmakers. Other constraints on a group's ability to identify correctly its best decisionmaker include status differentials, social norms, and bounded rationality-based flaws in the evaluative process.[111]

Put another way, an advantage of group decisionmaking is that the group is sure to get the benefit of its best decisionmaker. A group that delegates decisions to the individual identified by the group as its best decisionmaker may not do so. Miner's study tested this hypothesis by requiring the subject groups to identify which of their members was the best decisionmaker. With four member groups, of course, random selection would be correct twenty-five percent of the time. Although Miner's groups were slightly more accurate in selecting their best members than random chance, the difference was not statistically significant.[112] If experimental groups cannot accurately identify the best decisionmaker in their midst, as Miner concludes, this finding casts doubt on the ability of shareholders to select an ideal single decisionmaker. Further doubt on that hypothesis is cast by Miner's additional finding that the average quality of group decisions exceeded the average quality of the decisions made by the individuals selected by each group as their best decisionmaker.[113] In contrast, while the Vollrath group is more optimistic about groups' ability to identify their best members, their findings also support a preference for group decisionmaking.[114] On

109. *See* Neil Weinstein, *Unrealistic Optimism About Future Life Events*, 39 J. PERSONALITY & SOC. PSYCHOL. 806, 809-19 (1980) (summarizing studies).

110. Korobkin & Ulen, *supra* note 17, at 1091.

111. Hillel J. Einhorn et al., *Quality of Group Judgment*, 84 PSYCHOL. BULL. 158, 159 (1977).

112. Miner, *supra* note 47, at 120.

113. *Id.* at 118.

114. *See supra* text accompanying note 104.

balance, accordingly, it seems likely that shareholders are better off with a committee than with an individual.

2. Individual Versus Group Decisionmaking Biases

Research in behavioral economics has identified a number of pervasive cognitive errors that bias decisionmaking.[115] According to the proponents of behavioral economics, these biases result in behavior that systematically departs from that predicted by the traditional rational choice model.[116]

It is the systematic nature of these biases that is critical. Standard economic analysis recognizes that individual decisionmakers may depart from rationality, but assumes that such departures come out in the wash—they cancel each other out so that the average or equilibrium behavior of large groups will be consistent with rational choice. By asserting that decisionmakers exhibit systematic biases, behavioral economics denies that claim.[117] This literature draws extensively from experimental economics and cognitive psychology, which makes it a close cousin of the work on group versus individual decisionmaking.

Several of the identified decisionmaking biases seem especially pertinent to managerial decisionmaking. Two examples, however, should suffice—namely, herding behavior and the overconfidence bias. In both cases, group decisionmaking may counteract individual biases.

a. Herding

As I have demonstrated elsewhere, the popularity of participatory management among corporate managers owes much to herd

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115. Useful literature reviews include Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1476-79 (1998); Korobkin & Ulen, *supra* note 17, at 1067-68; Donald C. Langevoort, *Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review*, 51 VAND. L. REV. 1499, 1511-18 (1998); Cass R. Sunstein, *Behavioral Law and Economics: A Progress Report*, 1 AM. L. & ECON. REV. 115, 121-46 (1999).

116. The extent to which behavioral economics calls into question more traditional modes of economic analysis remains sharply contested. *See* Stephen M. Bainbridge, *Mandatory Disclosure: A Behavioral Analysis*, 68 U. CIN. L. REV. 1023, 1028, 1059-60 (2000) (arguing that behavioral economics must be used with care). At the very least, however, it seems clear that attention must be paid to the possibility that a behavioral economics analysis might shed light on legal problems. *Id.*

117. Donald C. Langevoort, *Theories, Assumptions, and Securities Regulation: Market Efficiency Revisited*, 140 U. PA. L. REV. 851, 862 (1992).

behavior.[118] Chevalier and Ellison found that young mutual fund managers tend to herd into popular market sectors and conventionally weighted portfolios.[119] Kahan and Klausner contend that herding by lawyers explains the persistence of suboptimal provisions in bond indentures.[120] Accordingly, the possibility that corporate managers herd seems quite plausible.

Herd behavior occurs when a decisionmaker imitates the actions of others while ignoring his own information and judgment with regard to the merits of the underlying decision.[121] Various explanations for herd behavior have been offered, such as the prospect that following the crowd may have a reputational pay-off even if the chosen course of action fails. Because even a good agent can make decisions leading to an adverse outcome, those who evaluate the actor look at both the outcome and the action before forming a judgment about the agent. If a bad outcome occurs, but the action was consistent with approved conventional wisdom, the hit to the manager's reputation from an adverse outcome is reduced.[122] As Keynes famously remarked, "It is better . . . to fail conventionally than to succeed unconventionally."[123] If group decisionmaking provides superior mechanisms for monitoring both the group itself and/or its subordinates, as the next section argues, the incentive to herd is reduced. An agent can depart from conventional wisdom with more confidence that an adverse outcome will be fairly evaluated.

Herding also can be a response to bounded rationality and information asymmetries. Under conditions of complexity and uncertainty, actors who perceive themselves as having limited information and who can observe the actions of presumptively better-informed persons may attempt to free ride by following the latter's decisions. Importantly, this explanation for herding suggests that

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118. *See* Stephen M. Bainbridge, *Privately Ordered Participatory Management: An Organizational Failures Analysis*, 23 DEL. J. CORP. L. 979, 1002-04 (1998). Participatory management is a generic term for any system of industrial relations "purporting to involve employees in workplace decision making," e.g., quality circles and self-directed work teams. *Id.* at 981.

119. Judith Chevalier & Glenn Ellison, *Career Concerns of Mutual Fund Managers*, 114 Q. J. ECON. 389, 409-16 (1999).

120. Marcel Kahan & Michael Klausner, *Path Dependence in Corporate Contracting: Increasing Returns, Herd Behavior, and Cognitive Biases*, 74 WASH. U. L.Q. 347, 348, 353-56 (1996) (positing herding as one of several reasons for that persistence).

121. *See generally* Peter H. Huang, *Herd Behavior in Designer Genes*, 34 WAKE FOREST L. REV. 639, 645-53 (1999) (providing a detailed review of theories of herd behavior).

122. Kahan & Klausner, *supra* note 120, at 356.

123. JOHN MAYNARD KEYNES, THE GENERAL THEORY OF EMPLOYMENT, INTEREST, AND MONEY 158 (1936).

the introduction of new information may alter the equation. Hence, herding motivated by an information asymmetry produces short-lived fads in which consumer preferences prove quite brittle.[124] If group decisionmaking is an efficient adaptation to bounded rationality, as the preceding section argued, the incentive to herd is again diminished.

b. Overconfidence

The old joke about the camel being a horse designed by a committee captures the valid empirical observation that individuals are often superior to groups when it comes to matters requiring creativity.[125] Research on brainstorming as a decisionmaking process, for example, confirms that individuals working alone generate a greater number of ideas than do groups.[126] Strikingly, this is especially true when the assigned task is "fanciful" rather than "realistic."[127]

Although individuals may well be better at devising a brilliant plan, individuals often become wedded to their plans and fail to see flaws that others might identify.[128] As with all decisionmakers, corporate managers likewise become heavily invested in their beliefs, which makes them unable to recognize that those beliefs

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124. David Hirshleifer, *The Blind Leading the Blind: Social Influence, Fads, and Informational Cascades*, *in* THE NEW ECONOMICS OF HUMAN BEHAVIOR 188, 191-93 (Mariano Tammasi & Kathryn Ierulli eds., 1995).

125. *Cf.* CLARK, *supra* note 7, at 110 (asserting that "individuals are often superior at tasks requiring the creation and construction of a coherent, highly integrated plan or project").

126. Hill, *supra* note 68, at 527.

127. *Id.* Three factors might explain why groups are relatively worse at performing tasks requiring creativity or brilliance. First, some brilliant members of a group may proffer brilliant proposals that other members of the group simply fail to appreciate. Because groups decide questions only in ways that achieve a consensus, brilliant ideas which only one or two members of a group appreciate or understand are not likely to be the object of a group consensus. Second, some members of a group may oppose the brilliant proposals of others out of envy. Assuming the brilliant individuals would be singled out for praise or favorable recognition for coming up with the brilliant ideas, some individuals may oppose the ideas simply to prevent the more brilliant individuals from achieving reputational gains over them. Finally, some members of a group may adulterate brilliant proposals with suboptimal amendments simply to exert their authority as a member of the group. Many times, members of a decisionmaking body insist on making a proactive contribution to every matter that comes before the body for resolution. Such members may feel that if they do not personally alter or make a substantive contribution to every solution that their bodies adopt, other members may ignore or disregard their authority. Such members constantly seek to reassert their power by rejecting a proposal unless the body accepts the member's own ideas or amendments even if the original proposal is essentially perfect and needs no amendments.

