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## Unpacking the Board A Comparative and Empirical Perspective on Groups in Corporate Decision-Making

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**Unpacking the Board**  
**A Comparative and Empirical Perspective**  
**on Groups in Corporate Decision-Making**

Hanjo Hamann<sup>†</sup>

*Collegial decision-making is relevant for a host of legal questions and in particular for corporate law. What do we know about its empirical effects? Less than we could. As of yet, pertinent review articles usually (1) assume rather than analyze how much the law actually mandates collegial decision-making, (2) rely mostly on “classical” studies of decision-making or those from behavioral economics, while underrating a century’s worth of previous empirical research, and (3) review the evidence anecdotally with little regard for the robustness of each study’s findings. As a consequence, scholars from corporate law and economics even today rely on theories and evidence which were disproved years ago. The present paper is a remedy. It combines a thorough comparative analysis of corporate statutes with a comprehensive research of empirical evidence, resulting in an assessment of the robust empirical effects of collegial decision-making. Finding that groups tend to deteriorate decision quality and exacerbate cognitive biases, this paper calls upon corporate law to design institutional remedies. Knowing more about these empirical effects will help scholars to identify and eliminate faulty arguments, and thereby improve governance policy and the legal discourse as a whole.*

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## Unpacking the Board: Groups in Corporate Decision-Making

### I. INTRODUCTION

Most of the statutory corporation law is framed around “togetherness” in corporate management . . .

—Ray Garrett 1964<sup>1</sup>

With a handful of exceptions, however, legal scholars have not focused on groups as concrete, and operational, institutions. . . . Individual group members remain the relevant agents and appropriate subjects of analysis, rather than the impliedly accidental collectives in which they happen to come together. . . . We have thus failed to attend to questions of how groups actually work.

—Robert Ahdieh 2005<sup>2</sup>

More than a quarter century ago, Professors Lewis Kornhauser and Lawrence Sager argued that most legal cases are decided by a panel of judges, whereas traditional theories of adjudication considered single judges only and could “neither explain the group nature of the process nor take it into account.”<sup>3</sup> Their insightful analysis went on to propose “unpacking the court” in order to understand collegial decision-making better. Their approach was restricted neither (in its methods) to theoretical analyses, nor (in its substance) to adjudication. Indeed, some of the most fruitful attempts at understanding collegial processes, from a legal perspective, came in a number of empirically-oriented papers in areas other than adjudication. As yet, the most extensive such analyses date back approximately ten years. Arguably, the most profound treatments of collegial processes by any legal scholar were Professor Mark Seidenfeld’s 2002 article on the “team model” of “agency rulemaking”<sup>4</sup> and Professor Cass Sunstein’s 2005 article on the effects of “deliberation” in “group judgment,” the latter of which extended previous work from 2000 and 2002.<sup>5</sup> Scholars of corporate law later embraced their analyses,<sup>6</sup> but the most prominent treatment in the scholarship proper of corporate law came with another 2002 article entitled “Why a Board?” In that article, Professor Stephen Bainbridge criticized extant analyses of board behavior for their exclusive

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1. Ray Garrett, *John Doe Incorporates Himself*, 19 BUS. LAW. 535, 535 (1964).

2. Robert B. Ahdieh, *The Role of Groups in Norm Transformation: A Dramatic Sketch, in Three Parts*, 6 CHI. J. INT’L L. 231, 233-34 (2005).

3. Lewis A. Kornhauser & Lawrence G. Sager, *Unpacking the Court*, 96 YALE L.J. 82, 82 (1986); for even earlier treatments of judicial group decision-making, see Walter F. Murphy, *Courts as Small Groups*, 79 HARV. L. REV. 1565 (1966); Harry W. Jones, *Multitude of Counselors: Appellate Adjudication as Group Decision-Making*, 54 TUL. L. REV. 541 (1980).

4. Mark Seidenfeld, *Cognitive Loafing, Social Conformity, and Judicial Review of Agency Rulemaking*, 87 CORNELL L. REV. 486, 527 (2002).

5. Cass R. Sunstein, *Group Judgments: Statistical Means, Deliberation, and Information Markets*, 80 N.Y.U. L. REV. 962 (2005); Cass R. Sunstein, *Deliberative Trouble? Why Groups Go to Extremes*, 110 YALE L.J. 71 (2000); Cass R. Sunstein, *The Law of Group Polarization*, 10 J. POL. PHIL. 175 (2002).

6. See Elizabeth Pollman, *Strengthening Special Committees*, 9 U.C. DAVIS BUS. L.J. 137, 170 nn.3, 120 (2009).

“focus on the decisions of individuals” rather than “the board as a team production problem.”<sup>7</sup> Bainbridge’s analysis was widely cited and remains a standard reference to this day.<sup>8</sup>

Though highly influential, these analyses provide only half the story. While they diligently attended to the theoretical implications of particular empirical studies, it was precisely this reliance on single studies that restricted their review of empirical evidence to being anecdotal rather than systematic. Bainbridge, for instance, discussed in great detail a study that was then circulated as a working paper,<sup>9</sup> but he was little concerned with a thorough review to assess the robustness of its findings.<sup>10</sup> Others followed suit by citing anecdotal evidence that served merely as a backdrop “to elaborate a bit”<sup>11</sup> on theoretical implications. While this use of anecdotal evidence need not compromise the validity of such empirical reviews—in fact, the working paper study cited by Bainbridge was later published and successfully replicated<sup>12</sup>—it does not provide safeguards against invalid empirical findings either. For instance, scholars from corporate law and economics have continued citing to a 1989 study that other researchers found to be fatally flawed more than fifteen years ago. Though this study was highly controversial (inducing reply, rejoinder and counter-rejoinder) and judged simply “mistaken” by a 1997 review article, its authors boldly oversold their “finding”, eventually misleading corporate and economics scholars.<sup>13</sup> Thus, the anecdotal approach taken by many legal scholars is less than suitable for reliably reviewing empirical evidence. The present paper seeks to remedy that shortcoming and to provide the other half of the story: On which robust empirical evidence can we presently base our understanding of collegial decision-making in corporations?

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7. Stephen M. Bainbridge, *Why a Board? Group Decisionmaking in Corporate Governance*, 55 VAND. L. REV. 1, 2 (2002).

8. *E.g.*, Ahdieh, *supra* note 2, at 233 n. 9; Pollman, *supra* note 6, at 138 nn. 2, 3; for a critical assessment, see James Fanto, *Whistleblowing and the Public Director: Countering Corporate Inner Circles*, 83 OR. L. REV. 435, 469 n. 113 (2004) (citing Bainbridge as an example that “Apologists of the status quo of U.S. board structure [...] significantly downplay social psychological literature that contradicts their views.”).

9. Bainbridge, *supra* note 7, at 13–16. Bainbridge refers to 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), available at <http://www.nber.org/papers/w7909>. See also Sunstein, *supra* note 5, at 1008 (discussing the same study).

10. Otherwise Bainbridge might have discovered that his finding “that groups actually made decisions faster than individuals” (*supra* note 7, at 14), had already been reported two decades earlier: “Contrary to folklore, the researchers find that the real difficulty is trying to slow groups down rather than trying to speed them up.”, Robert J. Haft, *Business Decisions by the New Board: Behavioral Science and Corporate Law*, 80 MICH. L. REV. 1, 38 (1981) (referencing Dean Barnlund, *A Comparative Study of Individual, Majority, and Group Judgment*, 58 J. ABNORMAL & SOC. PSYCHOL. 55, 59 (1959)).

11. Pollman, *supra* note 6, at 151.

12. Alan S. Blinder & John Morgan, *Are Two Heads Better than One? Monetary Policy by Committee*, 37 J. MONEY, CREDIT & BANKING 789 (2005); Alan S. Blinder & John Morgan, *Leadership in Groups: A Monetary Policy Experiment*, 4 INT’L J. CENT. BANKING 117 (2008).

13. For details and references on this case, see *infra* IV.B.3.

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To answer this question, this article will proceed in three steps:

First, it will solve a striking puzzle: Given that company lawyers consider collegial decision-making such an important and necessary feature of the law, how come that barely a handful of US states—none particularly prominent—require that boards of directors consist of more than one member? The article will show (in Part II) that governance standards have evolved to grant management bodies increasing flexibility, while mandatory collegiality maintains a stronghold only in the supervisory bodies of publicly-traded corporations. This is not just true for the U.S., but internationally. By reviewing the corporation laws of 20 jurisdictions, this article shows that none of them consistently requires collegial decision-making amongst the corporate elite, but none of them leaves corporate decision-making entirely to the discretion of individuals either. Mandatory plurality exists only in a small but tremendously important subset of top-level decision-making entities within corporations.

Given the importance of this subset, the article then reviews research on the empirical effects of collegial decision-making (Part III). In embracing a wide range of disciplines rather than adopting the narrow “psychology and economics” purview of earlier studies, this paper will show that research on collegial decision-making is a truly interdisciplinary field that implicates empirical finance, management and political science as much as forensic or social psychology and experimental economics. The boundaries between these disciplines matter little in terms of their subject matter, but quite a lot in terms of research methodology and wording. While “board,” “team,” “committee,” “jury,” and “group” denote much the same object of study, each of these words is a surprisingly reliable signet of particular study methods. Appreciating these signets will help lawyers to understand and evaluate even research that seems downright inconsistent at first blush.

The main section, occupying the second half of this article, discusses the pertinent empirical evidence (Part IV). Unlike other reviews, it will rely on research syntheses (namely meta-analyses) to identify the robust core of empirical research for use in legal arguments. This evidence reveals that collegial decision-making is quite likely to stifle the motivation of board members, since their tasks are typically disjunctive, complex, and hard to evaluate externally. Collegial bodies typically perform better than their average member, but considerably worse than their best member. Rather than settling for this “better-than-average” result, corporate law ought continuously to reduce the “less-than-perfect” gap. With regard to the supervisory function of collegial decision-making bodies, legal scholars usually assume the existence of “groupthink,” a theory that has not withstood empirical testing. The evidence does suggest, however, that collegial decision-making may facilitate adverse economic effects like escalating commitment, though research on this is sparse. As a last empirical effect, collegial decision-making is said to debias decision-

making, but evidence tentatively shows that collegial decision-making may in fact foster overconfidence if the task at hand is sufficiently difficult. Knowing about these empirical effects will greatly improve the legal discourse and enrich corporate law policy.

## II. THE PREVALENCE OF CORPORATE COLLEGIALITY

### A. Collegiality as a Default Model

How prevalent are collegial bodies in corporate decision-making? According to some, the “historic rule and prevailing norm is that corporate boards consist of more than one director.”<sup>14</sup> Similarly, Professor Bainbridge asserted in his 2002 paper that “the default model of corporate governance envisioned by modern statutes demonstrably contemplates not a single hierarchy, but rather a multimember body that typically will act by consensus.”<sup>15</sup>

Indeed, some fifty years ago it was received wisdom that “immemorially, the American corporation has been required to have three directors.”<sup>16</sup> This historical tradition, “going back to Blackstone or earlier”<sup>17</sup> was sustained until 1961 by all but four states (Arizona, Iowa, Rhode Island and South Dakota),<sup>18</sup> and also by the ABA Model Business Corporation Act introduced in 1950 (§ 8.03 (a) MBCA).<sup>19</sup> Contemporary commentators firmly spoke of the multi-member board as an “almost universal corporate norm,”<sup>20</sup> quite like the two present-day scholars cited at the beginning of this section.

Soon after, however, things started to change. On account of “notorious practices of employing dummy or accommodation incorporators and directors, and of recording and certifying minutes of meetings that are not held,”<sup>21</sup> two states abolished the plurality requirement in 1961: Wyoming first, Delaware shortly after.<sup>22</sup> By 1969 the Model Act followed suit, purportedly for the sake of “corporations with one or two shareholders, or for corporations with more than two shareholders where in fact the full power of management is vested in only one or two persons.”<sup>23</sup> Today, more than forty years later, there remain but six<sup>24</sup>—possibly only three<sup>25</sup>—states that require board plurality as a matter of

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14. Pollman, *supra* note 6, at 140.

15. Bainbridge, *supra* note 7, at 2.

16. James F. Spoerri, *One Incorporator. One Director*, 19 BUS. LAW. 305, 307 (1963).

17. MODEL BUS. CORP. ACT ANN. § 8-34 (4th ed. 2011).

18. Spoerri, *supra* note 16, at 307 (1963).

19. MODEL BUS. CORP. ACT ANN. § 8-34 (4th ed. 2011).

20. E. George Rudolph, *Further Thoughts on the One and Two Director Statutes*, 20 BUS. LAW. 781 (1965).

21. Spoerri, *supra* note 16, at 308; Garrett, *supra* note 1, at 537.

22. Rudolph, *supra* note 20, at 1-2.

23. MODEL BUS. CORP. ACT ANN. § 8-34 (4th ed. 2011).

24. *Id.* at 8-37 (mentioning “California, Massachusetts, Missouri, Ohio, Utah, and Vermont”).

25. Missouri, Ohio, and Vermont (previous footnote) do not require board plurality according to

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statutory law.<sup>26</sup> But even these jurisdictions allow fewer directors to be appointed in certain circumstances.<sup>27</sup> Two other states set the default board size at three directors if their number is not fixed in the bylaws or articles,<sup>28</sup> but all remaining 42 states are entirely agnostic about the board size in business corporations. This seems quite different from “the default model of corporate governance” to which Bainbridge referred.

There are three ways to reconcile this “default model” assertion with the finding that almost none of the US states actually require collegial decision-making. Firstly, note the nuanced wording: according to Bainbridge, the “default model” merely “contemplates” collegial decision-making, which might be taken to mean that law merely reacts to an otherwise evolved reality of collegial decision-making. Collegiality would thus be an extraneous phenomenon to the law, and the legal discourse would merely have to acknowledge rather than scrutinize the empirical effects of collegial decision-making. This is clearly not what Bainbridge had in mind. Secondly, the impression that collegial decision-making is part of the “default model of corporate governance” may derive from a primary concern with large stock corporations. The New York Stock Exchange (NYSE) listing rules actually require an audit committee of three,<sup>29</sup> thereby turning the board as a whole into a “multimember body.” Yet, empirical effects of collegial decision-making are not logically related to a company’s public listing. According to his very general titular question (“Why a Board?”), Bainbridge tried to explain why collegial entities might be a default for corporations in general, not just listed ones. Lastly, as a third interpretation, Bainbridge might have referred to “modern statutes” in a global corporate governance perspective, notwithstanding differences in individual jurisdictions. To assess whether such an international “default model of corporate governance” exists, we must compare US board practice to board practice abroad.

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their online statutes (accessed 10th Oct 2012): “one or more individuals” suffice in § 351.315 (1) 1 Mo. Stat. ([www.moga.mo.gov/statutes/C300-399/3510000315.HTM](http://www.moga.mo.gov/statutes/C300-399/3510000315.HTM)) and Ch. 11A § 8.03 (a) 1 Vt. Stat. ([www.leg.state.vt.us/statutes/fullchapter.cfm?Title=11a&Chapter=008](http://www.leg.state.vt.us/statutes/fullchapter.cfm?Title=11a&Chapter=008)), and “not . . . less than one” is required by § 1701.56 (A) (1) Ohio Rev. Code ([codes.ohio.gov/orc/1701.56](http://codes.ohio.gov/orc/1701.56)).

26. See CAL. CORP. CODE § 212(a) (Deering 2013); MASS. GEN. LAWS ANN. ch. 156D § 8.03(a) (West 2004); UTAH CODE ANN. § 16-10a-803(1)(a) (West 2013); MODEL BUS. CORP. ACT ANN. §§ 8-36, 8-37 (4th ed. 2011); 14 P.R. Laws Ann. §§ 2721, 2915 (Puerto Rico “requires the board to be made up of two or more members.”).

27. See CAL. CORP. CODE § 212(a) (Deering 2013); MASS. GEN. LAWS ANN. ch. 156D § 8.03(a) (West 2004); UTAH CODE ANN. § 16-10a-803(1)(a) (West 2013); MODEL BUS. CORP. ACT §§ 8-36, 8-37 (4th ed. 2011); 14 P.R. Laws Ann. §§ 2721, 2915.

28. See ALASKA STAT. § 10.06.543(a) (West); Ch. 15 § 1723 (a) 3 Pa. Cons. Stat. (id.).

29. NEW YORK STOCK EXCHANGE COMPANY MANUAL 303A.06, 303A.07(a)(1), available at [http://nysemanual.nyse.com/LCMTTools/PlatformViewer.asp?selectednode=chp\\_1\\_4\\_3\\_8&manual=%2Ffcm%2Fsections%2Ffcm-sections%2F](http://nysemanual.nyse.com/LCMTTools/PlatformViewer.asp?selectednode=chp_1_4_3_8&manual=%2Ffcm%2Fsections%2Ffcm-sections%2F) (last visited Jan. 26, 2014).



*B. Comparative Evidence*

In a comparative perspective, we ought first to relax the question “Why a Board?” Any empirical effects of collegial decision-making should affect top management teams and other executive bodies just as well as boards.<sup>30</sup> Likewise, the effects of collegiality should be observable in the decision-making of independent supervisory bodies even within dual-tier governance systems. On an even more general level, collegial decision-making should affect the management of any business entity, not only those organized as corporations. A quest for comparative evidence on the prevalence of collegiality should therefore focus on top-level decision-makers in all sorts of companies.

Some comparative work has already been done. With respect to corporations, functional comparatists have identified five main structural characteristics that are prevalent internationally, including “centralized management under a board structure.”<sup>31</sup> One of the four defining features of any such board structure is that “the board ordinarily has multiple members,”<sup>32</sup> which points to the default model that was mentioned earlier. Yet, this default seems to come with crucial qualifications, as the comparatists note that “many corporation statutes permit business planners to dispense with a collective board in favor of a single general director or one-person board.”<sup>33</sup>

For our purpose, it is hard to draw any steadfast conclusions from this functional comparison, since it is limited to corporations and does not specify whether the multiplicity of members that boards “ordinarily” have is legally required or merely factual practice. Even if the laws of some jurisdictions usually require multi-member boards, it may remain unclear just how “many” jurisdictions permit exceptions for corporations to “dispense with a collective board.” A more systematic review of rules on top-tier decision-making is thus in order.

For this review, let us consider the corporate governance statutes of twenty jurisdictions, including US law as presented above. I will shortly summarize the legal status quo in each of the 19 remaining jurisdictions, starting with the transnational regime governing the pan-European *Societas Europaea* (SE), followed—in alphabetical order—by the countries Australia, Austria, Brazil,

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30. Lynn A. Stout, *The Mythical Benefits of Shareholder Control*, 93 VA. L. REV. 789, 793 n.10 (2007) (arguing that no empirical benefits of collegial decision-making can explain the existence of the board, as Professor Bainbridge implied, since “group decisionmaking can also be accomplished at the executive level by hiring a team”).

31. REINIER KRAAKMAN ET AL., *THE ANATOMY OF CORPORATE LAW: A COMPARATIVE AND FUNCTIONAL APPROACH* 5 (Oxford Univ. Press 2nd ed. 2009).

32. *Id.* at 13-14.

33. *Id.* (adding in n. 37: “This is true not only of most statutes designed principally for nonpublic corporations . . . but also of the general corporate laws in the UK . . . in Italy . . . and in the U.S. state of Delaware”).

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Canada, China, Finland, France, Germany, India, Italy, Japan, Poland, Russia, South Korea, Spain, Sweden, Switzerland, and the United Kingdom. Taken together, these countries represent five continents as well as all commonly defined legal families<sup>34</sup> and the world's largest economies.<sup>35</sup> I reviewed recent sources available in English or German, including soft law (such as listing requirements or corporate governance codes) where possible.<sup>36</sup> The study excluded partnerships and focused on commercial entities with shared ownership, limited liability and transferable shares.<sup>37</sup> Most of the reviewed jurisdictions feature a private and a public form of business entity, often synonymous with the limited liability company (and/or closed stock corporation) and the (potentially listed) stock corporation. Since, historically, business entities often evolved from non-profit forms—and given that many US states as well as the ABA's recent Model Nonprofit Corporation Act (§ 8.03 (a) MNCA) do require non-profits to have at least three directors<sup>38</sup>—I also reviewed the law on non-profits, at least in German-language jurisdictions.

### C. Contrasting 19 Jurisdictions

To start with the most international regime, consider the pan-European *Societas Europaea* (SE), a corporate form introduced in 2004 by an EU Council Regulation which is complemented by member states' legislation. SE can choose between a one- and a two-tier system. In the two-tier system, the earliest statute drafts from 1970 and 1975 each stipulated that “if the Board of Management comprises more than one member, the members shall act collectively,” and “[t]he number of members of the Supervisory Board . . . shall be uneven and divisible by three.”<sup>39</sup> Both of these explicit requirements were

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34. See KONRAD ZWEIGERT & HEIN KÖTZ, AN INTRODUCTION TO COMPARATIVE LAW 63-295 (Oxford Univ. Press 3rd ed. 1998), four jurisdictions hail from the Romanistic, three from the Germanic, five from the Anglo-American, two from the Nordic and three from the Far Eastern legal families. For an alternative classification, see Jaako Husa, *Classification of Legal Families Today. Is it Time for a Memorial Hymn?*, 56 REVUE INTERNATIONALE DE DROIT COMPARÉ 11 (2004).

35. See World Bank, *GNI, Atlas method (current US\$)* THE WORLD BANK (Feb. 8, 2014, 7:50 PM), available at [http://data.worldbank.org/indicator/NY.GNP.ATLS.CD?order=wbapi\\_data\\_value\\_2010+wbapi\\_data\\_value&sort=desc](http://data.worldbank.org/indicator/NY.GNP.ATLS.CD?order=wbapi_data_value_2010+wbapi_data_value&sort=desc) (designating that these countries occupy ranks 1-13, 15, 19, 21, 22, 25 and 34).

36. I thank Sharon Wang and Sandra Geddes (both York University Law Library, Osgoode Hall Law School, Toronto, Canada) as well as Erik Hällströmmer (Division for Real Estate and Company Law, Ministry of Justice, Stockholm, Sweden) for valuable contributions, and Elke Halsen-Raffel (Max Planck Institute for Comparative and International Private Law, Hamburg) as well as the library staff of the Max Planck Institute for Research on Collective Goods (Bonn) for generous help with my literature search.

37. These are also three of the five “core structural characteristics” of corporations. See KRAAKMAN ET AL., *supra* note 31, at 5.

38. MODEL NONPROFIT CORP. ACT (3rd ed. 2009).

39. Proposal 1975 to Council Regulation No 2157/2001 arts. 64 (2), 74; European Communities Commission, *Proposal for a Council Regulation on the Statute for European Companies*, 39, 44, COM (1975) 150 final (Mar. 10, 1975); see (not available in English) Europäische Kommission, *Vorschlag einer Verordnung (EWG) des Rates über das Statut für europäische Aktiengesellschaften*, AMTSBLATT

subsequently dropped, so the final bill contains no size requirement for either the management organ<sup>40</sup> or the supervisory organ.<sup>41</sup> Similarly, for the one-tier system, earlier drafts stipulated that “[t]he board shall be composed of at least three members,”<sup>42</sup> which was later toned down into a mere rule<sup>43</sup> and eventually turned into an exception: Except for cases of employee participation, the final bill contains no size requirement for the administrative organ.<sup>44</sup>

Examining the national jurisdictions mentioned above yields the following picture:

*Australia* used to require three members on the board of any corporation, until the First Corporate Law Simplification Act of 1995 relieved proprietary (i.e., private) companies of that minimum.<sup>45</sup> Ever since, proprietary companies may have any number of directors, whereas public companies are still required to have three.<sup>46</sup> This size requirement is “based on a presumption that directors will meet together to conduct their business and to make decisions.”<sup>47</sup>

*Austria* does not regulate the size of the management body in either private or public corporations.<sup>48</sup> In contrast, its Corporate Governance Code recommends that “the management board shall be made up of several persons,”<sup>49</sup> and listed corporations have to disclose publicly any deviations from this rule.<sup>50</sup> Similarly, nonprofits are required since 2002 to have a board of at least two directors and a supervisory body of at least three members.<sup>51</sup> This

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DER EUROPÄISCHEN GEMEINSCHAFTEN C 124 / 1, 15, 17 (1970).

40. Council Regulation No. 2157/2001 art. 39 (4).

41. *Id.* at 40 (3).

42. See Proposal 1989 to Council Regulation No 2157/2001 art. 66 (1): European Communities Commission, *Amended proposal for a Council Regulation (EEC) on the Statute for a European Company*, 37, COM (1991) 174 final (May 16, 1991); see Europäische Kommission, *Vorschlag einer Verordnung (EWG) des Rates über das Statut für europäische Aktiengesellschaften*, art. 64-2 available at EUR-Lex available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:1970:124:FULL:DE:PDF> (not in English).

43. See Proposal 1991 to Council Regulation No 2157/2001 art. 66 (1a): European Communities Commission, *Amended Proposal for a Council Regulation (EEC) on the Statute for a European Company*, 37, COM (1991) 174 final (May 16, 1991) (“The administrative board shall have at least three members within limits fixed by the statutes. However the administrative board may have two, or only one, members where the involvement of employees in the SE is not organized”).

44. Council Regulation No 2157/2001 art. 43 (2).

45. ROBERT AUSTIN ET AL., *COMPANY DIRECTORS: PRINCIPLES OF LAW & CORPORATE GOVERNANCE* 59-60 (2005).

46. Corporations Act § 201A; ROMAN TOMASIC ET AL., *CORPORATIONS LAW IN AUSTRALIA* 263 (Federation Press 2nd ed. 2002); AUSTIN ET AL., *supra* note 45, at 59.