128. PETER M. BLAU & W. RICHARD SCOTT, FORMAL ORGANIZATIONS 117-21 (1962).

may be biased.[129] The relevance of overconfidence bias to the problem at hand is confirmed by our analysis of the best member hypothesis.[130]

In contrast, there is a widely shared view that groups are superior at evaluative tasks.[131] As we have seen, this intuition is largely confirmed by the winter survival exercise studies, such as those conducted by Miner or the Hiltz group.[132] Group decisionmaking presumably checks individual overconfidence by providing critical assessment and alternative viewpoints, a hypothesis supported by Shaw's analysis of her experimental findings.[133]

The assumption that group decisionmaking constrains overconfident individuals is consistent with the standard account of the board's function. Recall that our taxonomy identified three basic board roles: monitoring, service, and resource gathering. At the core of the board's service role is providing advice and counsel to the senior management team, especially the CEO.[134] At the intersection of the board's service and monitoring roles is the provision of alternative points of view. Put another way, most of what boards do requires the exercise of critical evaluative judgment, but not creativity. Even the board's policymaking role entails judgment more than creativity, as the board is usually selecting between a range of options presented by subordinates. The board serves to constrain subordinates who have become wedded to their plans and ideas, rather than developing such plans in the first instance.

As an admittedly anecdotal example, consider the saga of RJR Nabisco's efforts to develop a smokeless cigarette.[135] As the story goes, management spent millions of dollars on the project. When the board was finally informed, many directors were reportedly angered by management's failure to consult with them beforehand. Their anger was wholly justified, for the smokeless cigarette flopped. Those responsible resigned to avoid being fired. The corporation would have been better served if the board had been advised of the project early in its development. Those responsible seem to

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129. Langevoort, *supra* note 3, at 807.

130. *See supra* notes 109-13.

131. *See* CLARK, *supra* note 7, at 110 (asserting that "small groups are distinctly superior to individuals at revealing the errors and problems associated with proposals put forward by individuals").

132. *See supra* notes 70-76, 94-97 (summarizing studies).

133. *See supra* text accompanying notes 87-88.

134. *See supra* notes 26-28 and accompanying text.

135. The following discussion is based on BRYAN BURROUGH & JOHN HELYAR, BARBARIANS AT THE GATE: THE FALL OF RJR NABISCO 74-77 (1990).

have been wedded to the project, a tendency the board might have been able to counteract.

c. Group Biases

The proposition that group decisionmaking counteracts individual biases obviously overlaps with the claim that group decisionmaking is an adaptive response to bounded rationality. Numerous studies suggest that groups benefit from both pooling information and from providing opportunities for one member to correct another's errors.[136] If so, the benefits of group decisionmaking should be present whether those errors arise from limitations on cognitive powers or biases in the exercise of those powers.

Separating out cognitive biases is useful, however, because it requires us to grapple with evidence that cohesive groups are subject to their own unique cognitive biases.[137] A widely cited example is the so-called risky shift phenomenon. Although we might assume that group decisionmaking has a moderating influence, social dilemma experiments demonstrate that groups actually make more extreme decisions than individuals. In early versions of these experiments, individual subjects were pretested by being presented with a story in which they were featured as the central characters. The story placed them in a familiar social setting and asked them to choose between two options, one of which was described as being the riskier of the two, but also as having a potentially higher return. Small groups were then presented with the same problem and asked to make a collective decision. Groups were significantly more likely to select the riskier option than individuals.[138] Given that individuals tend to be risk averse but that shareholder interests often require risk-preferring decisions, the risky shift phenomenon seems useful on first blush. Unfortunately, later experiments demonstrated that group shifts to greater caution could also be induced.[139] There seems to be a polarizing effect in group decisionmaking, so that post discussion consensus is more extreme than the individual pretest results.[140]

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136. *See* Hill, *supra* note 68, at 533 (summarizing studies).

137. In addition, as discussed *infra* notes 165-70, collective action problems and social loafing limit the effectiveness of groups as a check on individual bias.

138. Davis, *supra* note 98, at 10.

139. *Id.*

140. For discussion of the polarization effect, see Norbert L. Kerr, *Group Decision Making at a Multialternative Task: Extremity, Interfaction Distance, Pluralities, and Issue Importance*, 52 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 64, 88 (1992); Cass R. Sunstein, *Deliberative Trouble? Why Groups Go to Extremes*, 110 YALE L.J. 71, 85 (2000).

The most significant group bias for our purposes, however, is the "groupthink" phenomenon. Highly cohesive groups with strong civility and cooperation norms value consensus more than they do a realistic appraisal of alternatives.[141] In such groups, groupthink is an adaptive response to the stresses generated by challenges to group solidarity. To avoid those stresses, groups may strive for unanimity even at the expense of quality decisionmaking.

To the extent groupthink promotes the development of social norms, it facilitates the board's monitoring function.[142] It may also support other board functions, such as resource acquisition, to the extent that it promotes a sort of esprit de corps. The downside, though, is erosion in the quality of decisionmaking. The desire to maintain group cohesion trumps the exercise of critical judgment. Adverse consequences of groupthink thus include failing to examine alternatives, failing to be either self-critical or evaluative of others, and being selective in gathering information. Studies of meeting behavior, for example, conclude that people tend to prefer options that have obvious popularity.[143]

Boardroom culture encourages groupthink. Boards emphasize politeness and courtesy at the expense of oversight.[144] CEOs foster and channel groupthink through the exercise of their powers to control information flows, reward consensus, and discourage reelection of troublemakers. The groupthink phenomenon therefore demands close attention with respect to a variety of corporate governance issues.[145]

3. Agency Costs

In a sense, the preceding discussion is a special case of the broader agency cost phenomenon. Individuals shirk, sometimes as a rational response to incentives and sometimes because of biased decisionmaking. In either case, group decisionmaking may help constrain those tendencies.

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141. IRVING L. JANIS, VICTIMS OF GROUPTHINK 2-9 (1972) (discussing groupthink).

142. *See infra* notes 162-64 (discussing group norms).

143. Sara Kiesler & Lee Sproull, *Group Decision Making and Communication Technology*, 52 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 96, 96, 110-12 (1992).

144. MICHAEL C. JENSEN, A THEORY OF THE FIRM: GOVERNANCE, RESIDUAL CLAIMS, AND ORGANIZATIONAL FORMS 49-50 (2000).

145. A corporate governance issue to which groupthink is especially relevant is the debate over board composition, but that debate is largely beyond the scope of this Article. *See infra* text accompanying note 156.

Insofar as monitoring is concerned, group decisionmaking has a bidirectional makeup. In the vertical dimension, is a group superior to an individual autocrat as a monitor of subordinates in the corporate hierarchy? In the horizontal dimension, do intragroup governance structures help constrain shirking and self-dealing at the apex of the hierarchy?

a. Vertical Monitoring

Suppose the corporate hierarchy was capped by an individual autocrat rather than a board of directors. Under such circumstances, a bilateral vertical monitoring problem arises. On the one hand, the autocrat must monitor his or her subordinates. On the other hand, someone must monitor the autocrat.

As we have seen, hierarchy is an adaptive governance response to the agency cost problem. Yet that explanation raises the question of "who watches the watchers?" Because all members of the hierarchy are themselves agents of the firm with incentives to shirk, a mechanism to monitor their productivity and reduce their incentive to shirk must also be created, or one ends up with a never-ending series of monitors monitoring lower-level monitors. Alchian and Demsetz solved this dilemma by requiring that the monitor be given the residual income left after all other workers have been paid.[146] This arrangement encourages the monitor to promote the most efficient use of the other inputs and to reduce shirking because his reward will depend upon the efficacy of his monitoring efforts. Unfortunately, their model breaks down with respect to the public corporation.[147] Although common stockholders are the corporation's residual claimants, they also are the corporate constituency perhaps least able to monitor management behavior.