47. TOMASIC ET AL., *supra* note 46, at 264; see also AUSTIN ET AL., *supra* note 45, at 114 (“It is an assumption of the Corporations Act that the board will arrive at a decision at a meeting of directors.”).

48. See Gesetz betreffend die Gesellschaften mit beschränkter Haftung [GmbHG] § 18, Aktiengesetz [AktG] § 71 (2).

49. Austrian Code of Corporate Governance C-16 (2012), available at [http://www.wienerbourse.at/corporate/pdf/CG%20Codex%202012\\_v5\\_englisch.pdf](http://www.wienerbourse.at/corporate/pdf/CG%20Codex%202012_v5_englisch.pdf) (English translation for informational purposes only).

50. Unternehmensgesetzbuch [UGB] § 243b (1) no. 3.

51. Vereinsgesetz [VerG] §§ 5 (3) 1, 5 (4) 1.

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structure was modeled explicitly after the “principles of corporate law”<sup>52</sup> that require supervisory boards of at least three in large private corporations and of three to twenty in public corporations.<sup>53</sup>

*Brazil* stipulates a two-tier structure for both private and public corporations, where “the board of directors shall be composed of two or more directors”<sup>54</sup> and “[t]he statutory audit committee shall be composed of at least three and not more than five members.”<sup>55</sup> Additionally, private corporations may—and public corporations must—establish an “administrative council,” which “shall consist of at least three members” jointly forming “a deliberative body.”<sup>56</sup>

*Canada* traditionally required three board members, at least since the Joint Stock Companies Act of 1850,<sup>57</sup> continuing through § 100 of the Dominion Companies Act of 1918<sup>58</sup> into § 84 of the Dominion Companies Act of 1934.<sup>59</sup> In 1960, however, a year before legislators in Wyoming and Delaware reduced their board membership requirement to one, an Ontario “Select Committee on Company Law” issued a report concluding “that no useful purpose was served by . . . the fixed number of directors [being] no fewer than three,” but the report still urged legislators to “ensure that publicly-held companies have a minimum number of three directors.”<sup>60</sup> Scholars concurred, saying that the size minimum was a “mere formality in small corporations, where the principal shareholder often had one or two family members, close friends, or other ‘yes-men’ appointed to the board.”<sup>61</sup> Consequently, the size requirement was restricted to distributing (i.e., public) corporations by virtue of § 102 (2) of the Business Corporations Act.<sup>62</sup>

*China*, since 1993, provides for two types of corporation, details of which were redrafted in the Corporation Act (Gōngsīfǎ) of 2006. In private

52. Nationalrat [NR] [National Council], XXI. Gesetzgebungsperiode [GP], Regierungsvorlage 990 d.B. („Bundesgesetz über Vereine“), Materialien Parlament aktiv: Regierungsvorlagen und Gesetzesinitiativen (Austria) *available at* [http://www.parlament.gv.at/PAKT/VHG/XXI/I/I\\_00990/fname\\_000243.pdf](http://www.parlament.gv.at/PAKT/VHG/XXI/I/I_00990/fname_000243.pdf).

53. Gesetz betreffend die Gesellschaften mit beschränkter Haftung [GmbHG] §§ 29 (1), 30 S. 1, Aktiengesetz [AktG] § 86 (1).

54. LEY DE SOCIEDADES ANÓNIMAS [LSA] art. 143, Lei No. 6.404 (December 15, 1976) (Braz.). English translation *available at* [www.cvm.gov.br/ingl/regu/law6404r.ASP](http://www.cvm.gov.br/ingl/regu/law6404r.ASP).

55. *Id.* at art. 161 (1).

56. *Id.* at art. 138 (2), art. 140.

57. See 3d Session, 3d Parliament, 12 Victoria, 1849 Bill 14. An Act to provide for the formation of Incorporated Joint-Stock Companies *available at* [http://eco.canadiana.ca/view/oocihm.9\\_04695/4?r=0&s=1](http://eco.canadiana.ca/view/oocihm.9_04695/4?r=0&s=1).

58. CORNELIUS A. MASTEN & WILLIAM K. FRASER, COMPANY LAW OF CANADA 565 (3rd ed. 1929).

59. WILLIAM S. LIGHTHALL, THE DOMINION COMPANIES ACT 1934 ANNOTATED 196 (1935).

60. SAMUEL LAVINE, THE BUSINESS CORPORATIONS ACT. AN ANALYSIS 2, 210-11 (1971).

61. BRUCE WELLING, CORPORATE LAW IN CANADA: THE GOVERNING PRINCIPLES 310 (3rd ed. 1991).

62. See Canada Business Corporations Act, R.S.C. 1985, c. C-44 *available at* [laws-lois.justice.gc.ca/eng/acts/C-44/page-36.html#h-18](http://laws-lois.justice.gc.ca/eng/acts/C-44/page-36.html#h-18); Wellings, *supra* note 61, at 300 n.31 (citing the provinces’ pertinent provisions).

corporations, the board of directors must consist of three to 13 members;<sup>63</sup> in public corporations, there must be five to 19 board members.<sup>64</sup> Both types must have a supervisory board of at least three members.<sup>65</sup> Different rules may apply in special administrative regions, such as Hong Kong, “where not less than 2 directors are required.”<sup>66</sup> Owing to an exception for limited liability companies with “a relatively small number of shareholders and of a relatively small scale,”<sup>67</sup> the size constraints may be binding only for public corporations while private corporations can easily weasel out of them.<sup>68</sup>

*Finland* underwent a corporate law reform in 2006. Before that, public corporations as well as private ones with a similarly-sized share capital (80,000 Euro) were required to have a management board and a supervisory board of three members each.<sup>69</sup> After the reform, the supervisory board is optional,<sup>70</sup> but it still must consist of three members.<sup>71</sup> In addition, “[t]here shall be between one and five regular Members of the Board of Directors . . . . If there are fewer than three Members, there shall be at least one Deputy Member of the Board of Directors.”<sup>72</sup>

*France* restricts limited liability companies to 100 members, above which size they have to convert to a public limited company, lest they be dissolved.<sup>73</sup> These public corporations come in one of four different structures: two variants of the traditional single-tier structure,<sup>74</sup> an “infrequent but not unsuccessful” two-tier structure,<sup>75</sup> and a drastically simplified structure dating back to 1994.<sup>76</sup> Single-tier corporations are to be “administered by a board of directors composed of at least three members,” but no more than 18.<sup>77</sup> Two-tier corporations, by contrast, “shall be managed by a management consisting of

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63. Corporation Act of 2006 [Göngsifä] art. 45.

64. *Id.* at art. 109.

65. *Id.* at arts. 52, 118; CCH Asia, CHINA COMPANY LAW GUIDE VOL. 2, 150.011 (2005); PETER KOH SOON KWANG, MAJOR ISSUES IN COMPANY LAW 118 (Sweet & Maxwell 2010).

66. MINKANG GU, UNDERSTANDING CHINESE COMPANY LAW 134 (Hong Kong Univ. Press 1st ed. 2006) (citing Hong Kong Companies Ordinance § 153).

67. Corporation Act of 2006 [Göngsifä] arts. 51, 52.

68. GE JIANG, DAS GMBH-RECHT IN CHINA AUS RECHTSVERGLEICHENDER SICHT. ANALYSE, KRITIK UND VERBESSERUNGSVORSCHLÄGE 116 (Peter Lang 2011).

69. Osakeyhtiölaki [Companies Act] (Law No. 624/2006) ex-8:1.1 and ex-8:11.1. English translation available at [www.finlex.fi/en/laki/kaannokset/2006/en20060624](http://www.finlex.fi/en/laki/kaannokset/2006/en20060624).

70. *Id.* at 6:1.1.

71. *Id.* at 6:23.

72. *Id.* at 6:8.1.

73. Code de Commerce [C. com] L.223-3. English translation available at [www.legifrance.gouv.fr/contenu/download/1951/13685/version/5/file/Code\\_32.pdf](http://www.legifrance.gouv.fr/contenu/download/1951/13685/version/5/file/Code_32.pdf); see KAREL VAN HULLE & HARALD GESELL, EUROPEAN CORPORATE LAW 151 (Nomos 2006).

74. Code de Commerce [C. com] L.225-17 ff., L.225-51-1.

75. *Id.* at L.225-57 ff.

76. *Id.* at L.227-1 ff.; see Klaus Hopt & Patrick Leyens, *Board Models in Europe – Recent Developments of Internal Governance Structures in Germany, the United Kingdom, France, and Italy*, EUR. COMPANY & FIN. L. REV. 135, 156 (2004).

77. Code de Commerce [C. com] L.225-17.

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not more than five members” (or up to seven if “the company’s shares are admitted for trading on a regulated market”), yet one-man management is admissible in companies “with a share capital of less than 150,000 Euro.”<sup>78</sup> The supervisory board in two-tier corporations has to have at least three members, just like the board in single-tier corporations.<sup>79</sup>

*Germany* does not generally restrict the size of management boards in either private or public corporations. For public corporations with a share capital of at least 3,000,000 Euro, management “shall comprise not less than two persons,” but merely as a non-binding default.<sup>80</sup> More severe are the restrictions imposed by labor codetermination: any corporation with at least 2,000 employees has to appoint a labor director,<sup>81</sup> effectively setting the minimum board size to two for such corporations. Other than that, it is merely a “best practice” recommendation that the board “shall be comprised of several persons,”<sup>82</sup> albeit one that listed corporations may only deviate from if they give reasons publicly.<sup>83</sup> The supervisory board—which is optional for private companies but obligatory for public corporations—has to consist of three to 21 members.<sup>84</sup>

*Indian* corporations are required, at least since 1913, to have two directors if they are private and three directors if they are public.<sup>85</sup> This requirement was laid down in § 252 of the 1956 Companies Act, and not substantially modified in the reforms of 1965 and 2000.<sup>86</sup> The most recent reform of 2013 kept these minimum numbers while enabling one-man companies.<sup>87</sup> At the same time, boards may consist of at most 15 directors that “must act as a body, under the authority of a meeting properly convened”.<sup>88</sup>

*Italy* does not regulate board size in private corporations, but requires them to establish an auditing committee if they exceed certain financial thresholds.<sup>89</sup> Similarly, public corporations are traditionally managed by an administrator or administrative board and an auditing committee of three or five members,<sup>90</sup> but

78. *Id.* at L.225-58.

79. *Id.* at L.225-69.

80. Aktiengesetz [AktG] § 76 (2) 2. English translation *available at* [www.nortonrose.com/files/german-stock-corporation-act-2010-english-translation-pdf-59656.pdf](http://www.nortonrose.com/files/german-stock-corporation-act-2010-english-translation-pdf-59656.pdf).

81. Mitbestimmungsgesetz [MitbestG] § 33 (1) 1.

82. Deutscher Corporate Governance Kodex [DCGK] § 4.2.1. English translation *available at* [www.corporate-governance-code.de/eng/kodex/4.html](http://www.corporate-governance-code.de/eng/kodex/4.html).

83. Aktiengesetz [AktG] § 161.

84. Aktiengesetz [AktG] §§ 95, 108 (2) 3.

85. JAGADISH SWARUP, THE COMPANIES ACT, 1956 § 252 n.1 (1966); English version *available at* [www.mca.gov.in/Ministry/companies\\_act.html](http://www.mca.gov.in/Ministry/companies_act.html).

86. *See* ARUNACHALA RAMAIYA & YESHWANT V. CHANDRACHUD, GUIDE TO THE COMPANIES ACT 2591 (LexisNexis Butterworths Wadhwa Nagpur 16th ed. 2006).

87. Companies Act 2013, § 149 (1) a. English version *available at* [www.mca.gov.in/Ministry/companies\\_act.html](http://www.mca.gov.in/Ministry/companies_act.html).

88. *Id.* at § 149 (1) b; RAMAIYA & CHANDRACHUD, *supra* note 86, at 2596.

89. Codice civile [C. c.] art. 2477; *See* VAN HULLE & GESELL, *supra* note 73, at 208.

90. Codice civile [C. c.] art. 2380bis, and art. 2397.

since 2004 public corporations can opt into an alternative structure with either a one- or a two-tier management board.<sup>91</sup> In the one-tier structure,<sup>92</sup> there are no size requirements per se, but one-third of the board has to consist of independent directors, which implies a minimum board size of three. In the two-tier structure,<sup>93</sup> the management board has to consist of at least two members and the supervisory board of at least three members. As of 2012, most corporations continue in the traditional structure, so that its more recent alternatives are considered “*lettera morta*.”<sup>94</sup>

*Japan* has abolished its private corporation in 2006 and simultaneously reformed the board size requirements for public corporations. Traditionally, Japanese public corporations are two-tier structures with a management board and a supervisory board of at least three members each.<sup>95</sup> After the reform, this minimum applies only to large public corporations, whereas smaller or less fungible ones can do with any number.<sup>96</sup> 2002 saw the introduction of an optional alternative structure where the traditional boards are replaced by at least three committees with three members each.<sup>97</sup>

*Poland* does not restrict the board size in private or public corporations,<sup>98</sup> stipulating merely that multiple members act collectively.<sup>99</sup> The supervisory board—which is obligatory in public corporations as well as large private corporations<sup>100</sup>—“shall be composed of no less than three, and in public companies of no less than five, members.”<sup>101</sup>

*Russia* has three corporate forms, two of which are private and restricted to 50 shareholders. All three are managed by a single director with unlimited legal authority, but an additional board may be established.<sup>102</sup> Private corporations with at least 15 shareholders and all public corporations are required to appoint a reviewer or a review board, and public corporations with at least 50 shareholders have to establish a supervisory board on top, consisting of at least seven members.<sup>103</sup>

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91. *Id.* at art. 2380; Hopt & Leyens, *supra* note 76, at 158-60; VAN HULLE & GESELL, *supra* note 73, at 215.

92. Codice civile [C. c.] art. 2409sexiesdecies ff.

93. *Id.* at art. 2409octies ff.

94. Peter Kindler, *Entwicklungslinien des italienischen Gesellschaftsrechts seit Beginn dieses Jahrhunderts*, ZEITSCHRIFT FÜR EUROPÄISCHES PRIVATRECHT 72, 79 (2012).

95. Company Law 2005 [Kaishahō] arts. 327 (1) and 331 (4), 335 (3). English translation available at [www.japanlaw.info/commercialcode/contents.htm](http://www.japanlaw.info/commercialcode/contents.htm).

96. *Id.* at art. 326 (1).

97. *Id.* at art. 400.

98. Kodeks Spółek Handlowych [KSH] arts. 201, 368 § 2 (Sept. 15, 2000). English translation available at [roma.trade.gov.pl/it/download/file/f.6941](http://roma.trade.gov.pl/it/download/file/f.6941).

99. *Id.* at arts. 205, 371 § 1; VAN HULLE & GESELL, *supra* note 73, at 285, 294.

100. Kodeks Spółek Handlowych [KSH] arts. 381, 213 § 2.

101. *Id.* at arts. 215, 385 § 1; VAN HULLE & GESELL, *supra* note 73, at 295.

102. Tatiana Pashchenko, § 21. *Gesellschaftsrecht*, in EINFÜHRUNG IN DAS RUSSISCHE RECHT 226, 231 (Angelika Nußberger ed. 2010).

103. VOLKER LÜDEMANN, DAS RECHT DER AKTIENGESELLSCHAFT IN RUBLAND: VON DEN

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*South Korea* in 1962 introduced its own Commercial Act to replace the Japanese precursor, remodeling its stock corporation in the process. The new model was inspired by US law, centering around a representative director<sup>104</sup> and a board of “at least three in number: Provided, that in case of a company of which the total capital is less than five hundred million won, the number of the directors may be one or two.”<sup>105</sup> To supervise management, shareholders have to elect internal auditors,<sup>106</sup> but from 1999 on—following the economic crisis—big corporations were required to establish an audit committee instead, consisting “of not less than three directors.”<sup>107</sup> Other committees are optional, but have to consist of two members at least.<sup>108</sup>

*Spain* offers its corporations a choice among four different structures:<sup>109</sup> “Company administration may be entrusted to a sole director, several directors acting jointly or jointly and severally, or a board of directors.”<sup>110</sup> Most frequent of these (and mandatory in listed companies) is the board structure. It requires “no less than three members” on the board.<sup>111</sup> None of the four structures, interestingly, permits establishing a supervisory board.<sup>112</sup>

*Swedish* corporate law, like its descendant in Finland, requires both public and private corporations to be managed by a one-tier board. At least since 1944, the board had to consist of at least three members if the share capital exceeded a certain amount: “The purpose of the rule was to give the board of directors in large companies a stronger position in relation to the CEO and to make it possible for the board to exercise its managing and controlling functions.”<sup>113</sup> The provision moved to Sec. 8:1 of the Companies Act 1975—with an increased threshold value, which was replaced altogether by a distinction between private and public companies in 1999.<sup>114</sup> In 2006, a major

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ANFÄNGEN BIS ZUM AKTIENGESETZ VON 1996, 147 (2001); INTERNATIONAL FINANCE CORPORATION & U.S. DEPT. OF COMMERCE, RUSSIA CORPORATE GOVERNANCE MANUAL 31-32 (2004), *available at* [www.ita.doc.gov/goodgovernance/adobe/CGMEnPart\\_1/Part\\_I\\_fulltext.pdf](http://www.ita.doc.gov/goodgovernance/adobe/CGMEnPart_1/Part_I_fulltext.pdf).

104. Korean Commercial Act 1962 [KCA] art. 389 (1). English translation *available at* [www.moleg.go.kr/FileDownload.mo?flSeq=31318](http://www.moleg.go.kr/FileDownload.mo?flSeq=31318).

105. *Id.* at art. 383 (1).

106. *Id.* at art. 409 (1); YOUNG-JONG YI, ZUR STRUKTURREFORM DER KOREANISCHEN BÖRSENNOTIERTEN AG VOR DEM HINTERGRUND DES DEUTSCHEN UND DES US-AMERIKANISCHEN AKTIENRECHTS 194 (2004).

107. Korean Commercial Act [KCA] art. 415-2 (2); YI, *supra* note 106, at 217, 219.

108. Korean Commercial Act [KCA] art. 393-2 (3).

109. *See* VAN HULLE & GESELL, *supra* note 73, at 337-38, 344.

110. Ley de Sociedades de Capital [LSC] art. 210 (1); English translation *available at* [www.mjusticia.gob.es/cs/Satellite/es/1288774502225/TextoPublicaciones.html](http://www.mjusticia.gob.es/cs/Satellite/es/1288774502225/TextoPublicaciones.html).

111. *Id.* at art. 242 (1).

112. KRISTOFFEL GRECHENIG, SPANISCHES AKTIEN- UND GMBH-RECHT: DAS EINSTUFIGE VERWALTUNGSSYSTEM IN BEZIEHUNG ZUR HAUPTVERSAMMLUNG UND ZU GESELLSCHAFTERRECHTEN 23, 196 (2005).

113. Private correspondence with Hällströmmer (Legal Adviser, Division for Real Estate and Company Law, Swedish Ministry of Justice) translating Regeringens proposition [government proposition] 1944:5 (Oct. 25, 2012).

114. *Id.*



reform like the one in Finland turned the minimum board size from a rule into an exception for public corporations.<sup>115</sup> The new rule is that one director with a deputy suffices.<sup>116</sup> In addition, public corporations have to appoint a managing director.

*Switzerland* does not impose board size restrictions on either nonprofits<sup>117</sup> or private companies.<sup>118</sup> For public corporations—by far the most common Swiss form of business enterprise<sup>119</sup>—a minimum board size was proposed in 1991. No requirement ever materialized,<sup>120</sup> however, so a single director generally suffices.<sup>121</sup> Prominent scholars argue that even if the law does not set an explicit minimum, it nonetheless requires three board members implicitly.<sup>122</sup> This is reflected in the “Swiss Code of Best Practice” which stipulates that “[t]he Board of Directors should be small enough in numbers for efficient decision-making and large enough for its members to contribute experience and knowledge from different fields and to allocate management and control functions among themselves.”<sup>123</sup>

*The United Kingdom* has one of the longest corporate law traditions, starting with the 1844 Joint Stock Companies Act, which in § 110 required at least three directors.<sup>124</sup> Later, private companies had only to have a director and a secretary,<sup>125</sup> and eventually a major reform in 2006 stipulated that a “private company is not required to have a secretary.”<sup>126</sup> One-man management is therefore admissible, yet “[a]lthough it is sufficient just to have 1 director for private companies, it is not advisable to do so.”<sup>127</sup> Public corporations have long been, and still are, required to appoint at least two directors.<sup>128</sup> Listed

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115. Aktiebolagslagen [ABL] 8:46; ROLF SKOG & CATARINA FÄGER, *THE SWEDISH COMPANIES ACT: AN INTRODUCTION* 197, 207 (Norstedts Jur. 2007); *see also* VAN HULLE & GESELL, *supra* note 73, at 350, 357.

116. Aktiebolagslagen [ABL] 8:1.

117. Schweizerisches Zivilgesetzbuch [ZGB] art. 69. English translation *available at* [www.admin.ch/ch/e/rs/c210.html](http://www.admin.ch/ch/e/rs/c210.html).

118. Obligationenrecht [OR] art. 809 (1) 1. English translation *available at* [www.admin.ch/ch/e/rs/c220.html](http://www.admin.ch/ch/e/rs/c220.html).

119. Peter Forstmoser, *Monistische oder dualistische Unternehmensverfassung? Das Schweizer Konzept*, ZEITSCHRIFT FÜR UNTERNEHMENS- UND GESELLSCHAFTSRECHT 688, 693 (2003).

120. Except for banking corporations. *See* BankV art. 8 (1).

121. Obligationenrecht [OR] art. 707 (1).

122. PETER BÖCKLI, *SCHWEIZER AKTIENRECHT* 1732 (Schulthess 4th ed. 2009).

123. Swiss Business Federation, *Swiss Code of Best Practice for Corporate Governance* (Mar. 25, 2002) art. II.b.12, *available at* [www.economiesuisse.ch/de/PDF%20Download%20Files/pospap\\_swiss-code\\_corp-govern\\_20080221\\_en.pdf](http://www.economiesuisse.ch/de/PDF%20Download%20Files/pospap_swiss-code_corp-govern_20080221_en.pdf).

124. *See* Earl Palmer, *Directors' Powers and Duties*, in *STUDIES IN CANADIAN COMPANY LAW* (Etudes sur le droit Canadien des compagnies) VOL. 1, 366, (Jacob Ziegel ed. 1967).

125. *See* Companies Act [CA] 1985 § 283 (1), (2) (“Every Company shall have a secretary. A sole director shall not also be secretary.”).

126. Companies Act [CA] 2006 § 270 (1).

127. Koh Soon Kwang, *supra* note 65, at 118.

128. *See* Companies Act [CA] 1929 § 139 (1), Companies Act [CA] 1948 § 176, Companies Act [CA] 1985 § 282, and Companies Act [CA] 2006 § 154 (2).

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companies are even advised by the Corporate Governance Code to establish an audit and a remuneration committee, each consisting “of at least three, or in the case of smaller companies, two” directors.<sup>129</sup>

### *D. Conclusion*

This survey of twenty legal regimes of corporate decision-making draws a nuanced picture. While none of the jurisdictions leaves corporate decision-making entirely to the discretion of individuals, there is no unambiguous standard of collegiality either—collegial decision-making “is not generally required”<sup>130</sup> at all. The management body of private and/or small corporations faces no size restriction in *any* of the twenty jurisdictions, and the same goes for the *management* board of public corporations in about half the dualist systems. Only the board of public corporations (or the *supervisory* board, in dualist systems) has to have multiple members—and only by virtue of informal or soft laws as far as the US and Switzerland are concerned.

Turned positively, this means that management bodies may become increasingly flexible, but collegiality retains a stronghold in supervisory bodies: 18 out of 20 jurisdictions do legally require multiple members on the board or supervisory board of corporations, giving partial credence to the “default model” notion and Professor Bainbridge’s conclusion that corporate law has a “strong emphasis on collective decisionmaking.”<sup>131</sup> Whether this will remain true, though, is an open question, given that the US has continually cut board size requirements over the last fifty years and many other jurisdictions have followed suit. Even non-profits do not permit easy generalizations, since Austria and the US require minimum board sizes where Germany and Switzerland do not.

In short, collegiality is the legal “default” for a subset of top-level decision-making entities within corporations, but not a universal feature of corporate or even company law. A “preference for a collegial decisionmaking body”<sup>132</sup> is not as clear-cut as may be assumed at first glance. There are many fine-grained distinctions and a large degree of variance among jurisdictions. Empirical research on collegiality may therefore be informative for corporate law in ways not assumed initially.

### III. EMPIRICAL RESEARCH ON COLLEGIALITY

Insofar as jurisdictions do require collegiality, empirical evidence might

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129. Corporate Governance Code [CGC] C.3.1, D.2.1; Financial Reporting Council, *UK Corporate Governance Code* (Sept. 2012), available at [www.frc.org.uk/Our-Work/Codes-Standards/Corporate-governance/UK-Corporate-Governance-Code.aspx](http://www.frc.org.uk/Our-Work/Codes-Standards/Corporate-governance/UK-Corporate-Governance-Code.aspx).