Corporate law therefore provides a series of alternative accountability mechanisms designed to constrain agency costs without the need for an unending series of monitors. Chief among them is the board of directors. Putting a group at the apex of the corporate hierarchy turns out to be a highly effective alternative solution to the problem of an otherwise unending chain of monitors.

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146. Armen A. Alchian & Harold Demsetz, *Production, Information Costs, and Economic Organization*, 62 AM. ECON. REV. 777, 782 (1972).

147. Alchian and Demsetz tried to solve this problem by arguing that "the policing of managerial shirking [in the corporate context] relies on across-market competition from new groups of would-be managers as well as competition from members within the firm who seek to displace existing management." *Id.* at 788. In a world of passive shareholders and takeover defenses, however, this is a solution that does not solve.

In theory, our hypothetical autocrat could be monitored by his or her subordinates. Fama contends, for example, that lower-level managers monitor more senior managers.[148] Such upstream monitoring, however, does not take full advantage of specialization. Fama and Jensen elsewhere point out that one response to agency costs is to separate "decision management"—initiating and implementing decisions—from "decision control"—ratifying and monitoring decisions.[149] Such separation is a defining characteristic of the central office typical of M-form corporations. The M-form corporation replaces the simple pyramidal hierarchy with a more complex structure in which the central office has certain tasks and the operating units have others, which allows for more effective monitoring through specialization, sharper definition of purpose, and savings in informational costs.[150] In particular, the central office's key decisionmakers—the board of directors and top management — specialize in decision control. Because low- and mid-level managers specialize in decision management, expecting them to monitor more senior managers thus calls on the former to perform a task for which they are poorly suited.

A different critique of Fama's hypothesis is suggested by evidence with respect to meeting behavior from research on group decisionmaking. In mixed status groups, higher status persons talk more than lower-status members. Managers, for example, talk more than subordinates in business meetings.[151] Such disparities result in higher-status group members being more inclined to propound initiatives and having greater influence over the group's ultimate decision.[152]

One function of the board of directors thus is providing a set of status equals for top managers.[153] As such, corporate law's insistence on the superiority of the board to management begins to make sense. To the extent law shapes social norms, admittedly a contested proposition,[154] corporate law may empower the board to con-

148. *See* Eugene F. Fama, *Agency Problems and the Theory of the Firm*, 88 J. POL. ECON. 288, 293 (1980).

149. Eugene F. Fama & Michael C. Jensen, *Separation of Ownership and Control*, 26 J.L. & ECON. 301, 315 (1983).

150. WILLIAMSON, *supra* note 17, at 320.

151. Kiesler & Sproull, *supra* note 143, at 109.

152. *Id.* at 110 (describing studies in which MBA students were matched with college freshmen).

153. Robert J. Haft, *The Effect of Insider Trading Rules on the Internal Efficiency of the Large Corporation*, 80 MICH. L. REV. 1051, 1061 (1982) (describing the board as "a peer group—a collegial body of equals, with the chief executive as the *prima inter pares*").

154. *See* Bainbridge, *supra* note 116, at 1052-53 (describing debate).

strain top management more effectively by creating a de jure status relationship favoring the board. Interestingly, note that the status effect of board membership may be especially important with respect to insider-dominated boards. Because subordinate managers have ample opportunity to monitor the CEO's effectiveness but are constrained by status relationships from acting on their knowledge, board membership might empower them to act.[155]

Whether a board comprised solely or even mainly of insiders would be effective is a matter of considerable debate.[156] A tenet held by many players in that debate, however, is that a board comprised of independent directors is an essential constraint on top management. To be sure, outsiders have neither the time nor the information necessary to be involved in the minutiae of day-to-day firm management. What outsiders can do, however, is to monitor top managers and replace those whose performance is subpar. In theory, the very presence of independent directors to whom decisions must be presented for approval and who must be persuaded to give their approval should go a long way toward encouraging managers to make better and more faithful decisions.[157]

b. Horizontal Monitoring

A hierarchy of individuals whose governance structures contemplate only vertical monitoring cannot resolve the problem of who watches the watchers. Instead, it seems the vicious circle can be broken by placing a group at the apex of the hierarchy. Where an

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155. If the CEO is the only insider on the board, the CEO will have significant information advantages vis-à-vis other board members. Inclusion of additional insiders may tend to offset that information asymmetry by providing outsiders with access to alternative, status-empowered sources of information. *See* Johnson et al., *supra* note 26, at 417.

156. *See, e.g.*, Victor Brudney, *The Independent Director—Heavenly City or Potemkin Village?*, 95 HARV. L. REV. 597, 616, 632 (1982) (suggesting that independent directors have faced obstacles in policing managerial conflicts of interest and assuring maximization of shareholder wealth); Jill E. Fisch, *Taking Boards Seriously*, 19 CARDOZO L. REV. 265, 268 (1997) (questioning whether reform proposals that mandate board independence and retraction of the board's management function are desirable for all firms); Ronald J. Gilson & Reinier Kraakman, *Reinventing the Outside Director: An Agenda for Institutional Investors*, 43 STAN. L. REV. 863, 865 (1991) (proposing increased harmonization of outside directors and shareholders in lieu of an increase in the independence of outside directors from management); Ira M. Millstein & Paul W. MacAvoy, *The Active Board of Directors and Performance of the Large Publicly Traded Corporation*, 98 COLUM. L. REV. 1283, 1314 (1998) (concluding that independent boards appear to have earned higher "economic profits" in the 1990s than boards with passive, nonindependent boards); James Tobin, *The Squeeze on Directors: Inside Is Out*, 49 BUS. LAW. 1707, 1708 (1994) (examining the proactive role for outside directors as a means for improving corporate performance).

157. Note that this theory is consistent with the hypothesis that outsiders bring alternative viewpoints to the table, thereby counteracting individual decisionmaking biases.

individual autocrat would have substantial freedom to shirk or self-deal, the internal dynamics of group governance may constrain self-dealing and shirking by individual team members and, perhaps, even by the group as a whole. Within a production team, for example, mutual monitoring and peer pressure provide a coercive backstop for a set of interpersonal relationships founded on trust and other noncontractual social norms.[158] Of particular relevance here are effort and cooperation norms.[159]

Behavior is regulated by both law and social norms. A standard example of the distinction between the two is that leaving a tip after one eats in a restaurant is a social norm, while paying for one's food is a legal requirement. Accordingly, we can roughly define a social norm as a social attitude specifying the behavior an actor ought to exhibit in a given situation.[160] Although economists only recently began exploring the role norms play in regulating behavior, an astonishingly rich literature has developed in just a few years.

While the old adage opines "familiarity breeds contempt," personal proximity to others in fact deeply affects behavior. As people become closer, their behavior tends to improve. "[S]omething in us makes it all but impossible to justify our acts as mere self-interest whenever those acts are seen by others as violating a moral principle"; rather, "[w]e want our actions to be seen by others—and by ourselves—as arising out of appropriate motives."[161] Small groups strengthen this instinct in several ways.

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158. In addition, diffusion of responsibility in corporate decisionmaking among a group constrains agency costs because it requires a conspiracy to make opportunism effective. Group conspiracies commonly are more difficult to effectuate than misconduct by a single individual.

159. Social norms are relevant to other aspects of decisionmaking besides agency costs. Group norms of reciprocity, for example, facilitate the process of achieving consensus within groups. Kerr, *supra* note 140, at 90-91. For example, a study of flight deck crew effectiveness has found that cooperation norms encourage crew members to trust and heed one another. Forbes & Milliken, *supra* note 6, at 496 (citing results of Karl E. Weick & Karlene H. Roberts, *Collective Mind in Organizations: Heedful Interrating on Flight Decks*, 38 ADMIN. SCI. Q. 357 (1993)).

Studies of group norms in shop floor work teams have made some interesting findings that may be relevant to the board setting. First, group norms tend to evolve toward group rules. Cohen & Bailey, *supra* note 25, at 251. Group effort norms are positively correlated with team member self-evaluations but not with management ratings of teams. *Id.* Norms are also positively related to a variety of attitudinal measures, such as organizational commitment. *Id.* at 257.