130. Pollman, *supra* note 6, at 140.

131. Bainbridge, *supra* note 7, at 19.

132. *Id.* at 10.

help to justify or critique this requirement. But where can such evidence be found? Again, legal scholarship relies on a sketchy picture. Despite acknowledging that the present subject matter is “incredibly multidisciplinary, with researchers from organizational behavior, psychology, operations research, and other disciplines,”<sup>133</sup> legal scholars have repeatedly limited their attention to behavioral economics and psychology<sup>134</sup> even as they admit it is just one “branch of behavioral science.”<sup>135</sup> This limited focus may be a natural consequence of the “increasing fragmentation of the field,”<sup>136</sup> but since discipline boundaries are arbitrary and ultimately meaningless for the subject matter under study, such fragmentation also proffers unique potential for research to leave the home discipline of its author and become an autonomous field of study.<sup>137</sup> Evidence of this may be seen in the 2006 formation of an Interdisciplinary Network for Group Research (INGRoup), in which “the study of groups will continue to flourish at the crossroads of many fields. This cross-field fertilization is likely to benefit group research by stimulating new ideas, reducing redundancy, and enhancing validity through methodological variation.”<sup>138</sup> Similarly, a recent synthesis has focused on identifying “perspectives” in the larger picture of group research, which need not coincide with specific disciplines at all.<sup>139</sup>

Thus a thorough review of empirical findings must not limit its scope to specific disciplines. However, recognizing the traits of different disciplines helps to distinguish methodological trails to guide one through the thicket of research. One surprisingly reliable indicator for the methodological tradition to which an empirical finding is related is the term given to the object of study. While Professor Bainbridge used the terms *board*, *team*, *committee*, and *group* interchangeably, each is employed by very different empirical traditions to denote their specific share of empirical research on collegial decision-making. The analysis will proceed by characterizing six such traditions, without an attempt to decide which of their notions or definitions of collegiality is best suited for legal analysis, since they highlight quite different aspects of the same

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133. Pollman, *supra* note 6, at 165; see also Marshall S. Poole et al., *Interdisciplinary Perspectives on Small Groups*, in THEORIES OF SMALL GROUPS: INTERDISCIPLINARY PERSPECTIVES 1, 1-20 (Marshall S. Poole & Andrea Hollingshead eds., Sage 2005) (“an important endeavor in psychology, sociology, education, communication, management, social work, political science, public policy, urban planning, and information science”).

134. Pollman, *supra* note 6, at 145, 152; Bainbridge, *supra* note 7, at 11 (referring to “the economics (and/or psychology) of group decisionmaking”).

135. Bainbridge, *supra* note 7, at 3 n.7.

136. Gwen M. Wittenbaum & Richard L. Moreland, *Small-Group Research in Social Psychology: Topics and Trends Over Time*, 2 SOC. & PERSONALITY PSYCHOL. COMPASS 187, 199 (2008); Poole et al., *supra* note 133, at 2 (asserting that “as a whole, group research remains fragmented and discipline bound.”).

137. Pollman, *supra* note 6, at 165 (calling group research “a recognizable field of study in its own right.”).

138. Wittenbaum & Moreland, *supra* note 136, at 199.

139. See Poole et al., *supra* note 133.

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subject matter. These six traditions are empirical finance and law and economics (A.), management science and I/O (industrial and organizational) psychology (B.), political science and political economy (C.), forensic psychology (D.), social psychology (E.) and experimental economics (F.). The review will be limited to research on humans—but note that animal research “poses many similar questions to those in humans” since collegial decisions are “just as important to social animals as they are for us.”<sup>140</sup>

### A. The “Board” in Empirical Finance and Law and Economics

The research tradition that at first blush seems most relevant for corporate collegiality is one that refers to its object of study as the “board” and originates mostly within empirical finance<sup>141</sup> and law and economics.<sup>142</sup> Law and economics famously models the corporation as a nexus of contracts, where all residual claims are allotted to the providers of one factor (i.e., equity) as an incentive to oversee the provision of the remaining factors, thus maximizing overall welfare. In this perspective, the board represents the “common apex of the decision control systems of organizations,”<sup>143</sup> which invites empirical research on how well the board serves this purpose, i.e., how board characteristics affect shareholder value. Such research shall here be referred to as *board research*.<sup>144</sup>

Board research relies almost exclusively on studying correlations and can

140. Larissa Conradt & Christian List, *Group Decisions in Humans and Animals: A Survey*, 364 PHIL. TRANSACTIONS ROYAL SOC'Y: BIOLOGICAL SCI. 719 (2009) (reviewing pertinent evidence extensively); see also Iain D. Couzin et al., *Effective Leadership and Decision-Making in Animal Groups on the Move*, 433 NATURE 513 (2005).

141. E.g., Benjamin E. Hermalin & Michael S. Weisbach, *The Effects of Board Composition and Direct Incentives on Firm Performance*, 20 FIN. MGMT. 101 (1991); Andrei Shleifer & Robert W. Vishny, *A Survey of Corporate Governance*, 52 J. FIN. 737, 751-52 (1997); Dan Dalton et al., *Meta-Analytic Reviews of Board Composition, Leadership Structure, and Financial Performance*, 19 STRATEGIC MGMT. J. 269 (1998) (providing meta-analyses of 54 and 31 primary studies, respectively); Stuart L. Gillan, *Recent Developments in Corporate Governance: An Overview*, 12 J. CORP. FIN. 381 (2006); Lucian Bebchuk et al., *What Matters in Corporate Governance?*, 22 REV. FIN. STUD. 783 (2009).

142. E.g., Barry D. Baysinger & Henry N. Butler, *Corporate Governance and the Board of Directors: Performance Effects of Changes in Board Composition*, 1 J.L. ECON. & ORG. 101 (1985); James A. Brickley & Christopher M. James, *The Takeover Market, Corporate Board Composition, and Ownership Structure: The Case of Banking*, 30 J.L. & ECON. 161 (1987); April Klein, *Firm Performance and Board Committee Structure*, 41 J.L. & ECON. 275 (1998); Sanjai Bhagat & Roberta Romano, *Event Studies and the Law: Part II: Empirical Studies of Corporate Law*, 4 AM. L. & ECON. REV. 380, 401 (2002); Geoffrey C. Kiel & Gavin J. Nicholson, *Board Composition and Corporate Performance: How the Australian Experience Informs Contrasting Theories of Corporate Governance*, 11 CORP. GOVERNANCE: AN INT'L REV. 189 (2003); Oliver E. Williamson, *Corporate Boards of Directors: In Principle and in Practice*, 24 J.L. ECON. & ORG. 247 (2008); Renée B. Adams et al., *The Role of Boards of Directors in Corporate Governance: A Conceptual Framework and Survey*, 48 J. ECON. LITERATURE 58 (2010).

143. Eugene F. Fama & Michael C. Jensen, *Separation of Ownership and Control*, 26 J.L. & ECON. 301, 311, 323 (1983).

144. See Lynne L. Dallas, *The Multiple Roles of Corporate Boards of Directors*, 40 SAN DIEGO L. REV. 781, 801 (2003) (elaborating on finer distinctions and other perspectives).

thus rarely identify causal mechanisms. Since it correlates different input variables—such as the size, composition or investment behavior of the board<sup>145</sup>—with stock prices, “actual board behaviour is not explored in these studies, even though some of them use proxies for actual board behaviour.”<sup>146</sup> Thus, board research is only *behavioral* insofar as researchers consider the behavior of equity providers, as reflected in market prices, but not the behavior of group members themselves. This self-imposed limitation may be attributed to the aforementioned assumptions of law and economics, by virtue of which “the question of corporate governance boils down to that of corporate finance.”<sup>147</sup> It may, however, also result from academic convenience: “most research on boards and corporate governance . . . [was] driven by the ‘publish or perish’ syndrome that is dominating the US academic community. Doctoral students and scholars in tenure track positions have preferred research using easily available data.”<sup>148</sup> Whatever the reason, board research does little to illuminate decision-making processes *within* collegial bodies:

It is no surprise then that it is often said that this theory treats the firm as a ‘black box’—that is, the theory predicts how the firm’s production plan varies with input and output prices, but says nothing about how this production plan comes about.<sup>149</sup>

### *B. The “Team” in Management Science and I/O Psychology*

Another empirical tradition uses “teams” as its currency—with “boards”<sup>150</sup> as the occasional small coin—and originates mostly in management science<sup>151</sup> and I/O psychology.<sup>152</sup> It defines “teams” as multi-member decision bodies that

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145. For a more detailed list, see Morten Huse, *Accountability and Creating Accountability: A Framework for Exploring Behavioural Perspectives of Corporate Governance*, 16 BRIT. J. MGMT. 65, 68-69 (2005).

146. *Id.* at 66.

147. Jacques Lenoble, *From an Incentive to a Reflexive Approach to Corporate Governance*, in CORPORATE GOVERNANCE: AN INSTITUTIONALIST APPROACH 20 (Robert Cobbaut & Jacques Lenoble eds., 2003).

148. Huse, *supra* note 145, at 66.

149. Oliver Hart, *Corporate Governance: Some Theory and Implications*, 105 ECON. J. 678 (1995).

150. *E.g.*, Jeffrey Pfeffer, *Size and Composition of Corporate Boards of Directors: The Organization and Its Environment*, 17 ADMIN. SCI. Q. 218 (1972); G. Tyge Payne et al., *Corporate Board Attributes, Team Effectiveness and Financial Performance*, 46 J. MGMT. STUD. 704 (2009); John A. Wagner et al., *Board Composition and Organizational Performance: Two Studies of Insider/Outsider Effects*, 35 MGMT. STUD. 655 (1998) (presenting meta-analysis of 29 primary studies); Daniel P. Forbes & Frances J. Milliken, *Cognition and Corporate Governance: Understanding Boards of Directors as Strategic Decision-Making Groups*, 24 ACAD. MGMT. REV. 489 (1999).

151. *See, e.g.*, Marilyn Gist et al., *Organizational Behavior: Group Structure, Process, and Effectiveness*, 13 J. MGMT. 237 (1987); Kenneth L. Bettenhausen, *Five Years of Groups Research: What We Have Learned and What Needs to Be Addressed*, 17 J. MGMT. 345 (1991); 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 (1997); John Mathieu et al., *Team Effectiveness 1997-2007: A Review of Recent Advancements and a Glimpse Into the Future*, 34 J. MGMT. 410 (2008).

152. *See, e.g.*, Richard A. Guzzo & Marcus W. Dickson, *Teams in Organizations: Recent Research*

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“develop a sense of shared commitment and strive for synergy,”<sup>153</sup> such that they “see themselves and . . . are seen by others as an intact social entity embedded in one or more larger social systems.”<sup>154</sup> While this identity is often assumed rather than empirically demonstrated, the literature agrees to “explicitly consider a corporate board as a team.”<sup>155</sup>

Coming from applied disciplines, team research traditionally mistrusts experimental methods, owing to their low external validity, and relies mainly on observational methods.<sup>156</sup> Researchers explicitly vow “to sacrifice the rigor of the experimental laboratory to deal with the confounds of the real world in the hope that the findings we identify can be used to guide management practice.”<sup>157</sup> Sacrificing the rigor of experimental research, however, sacrifices insights into causality. Research on top management teams (TMTs), for instance, routinely combines top decision-makers *as if* they acted as a collegial decision-making body (“upper echelon paradigm”). So “in reality, many of the TMTs . . . may not fit our definition of teams, but there is no way to tell.”<sup>158</sup>

In addition, the analytical model of team research is as coarse as that of board research considered earlier. It determines correlations between team characteristics (*input*) with firm level developments (*process*), and then in turn determines correlations of those terms with firm performance (*output*).<sup>159</sup> While this procedure pretends to use “objective measures of organizational performance,”<sup>160</sup> closer inspection reveals that “different measures of performance might be correlated only in a highly non-linear way.”<sup>161</sup> Given the variety of plausible output variables—accounting measures such as price earnings ratio (PER), return on assets (ROA), return on equity (ROE) or Tobin’s *q*—“performance indices are often idiosyncratic” rather than objective.<sup>162</sup> The same holds for input variables, which may even be impossible to elicit: “We should, perhaps, not be surprised by the relative paucity of

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*on Performance and Effectiveness*, 47 ANN. REV. PSYCHOL. 307 (1996); Daniel Ilgen et al., *Teams in Organizations: From Input-Process-Output Models to IMOI Models*, 56 ANN. REV. PSYCHOL. 517 (2005); Steve W.J. Kozlowski & Daniel R. Ilgen, *Enhancing the Effectiveness of Work Groups and Teams*, 7 PSYCHOL. SCI. PUB. INT. 77 (2006).

153. Guzzo & Dickson, *supra* note 152, at 309.

154. Cohen & Bailey, *supra* note 151, at 241; *see also* Kozlowski & Ilgen, *supra* note 152, at 79.

155. Payne et al., *supra* note 150, at 707.

156. Guzzo & Dickson, *supra* note 152, at 333; Cohen & Bailey, *supra* note 151, at 240.

157. Cohen & Bailey, *supra* note 151, at 240.

158. *Id.* at 267.