160. Korobkin & Ulen, *supra* note 17, at 1127.

161. James Q. Wilson, *What Is Moral and How Do We Know It?*, COMMENTARY, June 1993, at 37, 39; *see also* Bettenhausen, *supra* note 25, at 348 (discussing the role of group membership in the shaping of member behavior and attitudes).

First, they provide a network of reputational and other social sanctions that shape incentives. Because membership in close-knit groups satisfies the human need for belonging, the threat of expulsion gives the group a strong sanction by which to enforce compliance with group norms. Because close-knit groups involve a continuing relationship, the threat of punishment in future interactions deters the sort of cheating possible in one-time transactions:

> Informal peer group pressures can be mobilized to check malingering. . . . The most casual involves cajoling or ribbing. If this fails, rational appeals to persuade the deviant to conform are employed. The group then resorts to penalties by withdrawing the social benefits that affiliation affords. Finally, overt coercion and ostracism are resorted to.[162]

Second, because people care about how they are perceived by those close to them, communal life provides a cloud of witnesses whose good opinion we value. We hesitate to disappoint those people and thus strive to comport ourselves in accordance with communal norms. Effort norms will thus tend to discourage board members from simply going through the motions, but instead will encourage them to devote greater cognitive effort to their tasks.[163]

Finally, transaction costs economics provides an explanation for the importance of closeness in trust relationships. The members of close-knit groups know a lot about one another, which reduces monitoring costs and thus further encourages compliance with group norms. These members therefore tend to internalize group norms.

Taken together, these factors suggest that group decisionmaking is a potentially powerful constraint on agency costs. It creates a set of high-powered incentives to comply with both effort and cooperation norms. This analysis thus goes a long way towards explaining the otherwise puzzlingly formalistic rules of state corporate law governing board decisionmaking. It also explains many widely observed traits of real world boards:

> Invitations to the board are based heavily on matters like compatibility and "fit." The work of the board prizes consensus, not conflict. Absent some sort of crisis, outside members see their value largely in terms of constructive advice, giving insiders the benefit of an expert external perspective on the company's uncertain world.[164]

These are precisely the traits our analysis suggests one ought to observe. Mutual compatibility promotes the sort of inter-

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162. WILLIAMSON, *supra* note 85, at 48.
163. *See* Forbes & Milliken, *supra* note 6, at 493-94.
164. Langevoort, *supra* note 3, at 797.

personal relationships that allow board members to develop norms of trust and cooperation. The same holds true with respect to the emphasis on consensus. Finally, the outsider's role of providing an "expert external perspective" is one reason group decisionmaking will be superior to that of a given individual.

c. Caveats

As noted, any hierarchy must resolve the problem of "who shall watch the watchers." Alchian and Demsetz's elegant solution of assigning the residual claim to the shareholders fails with respect to the public corporation due to the various constraints on shareholder activism. The board of directors can be understood as an adaptive response to that problem, providing a self-monitoring hierarch whose internal governance structures provide incentives for optimal monitoring of its subordinates.

In general, it will be harder for the top decisionmaker to self-deal or shirk when part of a group. Mutual monitoring and social norms, enforced through peer pressure and reputational sanctions, provide important constraints on behavior. In addition, a multi-member board is inherently harder for misbehaving subordinates to suborn than would be a single autocrat. Instead of having to bribe or otherwise co-opt a single individual, the wrongdoers now must effect a conspiracy among a number of monitors.[165] Consequently, the board potentially can provide a significant institutional constraint on agency costs.

Research on group decisionmaking, however, confirms the widely shared intuition that there are limits to the board's ability to monitor both its own members and the senior management team. First, monitoring actors' compliance with social norms becomes harder as the relevant community becomes larger and less closely knit. Social sanctions are also far more effective as applied within a close-knit group than among strangers.[166] Conversely, however,

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165. If one individual serves as the final authority on corporate decisions, the corporation's managers need only coerce or entice that single individual into complying with their self-interested requests to give them effect and, hence, harm the corporation as a whole. If a group of individuals has the final authority on questions of corporate governance, however, managers must coerce or entice multiple individuals to acquire the de facto power to pursue their self-interest. Because managers are less likely to capture a group than an individual, managers are less likely to self-deal with a corporation that is ultimately governed by a group rather than an individual.

166. *Cf.* Donald McCloskey, *Bourgeois Virtue*, AM. SCHOLAR, Spring 1994, at 177, 183-84 (contending that the importance of trust to market exchange explains why members of the same ethnic group frequently can deal profitably with one another). Although kinship doubtless is a

close-knit groups are also those most vulnerable to groupthink. Consequently, it is noteworthy that the risky shift literature is consistent with a social norm-based account. Participation in group decisionmaking processes likely induces conformity with established or emergent group norms.

Second, as we have seen, group decisionmaking can result in social loafing.[167] The extent to which social loafing is a problem will vary from group to group. In Shaw's study, for example, despite the relatively small size of the groups (four members), several of the studied groups contained one or more members who contributed little if anything to discussion or problem solving. In other groups, however, all subjects participated cooperatively.[168]

A study by Szymanski and Harkins sheds especially interesting light on the social loafing phenomenon. They focused on task nonseparability as a causal explanation for social loafing. It was known, prior to their study, that social loafing diminished when the experimenter could meter the effort of individual members of a group. Szymanski and Harkins tested whether social loafing also could be reduced by self-metering against a defined standard. Sixty undergraduates taking an introductory psychology class were asked to list as many uses as possible for a knife. Half of the subjects were told that the experimenters would count how many uses each subject generated. The other half were told that the experimenter would not be able to measure individual performance, although it in fact was possible to do so. Pretests confirmed that the subjects believed these conditions were satisfied by the experiment. The manipulation of experimenter evaluation was crossed with a manipulation of self-evaluation. Half the subjects were told that, at the end

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powerful explanation for norm compliance, we also observe norm compliance in other social groups, including some commercial settings. Diamond exchanges, commodity trading associations, and the historical law merchant all exhibit norm compliance. Critically, however, each of these settings is characterized by a dense social network embedded in an intimate society that provides a framework for repeat transactions. For example, Bernstein's classic study of the diamond market acknowledged that "geographical concentration, ethnic homogeneity, and repeat dealing may be necessary preconditions to the emergence of a contractual regime based on reputation bonds." Lisa Bernstein, *Opting Out of the Legal System: Extralegal Contractual Relations in the Diamond Industry*, 21 J. LEGAL STUD. 115, 140 (1992). On the other hand, group research suggests that even ad hoc groups develop norms quite quickly. Hill, *supra* note 68, at 530. In any event, such conditions may not be necessary to the maintenance of such a regime once it has established itself. Instead, as the diamond industry departed from those conditions, it shifted to a regime based on information technology and intermediaries. Bernstein, *supra*, at 143-44.

167. That social loafing is a problem for boards of directors is confirmed, albeit anecdotally, by an internal self-assessment of Campbell Soup's board. *See* Forbes & Milliken, *supra* note 6, at 489. The report concluded, inter alia, that some board members did not adequately participate in meetings and that the board as a whole failed to devote adequate time to strategic planning. *Id.*

168. Shaw, *supra* note 46, at 500-01.

of the experiment, they would be told the average number of uses generated in the experiment. The other half were told that, for confidentiality, they would not be provided with that information.[169]

Where the subjects believed the experimenter could evaluate their results, there was no difference between those who had an opportunity for self-evaluation and those who did not. Where the subjects believed that the experimenters could not evaluate their results, those who believed self-evaluation was not possible generated fewer uses than those who believed they would be given a standard for self-evaluation. Strikingly, self-evaluation alone generated as many uses as experimenter evaluation.[170] Comparable results were obtained in a slightly more complex experiment using pairs. Szymanski and Harkins's study strongly suggests that hierarchical monitoring is not the only means of preventing shirking. Instead, monitoring by other members of a team (such as peer pressure) and self-monitoring against a standard are equally effective. Effort norms provide just such a social standard against which board members measure themselves and their fellows. In other words, a board with strong social norms should be less subject to social loafing than groups that are less close-knit.

Finally, collective action problems may impede the ability of decisionmaking groups to constrain agency costs. This concern seems especially plausible with respect to the board of directors. Because effective performance of the board's oversight duties requires collective action, we have a potential free riding problem. Even though faithful monitoring may be in an individual director's interest, he or she may assume that other directors will do the hard work of identifying subpar performances, permitting the free rider to shirk. As in any free riding situation, this will tend to result in suboptimal levels of monitoring.

Even in cases of clearly subpar management performance, moreover, other collective action problems may prevent the board from taking necessary remedial steps. Some director must step forward to begin building a majority in favor of replacing the incumbent managers, which again raises a free rider problem. Furthermore, if an active director steps forward, he or she must not only overcome the forces of inertia and bias, but also must likely do so in the face of active opposition from the threatened managers who will

169. *See* Szymanski & Harkins, *supra* note 41, at 893-94 (describing method).
170. *Id.* at 894.

try to cut off the flow of information to the board, co-opt key board members, and otherwise undermine the disciplinary process.

None of these caveats suggest that corporations ought to be run by an individual autocrat rather than a board of directors. On balance, effort and cooperation norms within a small, close-knit group, such as the board, provide high-level incentives. Concerns about groupthink, social loafing, and collective action failures, however, all prove relevant to operationalizing group decisionmaking in the corporate setting.

C. Correlations

The analysis herein models the board of directors as a production team whose product consists of a unique combination of advice giving, ongoing supervision, and crisis management. To the extent the board makes discrete decisions, those decisions typically entail some form of monitoring. The board reviews and approves major business decisions, sets executive compensation, hires and fires senior management, and the like. Rarely does the board engage in day-to-day managerial decisionmaking. Instead, that role is reserved to the CEO and the other members of the top management team.

The efficiency of this allocation of corporate power is confirmed by the literature on group decisionmaking. Creative planning is a task best left to individuals; hence, it is not surprising that the board does little in that area. In contrast, groups excel at tasks requiring the exercise of critical evaluative judgment, team learning, institutional memory, and the like. This is precisely the skill set desirable in an effective monitor. As a supervisory agent, the board develops an institutional memory that allows it to measure performance over time, while its critical evaluative judgment allows it to assess that performance.

To be sure, the performance of many boards with respect to these tasks is suboptimal, if it occurs at all. As we have seen, however, market forces have encouraged boards to become more independent, deliberative, and critical than were their predecessors. The remaining question is whether the relevant legal regimes are well-designed to encourage optimal group decisionmaking on the part of the board.

IV. REGULATORY IMPLICATIONS

A. The Statutory Formalities of Corporate Governance

1. Board Size

Corporate statutes historically required that boards consist of at least three members who had to be shareholders of the corporation and, under some statutes, residents of the state of incorporation.[171] Today these requirements have largely disappeared. Section 141(b) of the Delaware Code authorizes boards to have one or more members and mandates no qualifications for board membership. MBCA Sections 8.02 and 8.03 are comparable. As a default rule, allowing single-member boards probably makes some sense. It gives promoters maximum flexibility, while allowing the creation of multimember boards at low cost. In light of the apparent advantages of group decisionmaking, however, it is hardly surprising that multimember boards are the norm for corporations of any significant size. To be sure, board sizes vary widely. A 1999 survey found that slightly less than half had seven to nine members, with the remaining boards scattered evenly on either side of that range.[172]

Is there an optimal board size? It is mildly puzzling that the literature on group decisionmaking has not paid more attention to questions of group size. Studies in which group size is an experimental variable are rare; worse yet, many studies of other variables fail even to hold group size constant.[173] The principal exceptions are studies of optimal jury size. Unfortunately, those studies are inconclusive at best.[174]

As for studies of board size in particular, one meta-analysis found a statistically significant correlation between increased board size and improved financial performance.[175] Given the potential influence of moderating variables, however, it does not seem safe to

171. MODEL BUS. CORP. ACT ANN. § 8.03(a) cmt. 1 (1998).

172. National Association of Corporate Directors (NACD), Public Company Governance Survey 1999-2000 at 7 (Oct. 2000) (forty-four percent between seven and nine).

173. Davis, *supra* note 98, at 16.

174. *Id.* at 17-21 (summarizing studies).

175. Dan R. Dalton, *Number of Directors and Financial Performance: A Meta-Analysis*, 42 ACAD. MGMT. J. 674, 676 (1999).

draw firm conclusions from that survey. Other studies, moreover, are to the contrary.[176]

Here, then, is an opportunity for further research. In theory, a number of factors favor large boards. Larger size may facilitate the board's resource-gathering function. More directors will usually translate into more interlocking relationships with other organizations that may be useful in providing resources such as customers, clients, credit, and supplies. Board interlocks may be especially helpful with respect to formation of strategic alliances. Firms considering a joint venture need access to credible information about the competencies and reliability of prospective partners. Almost by definition, however, this information is asymmetrically held and subject to strategic behavior. Interlocks between prospective partners provide both access to such information and, by analogy to hostage taking, a credible bond of the information's accuracy.[177]

Larger boards with diverse interlocks are also likely to include a greater number of specialists—such as investment bankers or attorneys. This is relevant not only to the board's resource-gathering function, but also to its monitoring and service functions. Complex business decisions require knowledge in such areas as accounting, finance, management, and law. Providing access to such knowledge can be seen as part of the board's resource-gathering function. Board members may either possess such knowledge themselves or have access to credible external sources who do. This hypothesis is consistent with the new institutional economics view of specialists. In that model, specialization is a rational response to bounded rationality. The expert in a field makes the most of his or her limited capacity to absorb and master information by limiting the amount of information that must be processed through limiting the breadth of the field in which the expert specializes. As applied to the corporate context, larger, more diverse boards likely contain more specialists, and therefore should get the benefit of specialization. In addition, with reference to the debate over the best member

176. *See, e.g.*, Sanjai Bhagat & Bernard Black, *The Uncertain Relationship Between Board Composition and Firm Performance*, 54 BUS. LAW. 921, 941-42 (1999) (summarizing studies); Theodore Eisenberg et al., *Larger Board Size and Decreasing Firm Value in Small Firms*, 48 J. FIN. ECON. 35, 36 (1998) (finding a significant negative correlation between board size and firm profitability in small and medium Finnish firms).

177. *See* Ranjay Gulati & James D. Westphal, *Cooperative or Controlling? The Effects of CEO-Board Relations and the Content of Interlocks on the Formation of Joint Ventures*, 44 ADMIN. SCI. Q. 473, 475 (1999).

hypothesis, specialization is a way for the group to identify the superior decisionmaker with respect to specific issues.[178]

On the other hand, a number of considerations suggest that small boards may be preferable. Large boards will tend to be contentious and fragmented, which would reduce their ability collectively to monitor and discipline senior management. In such cases, the senior managers can affirmatively take advantage of the board through "coalition building, selective channeling of information, and 'dividing and conquering.' "[179]

The social loafing phenomenon also suggests an upper limit on efficient group size. As group size grows, for example, the number of nonparticipants (loafers) likely increases. Conversely, larger boards may inhibit the formation of the sorts of close-knit relationships by which groups constrain agency costs.

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178. Note that, because their decisions are publicly observable, board members have a strong incentive to defer to expert opinion. Because even a good decisionmaker is subject to the proverbial "act of God," the market for reputation evaluates decisionmakers by looking at both the outcome and the action before forming a judgment. If a bad outcome occurs, but the action was consistent with approved expert opinion, the hit to the decisionmaker's reputation is reduced. In effect, by deferring to specialists, a decisionmaker operating under conditions of bounded rationality is buying insurance against a bad outcome.

In a collegial, multi-actor setting, the potential for logrolling further encourages deference. A specialist in a given field is far more likely to have strong feelings about the outcome of a particular case than a nonexpert. By deferring to the specialist, the nonexpert may win the specialist's vote in other cases as to which the nonexpert has a stronger stake. Such logrolling need not be explicit, although it doubtless is at least sometimes, but rather can be a form of the tit-for-tat cooperative game. In board decisionmaking, deference thus invokes a norm of reciprocation that allows the nonexpert to count on the specialist's vote on other matters. This prediction is supported by findings with respect to group polarization, in which the majority coalition makes small concessions so as to trigger the norm of reciprocity. *See* Kerr, *supra* note 140, at 92 (noting the use of such norms).