159. Ilgen et al., *supra* note 152, at 519-20; Mathieu et al., *supra* note 151, at 412; *see also* Kozlowski & Ilgen, *supra* note 152 (discussing extensions of the simple model); Anne Delarue et al., *Teamworking and Organizational Performance: A Review of Survey-Based Research*, 10 INT’L J. MGMT. REVIEWS 127, 131 (2008) (same).

160. Cohen & Bailey, *supra* note 151, at 269.

161. Axel Börsch-Supan & Jens Köke, *An Applied Econometricians’ View of Empirical Corporate Governance Studies*, 3 GERMAN ECON. REV. 295, 318 (2002).

162. Mathieu et al., *supra* note 151, at 415; Denise M. Rousseau, *Organizational Behavior in the New Organizational Era*, 48 ANN. REV. PSYCHOL. 515, 525 (1997) (concluding that this performance paradox “largely went unnoted”).

empirical research by lawyers in this area . . . whose inquiries . . . require disclosure of market-sensitive information or . . . illegal practices. Access to the corporate arena is . . . difficult to obtain if answers are required to questions of a legal nature.”<sup>163</sup>

Many studies, therefore, restrict themselves to easily observable team characteristics such as demographics and firm industry, while neglecting most contextual factors that motivated the choice of observational methods in the first place.<sup>164</sup> Just like board research, then, team research cannot open the “black box of the boardroom.”<sup>165</sup> Of course, not every “black box” needs opening, however prominent the trope.<sup>166</sup> On the contrary, black boxes are an essential component of any theoretical analysis precisely *because* they remain shut. With regard to collegial decisions, however, disregarding their inner workings may achieve a lot, but cannot tackle the effects of collegial decision-making that are of interest here (for details, *see infra* IV). This realization has already led other legal scholars to regret that collegial bodies “remain black boxes in legal analysis, treated as nothing more than aggregations of their individual membership.”<sup>167</sup>

### C. The “Committee” in Political Science and Political Economy

As a third branch of empirical research, political science<sup>168</sup> and political economy<sup>169</sup> study decision-making bodies under the signet of “committees.” Precise definitions of the term are lacking, but committee research is united in the use of experimental methods that “permit direct observation of choice behavior . . . which in turn permits unusually sharp tests of theoretical

163. Sally Wheeler, *Contracts and Corporations*, in THE OXFORD HANDBOOK OF EMPIRICAL LEGAL RESEARCH 125, 139-40 (Peter Cane & Herbert Kritzer eds., 2010). *See also* Payne et al., *supra* note 150, at 705; Huse, *supra* note 145, at 75-76 (citing legal and privacy issues as obstacles to eliciting inside information).

164. *E.g.* Cohen & Bailey, *supra* note 151, at 268 (documenting that no study collected data on the TMT task or considered external communication, and “very few considered organizational context factors, except firm size”).

165. Huse, *supra* note 145, at 72; Payne et al., *supra* note 150, at 705 (comparing the “corporate boardroom” to a “theoretical ‘black box’”).

166. I thank Alexander Morell for pointing this out.

167. Ahdieh, *supra* note 2, at 236.

168. Morris P. Fiorina & Charles R. Plott, *Committee Decisions Under Majority Rule: An Experimental Study*, 72 AM. POL. SCI. REV. 575 (1978); J. Keith Murnighan & Alvin E. Roth, *Effects of Group Size and Communication Availability on Coalition Bargaining in a Veto Game*, 39 J. PERSONALITY & SOC. PSYCHOL. 92 (1980). For recent reviews, see Rose McDermott, *Experimental Methods in Political Science*, 5 ANN. REV. POL. SCI. 31 (2002) [hereinafter *Methods in Political Science*] and Rose McDermott, *Experimental Political Science*, in LABORATORY EXPERIMENTS IN THE SOCIAL SCIENCES 483 (Murray Webster & Jane Sell eds., Academic Press 2007) [hereinafter *Experimental Political Science*].

169. Thomas R. Palfrey, *Laboratory Experiments*, in THE OXFORD HANDBOOK OF POLITICAL ECONOMY (Donald Wittman & Barry Weingast eds., 2006) [hereinafter *Laboratory Experiments*]; Thomas R. Palfrey, *Laboratory Experiments in Political Economy*, 12 ANN. REV. POL. SCI. 379 (2009) [hereinafter *Experiments in Political Economy*].

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predictions.”<sup>170</sup> These predictions concern, among other issues, collective decision-making and information aggregation,<sup>171</sup> which appear particularly relevant for corporate law. Unlike the previous two empirical branches, then, committee research seeks “to explain what goes on within the ‘black box’ of committee decision making.”<sup>172</sup>

Unfortunately the notion of superiority that legal scholars usually attribute to collegial decision-making is insufficiently formalized to couch in terms of committee researchers’ “extremely precise hypotheses generated by complex mathematical theories of committees.”<sup>173</sup> Additionally, a lot of committee research focuses on the expression rather than the formation of preferences<sup>174</sup> under conditions of intra-committee conflict,<sup>175</sup> while collegial decision-making presumably operates quite early in the decision process and under conditions of cooperation. Last, but not least, experimental research is a rather recent and hardly established methodology in political science.<sup>176</sup> Even a comprehensive review found no more than 105 experiments in political science between 1926 and 2000. Among those studies, most were conducted by only a half-dozen researchers, most were published outside political science journals, and only some of them concerned committees.<sup>177</sup>

Since this empirical backing is thin and hardly reliable—“with the experimental sophistication of typical articles in psychology or economics journals outstripping that of many articles published in political science journals”<sup>178</sup>—it may yet be too early to judge coherently the implications of committee research for the issue at hand.

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170. *Experiments in Political Economy*, *supra* note 169, at 380; *Methods in Political Science*, *supra* note 168, at 33-41

171. *Laboratory Experiments*, *supra* note 169, at 916 (mentioning “elections and candidate competition” and “voter turnout and participation games”); *see also* Rick K. Wilson, *Voting and Agenda Setting in Political Science and Economics*, in *LABORATORY EXPERIMENTS IN THE SOCIAL SCIENCES* 433 (Murray Webster Jr. & Jane Sell eds., Academic Press 2007).

172. Fiorina & Plott, *supra* note 168, at 576.

173. *Experiments in Political Economy*, *supra* note 169, at 380; *see, e.g.*, Fiorina & Plott, *supra* note 168 (experiment); Kerstin Gerling et al., *Information Acquisition and Decision Making in Committees: A Survey*, 21 *EUR. J. POL. ECON.* 563 (2005) (review).

174. Fiorina & Plott, *supra* note 168, at 576 (“We focus on the period after biological, sociological and psychological processes have operated to instill clear preferences in committee members.”).

175. *Laboratory Experiments*, *supra* note 169, at 917 (“Experiments in committee decision-making . . . study allocation problems where the members have conflicting preferences over the possible outcomes.”).

176. *Experiments in Political Economy*, *supra* note 169, at 387 (referring to experimental research as “still a relatively new methodology to political science”); *Methods in Political Science*, *supra* note 168, at 31 (“[T]he methodology of experimentation has been slow to garner a following in political science.”).

177. *Methods in Political Science*, *supra* note 168, at 43 (reviewing years 1926-2000).

178. *Id.* at 44.



#### *D. The “Jury” in Forensic Psychology*

A more established tradition of “empirical research on deliberating groups”<sup>179</sup> comes from law and psychology (also known as forensic psychology, to set it apart from criminology),<sup>180</sup> which studies the “jury” in US trial procedures. Despite its applied character,<sup>181</sup> jury research mostly stopped relying on observational data in 1955, when it “drew a storm of protest and led the federal government and most states to ban access to the jury room.”<sup>182</sup> Instead, the field relies heavily on experimental methods—of the 206 empirical jury studies between 1955 and 1999, 136 were lab experiments and 13 field experiments.<sup>183</sup>

By its use of experimental methodology, jury research can be expected to provide valuable insights into causal effects of collegial decision-making. Indeed, the findings in various areas of this research have even been reviewed quantitatively. These findings include the effects of jury size,<sup>184</sup> personal characteristics of jurors,<sup>185</sup> and characteristics of the situation.<sup>186</sup> Unfortunately, collegial decision-making in corporations differs distinctly from collegial decision-making in juries. While this does not prohibit a transfer of findings outright, it calls for considering carefully which findings are properly generalizable.

Once we look for generalizability in jury research, however, we find that it mostly resorts to the more general findings from social psychology, and adds qualifications only where the specific jury situation requires them. In order to understand collegial decision-making in other situations, then, we have to turn to that more general research tradition.

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179. Dennis J. Devine et al., *Jury Decision Making: 45 Years of Empirical Research on Deliberating Groups*, 7 PSYCHOL., PUB. POL’Y, & L. 622 (2001).

180. *See id.* at 624 (referring to earlier review articles).

181. Neil Vidmar & Valerie P. Hans, AMERICAN JURIES: THE VERDICT 15 (Prometheus 2007) (“[W]hat juries do and what research tells us about their performance.”); Devine et al., *supra* note 179, at 712 (“improving the jury system”).

182. Devine et al., *supra* note 179, at 623.

183. *Id.* at 627.

184. Michael J. Saks & Mollie Weighner Marti, *A Meta-Analysis of the Effects of Jury Size*, 21 LAW & HUM. BEHAV. 451 (1997) (Defining 17 primary studies).

185. Laura T. Sweeney & Craig Haney, *The Influence of Race on Sentencing: A Meta-Analytic Review of Experimental Studies*, 10 BEHAV. SCI. & L. 179 (1992) (reviewing 14 primary studies); Douglas J. Narby et al., *A Meta-Analysis of the Association Between Authoritarianism and Jurors’ Perceptions of Defendant Culpability*, 78 J. APPLIED PSYCHOL. 34 (1993) (exploring 20 primary, authoritarianism-type studies).

186. Robert J. MacCoun & Norbert L. Kerr, *Asymmetric Influence in Mock Jury Deliberation: Jurors’ Bias for Leniency*, 54 J. PERS. & SOC. PSYCHOL. 21 (1988) (analyzing 12 primary studies on asymmetric influence); Nancy Mehrkens Steblay et al., *The Effects of Pretrial Publicity on Juror Verdicts*, 23 LAW & HUM. BEHAV. 219 (1999) (meta-analyzing forty-four primary studies on pretrial publicity); Nancy Steblay et al., *The Impact on Juror Verdicts of Judicial Instruction to Disregard Inadmissible Evidence: A Meta-Analysis*, 30 LAW & HUM. BEHAV. 469 (2006) (examining 48 primary studies on inadmissible evidence).

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### *E. The “Small Group” in Social Psychology*

Social psychology has a formidable tradition of studying collegial bodies, which it calls “groups” —or “small groups” if they have no more than twenty members.<sup>187</sup> Such research should, as Professor Bainbridge noted, contribute to our understanding of corporate collegiality, since “boards of directors are small groups. As such, they are subject to the same social and psychological influences as small groups generally.”<sup>188</sup>

The earliest small group research dates back to the beginning of the last century,<sup>189</sup> with the *Annual Review of Psychology* featuring extensive reviews in 1961, 1964, 1967, 1973, 1976, 1979, 1982, 1990, and 2004.<sup>190</sup> Even though there “has been a steady decline of work on intragroup relations, with the numbers reaching a three-decade low in 2006,”<sup>191</sup> the literature is still vast and can be handled comprehensively only in monographs.<sup>192</sup> Every review article starts by radically limiting its focus<sup>193</sup> in order to handle the sheer mass of research.

As the unit of study, a “group” is defined as “a collection of individuals who are mutually aware of, and at least minimally dependent upon, one another.”<sup>194</sup> Groups need not have the shared identity that defines “teams,” but the distinction between the two concepts is more often assumed than demonstrated anyway. Indeed, the difference between them can be considered “rather artificial” since it “reflects more about interdisciplinary territoriality than about fundamental differences in focus or objectives.”<sup>195</sup> The distinction is helpful, however, for noticing methodological differences. While “teams” are

187. JAMES R. LARSON, *IN SEARCH OF SYNERGY IN SMALL GROUP PERFORMANCE* 21 (Psychology Press 2010) (cautioning that “the upper range of what might justifiably qualify as a small group is relatively understudied.”).

188. Donald C. Langevoort, *The Human Nature of Corporate Boards: Law, Norms, and the Unintended Consequences of Independence and Accountability*, 89 *GEO. L.J.* 797, 810 (2001).

189. See *infra* Part III.A.; Irving Lorge et al., *A Survey of Studies Contrasting the Quality of Group Performance and Individual Performance, 1920–1957*, 55 *PSYCHOL. BULL.* 337 (1958) (reviewing studies from 1920 to 1957).

190. Joseph E. McGrath & David A. Kravitz, *Group Research*, 33 *ANN. REV. PSYCHOL.* 195 (1982) (citing earlier reviews); John M. Levine & Richard L. Moreland, *Progress in Small Group Research*, 41 *ANN. REV. PSYCHOL.* 585 (1990); Norbert L. Kerr & R. Scott Tindale, *Group Performance and Decision Making*, 55 *ANN. REV. PSYCHOL.* 623 (2004).