The normative payoff of this insight is at least two-fold. First, insofar as board decisionmaking itself is concerned, directors should consciously ask whether deference to specialists is appropriate in a particular instance. Second, it validates state statutes relating to board reliance on expert opinion. Under section 141(e) of the Delaware Code, directors are "fully protected in relying in good faith" on reports or opinions of external experts. The statute requires that the director reasonably believe the matters in question are within the expert's professional competence and that the expert has been chosen with reasonable care. DEL. CODE ANN., tit. 8, § 141(e) (2000). Case law suggests that this standard requires at least some inquiry into the basis of the expert's opinion. *See, e.g.*, Smith v. Van Gorkom, 488 A.2d 858, 874-75 (Del. 1985) (interpreting section 141(e)).

179. Jeffrey A. Alexander et al., *Leadership Instability in Hospitals: The Influence of Board-CEO Relations and Organizational Growth and Decline*, 38 ADMIN. SCI. Q. 74, 79 (1993). On the other hand, some commentators contend that large boards provide more opportunities to create insurgent coalitions that constrain agency costs with respect to senior management. William Ocasio, *Political Dynamics and the Circulation of Power: CEO Succession in U.S. Industrial Corporations, 1960-1990*, 39 ADMIN. SCI. Q. 285, 291 (1994).

2. The Arcana of Meeting Procedures

The board of directors is a collegial body that, for the most part, makes decisions by consensus. Accordingly, an individual director acting alone generally has neither rights nor powers.[180] Instead, unless otherwise authorized by statute, only collective decisions taken at a meeting of the board at which a quorum is present are binding on the corporation.[181] This common law principle is reflected, albeit by negative implication, in section 141(b) of the Delaware Code, which states that "[t]he vote of the majority of the directors present at a meeting at which a quorum is present *shall be the act of the board of directors* . . . ."[182] The MBCA's drafters contend that the same requirement is implied by their statute's provisions on board meetings.[183] All of this doubtless seems formalistic and silly at first blush, but because interacting groups produce better decisions, the requirement that the board act only after meeting as a collective body actually has a sound basis.

Consider also the statutory requirement that directors may participate in board meetings by conference call or speakerphone only if all participants can hear one another.[184] The requirement that members be able to "hear" one another seems quaint in an era of electronic mail, instant messaging, and Internet chat capabilities. Yet, when Delaware recently amended its corporation statute to permit much greater use of electronic forms of communication, it retained the requirement that board meetings be conducted in such a way that all members be able to hear one another. As it turns out, this appears to have been the right choice. Research on decision-making has found that groups linked by computer make fewer remarks and take longer to reach decisions than do groups meeting face to face.[185] Kiesler and Sproull, for example, not only found that meetings conducted through computers result in greater delays, but

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180. This general statement is subject to the caveat that individual directors do have rights to inspect corporate books and records. *See, e.g.*, Cohen v. Cocoline Prods. Inc., 127 N.E.2d 906, 907-08 (N.Y. 1955).

181. *See* DEL. CODE ANN., tit. 8, § 141(f) (authorizing boards to act without a meeting by means of written consents, but requiring unanimity); MODEL BUS. CORP. ACT ANN. § 8.21 (1998) (same).

182. DEL. CODE ANN., tit. 8, § 141(b) (emphasis added).

183. MODEL BUS. CORP. ACT ANN. § 8.20 cmt (1998) ("A well-established principle of corporate common law accepted by implication in the Model Act is that directors may act only at a meeting unless otherwise expressly authorized by statute.").

184. *See, e.g.*, DEL. CODE ANN., tit. 8, § 141(i) ; MODEL BUS. CORP. ACT ANN. § 8.20(b) (1998).

185. Hiltz et al., *supra* note 75, at 243-44; Jane Siegel et al., *Group Processes in Computer-Mediated Communication*, 37 ORGAMIZATIONAL BEHAV. & HUM. DECISION PROCESSES 157, 174 (1986).

also that the decisions made in such meetings were more likely to exhibit the risky shift phenomenon.[186] They also found that time-constrained groups exchanged much less information when meeting electronically than when meeting face-to-face.[187]

As with other aspects of the rules governing board meetings, accordingly, there seems to be a legitimate basis for otherwise formalistic rules. Electronic communication takes place mostly through text-based mediums. For many people reading and typing are slower and require greater effort than verbal communication. Text-based communication also deprives participants of social cues, such as body language and tone of voice, which may be important signals. Social norms constraining behavior apparently function less well in text-based communication, as illustrated by the flame wars that plague Usenet newsgroups. Even such housekeeping rules as notice requirements prove to be consistent with the research on group decisionmaking. Unless the articles of incorporation require otherwise, no notice of regularly scheduled board meetings is required.[188] Special meetings require at least two-days notice.[189] As a matter of statutory law, the requisite notice need not announce the purpose of the meeting.[190] Because the directors' duty of care requires them to make an informed decision, however, it is advisable whenever possible to provide directors with advance notice of the reason for calling a meeting and any relevant documentation.[191] As with other requirements relating to board meetings, the notice rules are intended to ensure that the board functions as a

186. Kiesler & Sproull, *supra* note 143, at 108, 113.

187. *Id.* at 108.

188. MODEL BUS. CORP. ACT ANN. § 8.22(a) (1998).

189. *Id.* § 8.22(b).

190. *Id.*

191. *See, e.g.*, Smith v. Van Gorkom, 488 A.2d 858, 874 (Del. 1985). In *Van Gorkum*, the court held that the board breached its fiduciary duty of care by "approving the 'sale' of the Company upon two hours' consideration, without prior notice, and without the exigency of a crisis or emergency." *Id.* The court went on to note: "None of the directors, other than Van Gorkom and Chelberg [two insiders], had any prior knowledge that the purpose of the meeting was to propose a cash-out merger of Trans Union. . . . Without any documents before them concerning the proposed transaction, the members of the Board were required to rely entirely upon Van Gorkom's 20-minute oral presentation of the proposal." *Id.*; *see also* Gimbel v. Signal Co., Inc., 316 A.2d 599, 612-15 (Del. Ch.), *aff'd per curiam*, 316 A.2d 619 (Del. 1974). In *Gimbel*, the court criticized the fact that (1) the board meeting was called on only one-and-a-half days' notice and (2) that the company's outside directors were not notified of the meeting's purpose, which were cited as factors in the court's determination that the company's management had failed to give the board "the opportunity to make a reasonable and reasoned decision." 316 A.2d at 615.

collegial body, all of whose members participate and get the benefit of the participation by all other members.[192]

That notice requirements effectively carry out that function is suggested by research on group performance. The Michaelsen group conducted a study in which individuals were pretested and then retested as members of a group. Under those conditions, groups outperformed individuals. The Michaelsen group analogize this testing order to organizational decisionmaking processes in which "group members prepare a position paper and circulate it to other group members prior to problem-solving discussions."[193] A board meeting conducted after meaningful notice likewise replicates this testing order.

Finally, the research on group decisionmaking is relevant to the long-standing debate over cumulative voting in the election of directors. On the one hand, cumulative voting may bring a desirable diversity of viewpoints into the boardroom. On the other hand, board cohesiveness likely suffers.[194] Whether cumulative voting is desirable for a given firm will therefore vary. Firms whose top management team requires advice from diverse sources might benefit from cumulative voting, although the high probability of adversarial relations between that team and minority shareholder interests suggests that board representation of the latter likely would prove unavailing in this regard. Firms requiring skeptical outsider viewpoints to prevent groupthink likewise might benefit from cumulative voting. Again, however, the likelihood that cumulative voting results in affectional conflict rather than cognitive conflict leaves one doubtful as to whether those benefits will be realized.

3. Payoff

The group decisionmaking literature's prescriptive payoff should be apparent. On the one hand, lawyers, judges, and legislators all spend much of their working lives in committees and other group settings. Their informed intuitions about effective group decisionmaking usually will serve them well both with respect to running boards and making corporation laws, as the preceding statutory analysis confirms. On the other hand, the findings of group

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192. MODEL BUS. CORP. ACT ANN. § 8.23 cmt. (1998). The statutory quorum and voting rules likewise reinforce the notion of the board as a collegial body, "forcefully bringing the position of the dissenting member to the attention of the balance of the board of directors." MODEL BUS. CORP. ACT ANN. § 8.24 cmt. (1998).

193. Michaelsen et al., *supra* note 58, at 837 (citation omitted).

194. Haft, *supra* note 7, at 24.

decisionmaking research are sometimes inconsistent with the intuitions of conventional wisdom.[195] Periodic vetting of corporate law by group decisionmaking specialists, therefore, may prove useful in law reform.