191. Wittenbaum & Moreland, *supra* note 136, at 198.

192. See ROBERT S. BARON & NORBERT L. KERR, *GROUP PROCESS, GROUP DECISION, GROUP ACTION* (Open Univ. Press, 2d ed., 2003); LARSON, *supra* note 187.

193. E.g., Gayle W. Hill, *Group Versus Individual Performance: Are N+1 Heads Better than One?*, 91 *PSYCHOL. BULL.* 517 (1982) (“Because this review was intended to be exhaustive, several boundaries were defined.”); Kerr & Tindale, *supra* note 190, at 623 (“[W]e have omitted many fascinating matters and many of the omissions are intentional.”); Christoph Engel, *The Behaviour of Corporate Actors: How Much Can We Learn from the Experimental Literature?*, 6 *J. INSTITUTIONAL ECON.* 445 (2010) (“There is too much evidence to give a detailed report of each and every study.”).

194. LARSON, *supra* note 187, at 20; Baron & Kerr, *supra* note 192, at 2 (citing another definition: “two or more interdependent individuals who influence each other through social interaction.”).

195. Kerr & Tindale, *supra* note 190, at 624; see also Guzzo & Dickson, *supra* note 152, at 309 (“[D]egrees of difference, rather than fundamental divergences.”).

studied by applied disciplines using observational methods, “groups” tend to be encountered only in experiments conducted as part of basic research.<sup>196</sup>

By virtue of this experimental method, group research may provide insights into the inner workings of collegial decision-making (more so than board and team research, anyway) while at the same time striving for generality in its findings (greater than that of committee and jury research, anyway). Group research will thus be a pertinent and valuable source of empirical evidence on collegial decision-making. Before we proceed with that, let us consider one last strand of research that has taken the stage rather recently.

#### *F. The “Group” and “Team” in Experimental Economics*

Professor Bainbridge frequently referred to behavioral and experimental economics as pertinent disciplines for the study of collegial decision-making. Traditionally, however, economics has focused on the individual maximizing her utility irrespective of other individuals. Only recently—“largely inspired by George A. Akerlof’s and Rachel E. Kranton’s (2000) model on the effects of identity on economic outcomes”<sup>197</sup>—have collegial decision-making bodies caught the attention of economists.

Economics research on collegiality uses “group” and “team” interchangeably—either because it is yet too nascent for its own signature terminology, or because it is simply too unmindful of distinctions evolved through previous research. The latter interpretation is supported by both the field’s selective perception of previous research findings<sup>198</sup> and its sweeping attempts to distinguish itself from other disciplines (e.g., psychology) without relating to their previous research or common themes.<sup>199</sup> Economics-based collegiality research focuses on decisions in the face of uncertainty as well as strategic interactions modeled by game theory.<sup>200</sup> (As in committee research, a priority for this research is non-cooperative game theory, which focuses on conflicts of interest. These conflicts are assumed away in the ideal situation of

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196. Kerr & Tindale, *supra* note 190, at 624.

197. Matthias Sutter, *Individual Behavior and Group Membership: Comment*, 99 AM. ECON. REV. 2247 (2009); Yan Chen & Sherry Xin Li, *Group Identity and Social Preferences*, 99 AM. ECON. REV. 431, 432 (2009); Gary Charness & Matthias Sutter, *Groups Make Better Self-Interested Decisions*, 26 J. ECON. PERSPECTIVES 157 (2012) (“Potential differences between individual and group decision-making have been studied over the past ten to 15 years.”).

198. See Charness & Sutter, *supra* note 196, at 172 (citing the flawed study described *infra* IV.B.3 as “an interesting experiment from the psychology literature”).

199. *Id.* at 159 n.5 (“Psychological paradigms are often much more complex, thereby making it more difficult to characterize general patterns of behavioral differences between individuals and groups.”); James C. Cox & Stephen C. Hayne, *Barking Up the Right Tree: Are Small Groups Rational Agents?*, 9 EXPERIMENTAL ECON. 209, 210 (2006) (elaborating on “departures from previous work”).

200. Stephen L. Cheung & Stefan Palan, *Two Heads Are Less Bubbly than One: Team Decision-Making in an Experimental Asset Market*, 15 EXPERIMENTAL ECON. 373, 374-75 (2012); Tamar Kugler et al., *Are Groups More Rational than Individuals? A Review of Interactive Decision Making in Groups*, 3 WILEY INTERDISC. REVIEWS: COGNITIVE SCI. 471, 473 (2012).

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collegial decision-making.)

Three “lessons” are assumed to derive from that research: that “groups are more cognitively sophisticated,” that “groups can help with self-control and productivity problems,” and that “groups may decrease welfare because of stronger self-interested preferences.”<sup>201</sup> Unfortunately, these conclusions are based on the current “limited economic literature on team decision-making,”<sup>202</sup> which was largely penned by only three authors.<sup>203</sup> Recent review articles seem quite anecdotal, despite their strong conclusion that “considerable evidence” has been found to show “that groups make choices that are more rational in a standard game-theoretic sense than those of individuals.”<sup>204</sup> As in the case of committee research, it is likely much too early to assess the value and implications of experimental economics research on collegiality. Meanwhile, caution should be exercised when arguing on the basis of this thin research.

### G. Conclusion

As Professor Bainbridge implicitly acknowledged, there are various branches of behavioral research that may inform corporate lawyers about collegial decision-making. They should be couched less in terms of their disciplinary affiliation than in terms of their methodological tradition. These traditions are most clearly delineated and most easily distinguished with reference to the signets that Professor Bainbridge uses interchangeably. Put succinctly, the use of terms like “team” or “group” allows groups of group researchers to distinguish their in-group from the out-group of other group researchers. Distinguishing these groups will help lawyers make sense out of seemingly contradictory research and will prove particularly helpful in the next section, which scrutinizes the evidence on collegial decision-making that these research traditions provide.

## IV. EFFECTS OF COLLEGIAL DECISION-MAKING

Professor Bainbridge noted that, “curiously, corporate law scholarship has almost uniformly ignored” the “evidence on group decisionmaking.”<sup>205</sup> He concluded from his own review that “the findings of group decisionmaking research are sometimes inconsistent with the intuitions of conventional wisdom. Periodic vetting of corporate law by group decisionmaking specialists,

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201. Charness & Sutter, *supra* note 197, at 159, 164, 166.

202. Cheung & Palan, *supra* note 200, at 374; Charness & Sutter, *supra* note 197 (“This literature is still young.”).

203. Namely Gary Charness, Martin Kocher, and Matthias Sutter.

204. Charness & Sutter, *supra* note 197, at 158; *see also* Kugler et al., *supra* note 200, at 477 (“[G]roup behavior in games is more in line with rational and selfish predictions than individual behavior is.”).

205. Bainbridge, *supra* note 7, at 3 (referring to notable exceptions in footnote 7).

therefore, may prove useful in law reform.”<sup>206</sup>

Several topics can be identified in Bainbridge’s analysis, for which such “vetting” proves worthwhile. To assess the robustness of his empirical review and, by implication, the validity of his conclusions, we ought to consider research from whichever discipline that takes a “functional” perspective—i.e., is set on “describing and predicting group behavior and performance.”<sup>207</sup> Let us thus consider, in turn, the effects of collegial decision-making on member motivation (A.), information aggregation (B.), moderation and control (C.) and debiasing (D.).

#### A. Motivation?

Professor Bainbridge started from the premise that collegial decision-making does not suggest itself at first glance because “the phenomenon known as social loafing 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. This phenomenon is partially attributable to the difficulty of coordinating group effort as size increases.<sup>208</sup>

The study that this quote refers to was conducted as part of a series of experiments by the French agricultural engineer Max Ringelmann between 1882 and 1887,<sup>209</sup> and enjoys “the distinction of being the first experiment in social psychology.”<sup>210</sup> Yet, the data cited by Bainbridge (and many others) originated most likely not in the experiment itself, but instead were extrapolated

from a number of uncontrolled field studies or observations . . . This is inconsistent with the statement . . . that these data were based on rope pulling. Unfortunately Ringelmann provided less information about these data than about any other data discussed in his article. It is ironic that it has been precisely these data that have had such a

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206. *Id.* at 47-48.

207. Andrea Hollingshead et al., *A Look at Groups from the Functional Perspective*, in THEORIES OF SMALL GROUPS: INTERDISCIPLINARY PERSPECTIVES 21, 22 (Marshall Scott Poole & Andrea Hollingshead eds., Sage 2005); *Id.* at 25 (“The functional perspective has been very influential and has guided much, if not most, of small group research.”).

208. Bainbridge, *supra* note 7, at 11.

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

210. BARON & KERR, *supra* note 192, at 47.

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profound impact on social psychology.<sup>211</sup>

Also, contrary to Bainbridge's summary, coordination problems have long been excluded as an explanation for the loafing effect.<sup>212</sup> These qualifications notwithstanding, the relevance of social loafing for the corporate context cannot be rejected out of hand. Instead, it is reasonable to assume that "the workings of a relational team like the board" may be adversely affected by "the difficulty of motivating members of a team with nonseparable outputs and nonobservable inputs".<sup>213</sup>

On the other hand, loafing is not the only motivational effect to have been shown in a classical experiment. A study by the German Otto Köhler in 1926 and 1927 demonstrated even the opposite: he let trained subjects lift a metal bar with weights attached—either 41 kg by themselves, 82 kg in pairs, or 123 kg in trios.<sup>214</sup> Comparing individual with group performances, Köhler discovered that groups whose members were either very similar or very dissimilar in ability elicited reduced performance—just as social loafing would predict. Groups with a *moderate* difference in ability, however, even surpassed the average performance of their members by 15% in pairs and 5% in trios.<sup>215</sup> The largest increase of 35% occurred in pairs where the weaker member was around three-quarters as strong as the stronger member. This indicates that group membership may boost, rather than only suppress, group members' motivation.

With the Ringelmann effect on one hand and the Köhler effect on the other, what *does* empirical research tell us about how collegial cooperation affects motivation? Before trying to answer that question, let me point out an important methodological concern. Up to this point, I have cited three individual studies. Their results, as we have seen, are partly contradictory. Given the commonplace adage that "Single Studies Are Not Definitive,"<sup>216</sup> we will have to consider many more studies. Continuing in the same manner as before, however, by citing study after study, would surely not reduce our confusion, but perpetuate it. Eventually, we have to cut to the gist of the research, so we need a method to aggregate many empirical studies even if they are contradictory or individually biased. This method is called meta-analysis. It is a statistical approach to synthesizing the results of several studies—sometimes a handful, sometimes hundreds—by treating each study as one unit

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211. Kravitz & Martin, *supra* note 209, at 938.

212. Alan G. Ingham et al., *The Ringelmann Effect: Studies of Group Size and Group Performance*, 10 J. EXPERIMENTAL SOC. PSYCHOL. 371 (1974).

213. Bainbridge, *supra* note 7, at 11; *see also id.* at 39-41.

214. Erich H. Witte, *Köhler Rediscovered: The Anti-Ringelmann Effect*, 19 EUR. J. SOC. PSYCHOL. 147 (1989).

215. *Id.* at 149; LARSON, *supra* note 187, at 284.

216. ROBERT ABELSON, STATISTICS AS PRINCIPLED ARGUMENT 11 (Lawrence Erlbaum Assocs., Inc. 1995).

of observation,<sup>217</sup> and analyzing the new data set to yield the overall effect. “Meta-analyses can find patterns across the primary studies that will allow researchers to better identify and apply the fundamental principles of small groups from the functional perspective.”<sup>218</sup> The process of meta-analysis helps identify bias (by providing analytic tools such as the so-called funnel plot) and removes it by including unpublished studies; it may also increase the statistical power to detect small effects and reduce the reliance on fickle significance levels by estimating standardized effect sizes. In short, it systematizes literature reviews and remedies a number of shortcomings of the research and publication process.<sup>219</sup>

Returning to our subject matter, there are three meta-analyses that have synthesized the pertinent research. They reveal that the Ringelmann and the Köhler effects merely stand in for more general phenomena that are now known in group research as *social inhibition* and *social facilitation*, respectively.<sup>220</sup>

The first meta-analysis considered 202 published and 39 unpublished primary experiments conducted prior to 1982.<sup>221</sup> It concluded that whether group work has an inhibiting or facilitating effect depends mainly on the difficulty of the group task: complex tasks tend to get inhibited by group involvement, while simple tasks tend to get facilitated.<sup>222</sup> Both effects, however, were surprisingly small.<sup>223</sup>

The second meta-analysis appeared exactly eighty years after Ringelmann’s seminal work and synthesized 78 primary studies on social inhibition published between 1974 and 1991.<sup>224</sup> It could not comprehensively analyze the effect of task complexity,<sup>225</sup> but it concluded that social inhibition is a robust finding across lab and field studies, task types, and participant characteristics: “although the magnitude of the effect was reduced for field studies, for women,

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217. Ideally, meta-analyses would pool the raw primary data, but this raw data is usually not available.