B. Director Liability

All corporate directors are subject to a fiduciary duty of care which requires them to exercise "that amount of care which ordinarily careful and prudent men would use in similar circumstances."[196] By invoking the language of reasonable care, the duty seemingly is violated when directors act negligently. At the same time, however, the business judgment rule insulates directors from liability for negligence. The rule does so by providing a presumption that the directors or officers of a corporation acted on an informed basis, in good faith, and in the honest belief that the action taken was in the best interests of the company.[197] How can those two principles be reconciled?

The business judgment rule's traditional justification is that courts are not business experts.[198] Plainly, however, this explanation is inadequate. Business decisions are not the only context in which judges are called upon to review complex issues arising under conditions of uncertainty. Yet no "medical judgment" or "design judgment" rule precludes judicial review of malpractice or product liability cases. Something else must be going on.

Viewing the board of directors as a production team suggests a partial answer to this conundrum.[199] As we have seen, teams may well make better decisions than individuals acting alone. But as we have also seen, however, teams are hard to monitor. The monitoring problem is especially severe when assessing individual productivity requires something more than mere effort measurement. Measuring individual productivity of board members might require, for example, assessing whether the director cooperates with other team members in responding to changed circumstances or emergencies.

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195. *See* Davis, *supra* note 98, at 3 (identifying four widely held intuitions that are inconsistent with groups research).

196. Graham v. Allis-Chalmers Mfg. Co., 188 A.2d 125, 130 (Del. 1963); *see also* MODEL BUS. CORP. ACT ANN. § 8.30 (1998).

197. *See, e.g.*, Aronson v. Lewis, 473 A.2d 805, 812 (Del. 1984).

198. *See, e.g.*, Dodge v. Ford Motor Co., 170 N.W. 668, 684 (Mich. 1919).

199. For a more complete answer, see Michael P. Dooley & Stephen M. Bainbridge, The Business Judgment Rule Within a Theory of the Firm (unpublished manuscript, on file with authors).

At best, the board can be monitored only in terms of its joint output. Yet unlike a manufacturing team, where one can measure the quantity and quality of goods produced, the joint output of the board can be assessed only in terms of the quality of its decisionmaking. Not only is that assessment inherently subjective, it is also likely to be tainted by hindsight bias. As such, judicial review of board decisionmaking seems unlikely to be a very effective monitoring device.

Worse yet, external review can undermine the internal team governance structures that regulate team behavior. Relational teams are not only hard to monitor, they are also hard to discipline. Dismissal, for example, becomes a sanction of last resort. Team members develop a sort of synergy as they develop idiosyncratic ways of working with each other. No member of the team can be replaced without having a highly disruptive effect on the entire team. Because such teams can become insular, moreover, even external sanctions falling short of dismissal may have ripple effects throughout the team. We know, for instance, that insular workplace teams often fail to deal effectively with outsiders and even expend resources on power struggles with other teams. Relational teams thus respond to external monitoring efforts by "circling the wagons" around the intended subject of sanctions. Put another way, external review may promote groupthink and thus make it even more likely that team members will give one another the benefit of the doubt and/or protect one another. As a result, monitoring of such teams is most efficiently effected through mutual motivation, peer pressure, and internal monitoring.[200]

Alternatively, external litigation review might disrupt interpersonal relationships within the team. Members of a production team interact over an extended period of time and develop relationships with one another that are important in determining their conduct. This process leads to a group dynamic that functions as one of the team's important internal governance structures. With respect to the relationship between management and the board, for example, well-functioning group dynamics of this sort will discourage insiders from presenting a proposal to the board that the latter will perceive as self-dealing by the former. In turn, when the board deliberates on management's proposal, the same sorts of internal group dynamics should preclude the board from approving a deal tainted by self-dealing. The "every man for himself" phenomenon

200. WILLIAMSON, *supra* note 17, at 245.

that so often arises in litigation is but one way in which judicial review might well destroy the interpersonal relationships that foster internal team governance.[201]

Reasonable people can differ as to which of the foregoing effects is likely to predominate in the board setting, but both suggest external review is potentially problematic. As our discussion of agency costs suggested, teams have within them a network of social sanctions that shapes incentives. Judicial review is not an appropriate vehicle for fostering the sort of social norms on which internal team governance relies. Judges are a poor substitute, at best, for the norm-inculcating power of close-knit groups. But while courts cannot make citizens virtuous, they can destroy the intermediary institutions that do inculcate virtue: "Communities can be destroyed from without, but they cannot be created from without; they must be built from within."[202]

Finally, external review may skew director decisionmaking in undesirable ways. Shareholder litigation encourages directors to be risk averse. In turn, risk-averse directors take excessive precautions and avoid risky decisions. If the risk of shareholder litigation causes some members of the team to exercise more care than is optimal, the team must now monitor not only the quality of the decision-making inputs coming from each member, but also the risk that any given member is unusually risk averse and thus especially subject to having his or her inputs into the team processes skewed by the fear of liability.

In sum, internal team governance structures provide a strong set of constraints on misconduct by the board. In contrast, external review can undermine the internal team governance structures that regulate team behavior.[203] Accordingly, courts should be

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201. To the extent that external review undermines mutual trust within a board, it adversely affects not only the board's monitoring role but also its service functions. *See* Forbes & Milliken, *supra* note 6, at 496. Trust arises out of two primary sources. *Id.* "Affinity trust" exists ex ante. *Id.* It is based mostly on shared values and is most likely to exist where there is ethnic and/or religious affinity. *Id.* "Learned trust" arises out of repeat transactions in which the players prove consistently trustworthy. *Id.* In a small but heterogeneous community, such as most boards, learned trust dominates. *Id.* Trust counteracts the fear of embarrassment that induces reticence *Id.* In an environment of trust, board members are willing to present ideas that seem "half-baked," which promotes earlier and more extensive discussion of alternatives. *Id.*

202. RICHARD A. EPSTEIN, SIMPLE RULES FOR A COMPLEX WORLD 324 (1995).

203. A related but slightly different concern is the multiplicative effect that external review of team decisionmaking may have on the firm as a whole. Because "the efficiency of organization is affected by the degree to which individuals assent to orders, denying the authority of an organization communication is a threat to the interests of all individuals who derive a net advantage from their connection with the organization . . . ." CHESTER I. BARNARD, THE FUNCTIONS OF THE EXECUTIVE 169 (2d ed. 1962). Put another way, by calling into question the legitimacy of the

reluctant to interfere with board decisionmaking, which is precisely what the business judgment rule commands.[204] Properly understood, the business judgment rule really is an abstention doctrine. Courts will abstain from reviewing the substantive merits of the directors' conduct unless the plaintiff can rebut the business judgment rule's presumption of good faith.

Note that this approach explains a number of aspects of the business judgment rule left unexplained by alternative theories. The fact that the business judgment rule does not insulate director fraud or self-dealing, for example, makes good sense. The decisions to which duty of care litigation is addressed are typically collective actions by the board as a whole. Management teams are constrained to exercise reasonable care in decisionmaking by a combination of external market forces and internal team governance structures. When an individual director decides to pursue a course of self-dealing, however, he or she has already committed to betraying internal team relationships. Courts appropriately are less concerned about destroying internal team relationships when the defendant director's misconduct has already destroyed them. Conversely, by providing a set of external sanctions against self-dealing, the law encourages directors to refrain from such betrayals.

The implications of litigation for group dynamics also help explain the oft-maligned decision in *Smith v. Van Gorkom*.[205] In 1980, Trans Union's Chairman, Van Gorkom, negotiated a merger contract with an entity controlled by financier Pritzker. Trans Union's board and shareholders approved the deal. Plaintiff-shareholder Smith sued, alleging that the board's approval of the merger violated the Trans Union directors' duty of care. The defendant directors contended that their decision to sell the company should be protected by the business judgment rule.

The court began its analysis by noting that the business judgment rule provides a presumption that in making a decision the directors acted on an informed basis, in good faith, and in the

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central decisionmaking body's authority, external review may reduce the incentive for subordinates to assent to that body's decisions and thereby undermine the efficient functioning of the entire firm.

204. *Cf.* WILLIAMSON, *supra* note 85, at 49 (stating that whether "additional or alternative controls would be consistent with the peer group structure is seriously to be questioned").

205. 488 A.2d 858, 874 (Del. 1985) (describing the board's decision to approve the sale of the company "upon two hours' consideration, without prior notice, and without the exigency of a crisis or emergency").

honest belief that the decision was in the firm's best interests.[206] The protection provided by the business judgment rule is unavailable, however, if the directors failed to inform themselves of all material information reasonably available to them.[207] In the course of its opinion, the court focused closely (albeit not exclusively) on issues of board process. The board made no effort to determine how much control would be worth to Pritzker, such as ordering a valuation study, for example, and in the absence of such a determination had no basis for deciding whether the price was a fair one.[208]

Under the circumstances, the directors had a duty of inquiry. Considering the haste and other circumstances surrounding the decision, they should have pressed Van Gorkom with regard to the details of the deal. Instead, the board blindly relied on Van Gorkom's assertion that the price was fair.[209] Van Gorkom failed to disclose, and the board failed to make sufficient inquiry to discover, key facts suggesting that the deal was not as attractive as it seemed on first look.

Qualitative studies of board processes have found wide variances. Some boards simply go through the motions of showing up and voting, without having done their homework.[210] The Delaware Supreme Court concluded that the Trans Union directors were just such a board.[211] Other boards, however, exhibit far greater diligence. Such boards research issues, participate actively in discussion, and exercise critical judgment.[212] As for sorting out which type of board predominates, it seems noteworthy that about two-thirds of surveyed boards now have at least some control over their agenda.[213]

While qualitative performance no doubt varies, the formal structure of the corporate governance system vests most decision-making power in the board of directors, especially with regard to major corporate changes such as a merger. Facts tending to suggest that senior officers are trying to railroad a decision through the

206. *Id.* at 872.

207. *Id.*

208. *See id.* at 875-78 (discussing board's lack of information regarding valuation).

209. *See id.* at 874-75 (criticizing board's passive reliance on Van Gorkom).

210. Forbes & Milliken, *supra* note 6, at 494.

211. *See Van Gorkom*, 488 A.2d at 874 (holding that the board was "grossly negligent in approving the 'sale' of the Company upon two hours' consideration, without prior notice, and without the exigency of a crisis or emergency").

212. Forbes & Milliken, *supra* note 6, at 494.

213. NACD, *supra* note 172, at 12 (fifty-eight percent in 1997 and sixty-nine percent in 1999).

board therefore are inconsistent with that model. Unfortunately for Trans Union's directors, the *Van Gorkom* record was rife with such facts.[214]

To be sure, as we have seen, corporate law generally does not mandate detailed rules of board process or procedure. How the board sets its agenda, whether formal voting rules are observed, and other matters of parliamentary procedure are left to the board's discretion. Yet, there are lots of theoretical reasons to think that the procedural rules for aggregating individual preferences have outcome determinative effects, such as Arrow's Impossibility Theorem. Laboratory experiments on group decisionmaking, such as studies of mock juries, confirm that procedural matters such as the taking of straw votes and the setting of agendas do affect outcomes.[215] It is doubtful, however, whether ex ante legislative solutions would be viable given the complexities and uncertainties of life. In contrast, however, ex post judicial review of board process may be beneficial.

Consistent with that hypothesis, *Van Gorkom* rests not on a failure to comply with some judicially imposed decisionmaking model, but on the absence of a sufficient record of any deliberative process. Put differently, if the decisionmaking process is adequate, the court will continue to defer to the decision that emerges from that process. The basic thrust of the opinion is that the board must provide some credible, contemporary evidence that it knew what it was doing. If such evidence exists, the court will not impose liability—even if the decision proves to have been the wrong one.

By so focusing its opinion, the *Van Gorkom* court arguably created a set of incentives consistent with the teaching of the literature on group decisionmaking. The decision disfavors agenda control by senior management, penalizes boards that simply go

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214. *See, e.g.*, *Van Gorkom*, 488 A.2d at 892 (summarizing defects in management's role).

215. Mock juries reviewing the same evidence, for example, regularly reach differing verdicts. *See* Davis, *supra* note 98, at 23-33 (summarizing studies); *see also* Robert C. Erffmeyer & Irving M. Lane, *Quality and Acceptance of an Evaluative Task: The Effects of Four Group Decision-Making Formats*, 9 GROUP & ORGANIZATIONAL STUD. 509, 523 (1984) (finding that decisionmaking formats have predictable effects on quality of decision); Volkema & Gorman, *supra* note 73, at 116 (finding that, in carrying out the winter survival exercise, groups that formulated problems and opportunities outperformed those who did not).

One possible explanation for such divergences is the effect of agenda control. A well-known study, for example, concluded that setting a specific agenda affected an airplane club's decision as to which plane to buy. Michael E. Levine & Charles R. Plott, *Agenda Influence and Its Implications*, 63 VA. L. REV. 561, 571-81 (1977); Charles R. Plott & Michael E. Levine, *A Model of Agenda Influence on Committee Decisions*, 68 AM. ECON. REV. 146, 146 (1978). Agenda research confirms that both the way the decision is cast and the sequence in which issues are taken up affect the outcomes of such decisions. Davis, *supra* note 98, at 25.

through the motions, and encourages inquiry, deliberation, care, and process. The decision strongly encourages boards to seek outside counsel and financial advice, which is consistent with evidence that groupthink can be prevented by outside expert advice and evaluations.[216] Even the court's criticism of the board's willingness to take action after a single meeting is consistent with suggestions that a "second-chance meeting" also helps prevent groupthink. As such, the oft-repeated law and economics critique of *Van Gorkom* appears overblown. Contrary to what most law and economics scholars have asserted, there is a rational basis for the seemingly formalistic procedures mandated by that opinion.

V. CONCLUSION

In the tradition of New Institutional Economics, this Article assumes that the firm must be viewed as an institution—more precisely, as a set of institutions—rather than as a mere production function. Specifically, the firm consists of a set of production teams embedded within a hierarchical structure. At the apex of that hierarchy stands not an individual, but yet another team—the board of directors. Why?

Team production is imperfect, whether the product is a manufactured good or a corporate decision. Teams are subject to unique cognitive biases, such as groupthink, and unique sources of agency costs, such as social loafing. With respect to the exercise of critical evaluative judgment, however, groups have clear advantages over autonomous individuals. Not only do groups clearly outperform average individuals in a given sample, there is considerable (albeit contested) evidence that the process of group interaction has synergistic effects allowing groups to outperform even the best decisionmakers in the sample. One of the contributions made by this Article is the development of institutional explanations for group superiority. Because most board tasks entail the exercise of critical evaluative judgment, moreover, the analysis herein confirms that corporations are well-served by group decisionmaking at the top.

Consequently, conventional economic analysis of corporate governance needs to rethink the frequently made assumption that agents are both rational actors and autonomous individuals. When lawyer-economists write about monitoring, they seem to have a mental image of a supervisory worker watching a subordinate

216. *See generally* IRVING JANIS, GROUPTHINK (1982) (discussing solutions for groupthink).

working at a separable task (think of a foreman watching a classic production line). Instead, agents are boundedly rational actors who commonly function within teams. Successful teams are characterized by the emergence of new forms of internal governance structures that constrain agency costs, but do so without anything that even remotely resembles traditional hierarchical monitoring. Team spirit and peer pressure, for example, take on considerable importance in teams. Put more broadly, internal team governance structures act as a substitute both for external monitoring by a hierarch and for legal sanctions. Indeed, as we have seen, in most cases these internal governance structures ought to serve as the principal—even sole—constraint on shirking by members of the team.

In keeping with the emergent school of behavioral economics, this Article is an exercise in intellectual arbitrage. In particular, the work of cognitive psychologists on group decisionmaking is imported into the economic analysis of governance institutions. The outcome is a richer and more nuanced account of why boards exist and how they function. At the same time, of course, the account is less determinate than traditional models. Elegant and parsimonious models, though, are more important for economists than for lawyers.[217] Situation-specific mini-theories of behavior thus may be more useful for making legal decisions than a single unified theory like the traditional rational choice model.[218] This Article demonstrates that the literature on group decisionmaking provides just such a set of mini-theories.

217. Korobkin & Ulen, *supra* note 17, at 1072.
218. *Id.* at 1073.

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