218. Poole et al., *supra* note 129, at 50.

219. For an introduction, see the seminal paper by Gene Glass, *Primary, Secondary, and Meta-Analysis of Research*, 5 EDUC. RESEARCHER 3, (1976) and the excellent primer by PAUL ELLIS, *THE ESSENTIAL GUIDE TO EFFECT SIZES: STATISTICAL POWER, META-ANALYSIS, AND THE INTERPRETATION OF RESEARCH RESULTS* (Cambridge Univ. Press 2010).

220. BARON & KERR, *supra* note 192, at 20; LARSON, *supra* note 187, at 259.

221. Charles Bond & Linda Titus, *Social Facilitation: A Meta-Analysis of 241 Studies*, 94 PSYCHOL. BULL. 265, 267-68 (1983) (citing earlier review articles).

222. *Id.* at 274 (reporting “ $d = -0.36$  and  $d = 0.11$ , each  $p < 0.005$ ”).

223. *Id.* at 272 (“Even this largest [inhibitory] effect accounts for only 3.1% of the between-subjects variance in performance quality.”); *id.* at 274 (“[T]he facilitatory mean effect is quite small; on the average, it accounts for only .30% of the performance variance between subjects.”).

224. Steven Karau & Kipling Williams, *Social Loafing: A Meta-Analytic Review and Theoretical Integration*, 65 J. PERSONALITY & SOC. PSYCHOL., 681-82 (1993) (including a “Brief History of Social Loafing Research and Paradigms”). For newer studies, see BARON & KERR, *supra* note 192, at 53.

225. Karau & Williams, *supra* note 224, at 697 n.7 (“[O]nly seven comparisons involving complex tasks were available. . . . Moreover, four of the studies coded as using a complex task . . . may not have been difficult enough.”).

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and for subjects in Eastern cultures, social loafing was still significant under all of these conditions.”<sup>226</sup> Moderator analysis suggested that “individuals are more likely to engage in social loafing . . . when working on tasks that are perceived as low in meaningfulness or personal involvement.” Inhibition decreased, however, as a function of “individuals’ perceptions of either the instrumentality of their efforts for obtaining valued outcomes or the degree to which outcomes in a particular setting are likely to be valued.”<sup>227</sup>

The two aspects just mentioned (instrumentality and evaluability) entail two different perspectives—insofar as group members doubt the instrumentality of their efforts, they might perceive *high dispensability* to be a justification for *free riding*.<sup>228</sup> Insofar as group members doubt the evaluability of their efforts, they might perceive *low identifiability* to be a justification for *social loafing*.<sup>229</sup> Social inhibition, then, comes in two varieties that are seldom clearly distinguished in the economic or legal literature.<sup>230</sup>

While social inhibition had been the focus of most early research in the tradition of Ivan Steiner’s “process loss model,”<sup>231</sup> the third and most recent meta-analysis synthesized 23 primary studies on social *facilitation* conducted between 2000 and 2007.<sup>232</sup> That analysis found a “significant and moderate overall effort increase of individuals working either as a group or coactively with a superior partner.”<sup>233</sup> Moderator analysis indicated two different processes contributing to that finding.<sup>234</sup> On the one hand, weak group members can only assess their performance relative to their stronger partner—i.e., they must engage in *upward social comparison*. On the other, they might perceive their contribution as indispensable if group performance critically

226. *Id.* at 700.

227. *Id.*

228. LARSON, *supra* note 187, at 279-80; *see also* BARON & KERR, *supra* note 192, at 56-57.

229. LARSON, *supra* note 187, at 274, 279-80; *see also* Bainbridge, *supra* note 7, at 10-11; BARON & KERR, *supra* note 192, at 55 (referring to studies by two authors that show that even evaluability by the decision-maker may suffice to reduce loafing: “[T]he original loafing effect appears to be restricted to a fairly narrow range of group task settings where evaluation of member or group performance by anyone is unlikely.”).

230. Although Anne Sibert, *Central Banking by Committee*, 9 INT’L FIN. 145, 147 (2006) considers them synonymous and equates free riding in economics with social loafing in psychology, Bainbridge does juxtapose “social loafing, and collective action failures”, but did not explain his distinction either. Bainbridge, *supra* note 7, at 41

231. Richard Hackman & Charles Morris, *Group Tasks, Group Interaction Process, and Group Performance Effectiveness: A Review and Proposed Integration*, 8 ADVANCES IN EXPERIMENTAL SOC. PSYCHOL. 45, 47 (1975) (citing Steiner to illustrate that “[m]any social psychologists have taken a rather pessimistic view of the role of group process—i.e., seeing it as something that for the most part impairs group task effectiveness”); LARSON, *supra* note 187, at 18-19 (maintaining that Steiner’s theory “has promoted a research literature that has become decidedly unbalanced.”).

232. Bernhard Weber & Guido Hertel, *Motivation Gains of Inferior Group Members: A Meta-Analytical Review*, 93 J. PERSONALITY & SOC. PSYCHOL. 973, 989 (2007) (citing the critique that “social facilitation is a rather inhomogeneous concept with numerous theoretical explanations that partly contradict each other.”).

233. *Id.* at 979 (reporting “g = .60; d = .68; k = 71; CI = .53, .66”).

234. *Id.* at 986.



depends on every individual—i.e., in *conjunctive tasks* as studied by Köhler. The meta-analysis also showed that “motivation gains were significantly higher for physical tasks than for cognitive tasks.”<sup>235</sup>

To conclude, group decisions can neither be preferred nor dispreferred over individuals’ since the group “extends both negative and positive action consequences of an individual.”<sup>236</sup> The critical factor determining whether groups inhibit or facilitate performance is the task to be solved. The tasks that boards typically confront can be characterized as cognitively complex decision-making tasks “with nonseparable outputs and nonobservable inputs,” as Professor Bainbridge aptly characterized them. Since decision-making never depends on the input of *every* group member—i.e., is a disjunctive, not a conjunctive task—social facilitation does not seem particularly likely. Cognitive complexity does not invite social facilitation either, and the additional non-observability of inputs due to the collective nature of decision-making implies their non-evaluability. Lastly, boards make decisions on behalf of strangers, which may reduce their personal involvement so as to increase inhibition.

On the other hand, social inhibition may be mitigated insofar as board membership is “the most important duty that each committee member has in his or her professional life.”<sup>237</sup> That circumstance “seems more likely to foster an atmosphere of competition and one-upmanship” than social loafing, owing to board members’ continual attempts “to influence the opinions of other committee members—or, failing that, at least to sound well-informed and smart.”<sup>238</sup> Indeed, questionnaire surveys show that “most executives are driven by a sense of achievement . . . summarised in the words of one participant as ‘winning’ . . . Chief executives, competitive by nature, want to know how they are doing relative to their peers.”<sup>239</sup> Yet, the resulting net effect of group membership on motivation is not easily determined. Competitiveness may or may not overcome social inhibition, and it may do so either in the short-run only, or may be sustained over a longer time horizon. That is strictly a matter of further empirical inquiry. For the time being, group decision-making may be likely to decrease member motivation in the typical board context, as Professor Bainbridge assumed, but the effect is hardly unequivocal.

### *B. Information Aggregation?*

Professor Bainbridge dedicated a large part of his paper to a research topic

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235. *Id.* at 985 (reporting “ $g = .82$ ;  $k = 32$ ;  $CI = .72, .91$ , vs.  $g = .38$ ;  $k = 39$ ;  $CI = .28, .47$ ;  $pdiff < .001$ ”).

236. *Id.* at 989.

237. Alan Blinder, *Making Monetary Policy by Committee*, 12 INT’L FIN. 171, 174 (2009).

238. *Id.*

239. Alexander Pepper et al., *Are Long-Term Incentive Plans an Effective and Efficient Way of Motivating Senior Executives?*, 23 HUM. RES. MGMT. J. 36, 41 (2013).

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that “has received little attention in legal scholarship,”<sup>240</sup> namely the comparison of decision-making between individuals and groups. Reviewing a number of experiments, Bainbridge took the view that “it seems fair to conclude that group decisionmaking often is preferable to that of individuals.”<sup>241</sup>

Indeed, checking group performance against individual performance might be the single most prominent topic of group research. This implies, however, that reviewing individual experiments might be even less suitable here than on the motivation effects. A systematic review approach is of the essence.

### *1. Terminology and Concepts*

Before we start, some conceptual clarifications are in order. Many a misunderstanding in group research stems from an insufficient understanding of basic concepts. Or, more politely, “[t]he need for precise terminology can be seen in the history of individual versus group comparisons.”<sup>242</sup> Let us start out from the question that has likely inspired most empirical group research: “Are N+1 heads better than one?”<sup>243</sup> This innocent question raises three important issues: (1) Better at what? (2) What is “better”? (3) Better than which “one?”

(1) *Task types.* Current group research unanimously refers to a groundbreaking monograph by Ivan Steiner from 1972, which categorized group research according to the task types that groups encounter.<sup>244</sup> This typology included five categories: divisible, additive, disjunctive, conjunctive, and discretionary tasks.<sup>245</sup> Without going too deeply into details, suffice it to say that corporate decision-making, which requires choosing from several alternatives, is of the *disjunctive* variety, as argued above. That is the kind of task the following review will be limited to.

(2) *Quality measure.* Another classic distinction was introduced by Patrick Laughlin in 1980.<sup>246</sup> He distinguished intellectual tasks, which have a logically demonstrable solution, from judgmental tasks, which “require an evaluative, behavioral or aesthetic judgment that establishes—as opposed to matches—what is correct.”<sup>247</sup> Given that the latter cannot be solved “better” or “worse” by

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240. Bainbridge, *supra* note 7, at 12.

241. *Id.* at 19.

242. Hill, *supra* note 193, at 519.

243. Such are the titles at least of *id.*; Blinder & Morgan, 37 J. MONEY, CREDIT & BANKING 789 (2005); Asher Koriat, *When Are Two Heads Better than One and Why?*, 336 SCIENCE 360 (2012).

244. IVAN STEINER, GROUP PROCESS AND PRODUCTIVITY 14 (Acad. Press 1972); BARON & KERR, *supra* note 192, at 40; LARSON, *supra* note 187, at 63.

245. To be precise, the typology is two-tiered, with the latter four types jointly referred to as indivisible tasks.

246. Patrick Laughlin, *Social Combination Processes of Cooperative Problem-Solving Groups on Verbal Intellectual Tasks*, PROGRESS SOC. PSYCHOL. (Martin Fishbein ed. 1980); LARSON, *supra* note 187, at 46.

247. LARSON, *supra* note 187, at 47.

any objective standard, they are used in group research merely to study questions of personal consistency or social influence.<sup>248</sup> The remaining research consistently measures decision quality by some standard of truth. It has thus been criticized as inapplicable to corporate decision-making because “in many organizational situations, the right answer is simply not known.”<sup>249</sup> Professor Bainbridge, for instance, unequivocally stated that “[m]ost board decisionmaking does not involve problems with a single correct solution, let alone a self-confirming one. . . . Unfortunately, many experiments in this area focus on descriptive rather than evaluative judgments.”<sup>250</sup> This criticism has merit insofar as group research uses intellectual (descriptive) tasks *with* self-confirming solutions (known as *heureka tasks*). However, even at the intellectual extreme of the task continuum, solutions need not be self-confirming. Instead, one will find many intellectual tasks that are so difficult or complex that participants can barely distinguish them from judgmental (evaluative) tasks.<sup>251</sup> Just as we may hope that corporate decision-making is not merely a matter of opinion, but has some—even if unknown—objective function, experimental participants may face tasks with an unequivocally “right” or “true” solution without being aware of it.<sup>252</sup> It is sufficient that the experimenter knows this solution and can hence evaluate participants’ performance. While I will thus speak of “right” and “wrong” solutions, these solutions need not be any more obvious or self-confirming to participants than business decisions are to managers.

(3) *Point of reference.* Comparing “N+1 heads” with “one head” is usually done one of two ways. One takes serious the metaphor of groups “processing information”, and compares real individuals with mathematical models of information aggregation. The “group,” then, does not figure as a real deliberating entity, but is reduced instead to a social decision scheme (SDS).<sup>253</sup>

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248. See, e.g., Paul Zarnoth & Janet Sniezek, *The Social Influence of Confidence in Group Decision Making*, 33 J. EXPERIMENTAL SOC. PSYCHOL. 345, 353-54 (1997).

249. Larry Michaelsen et al., *A Realistic Test of Individual Versus Group Consensus Decision Making*, 74 J. APPLIED PSYCHOL. 834, 837 (1989).

250. Bainbridge, *supra* note 7, at 17; see also Michael Dorff, *The Group Dynamics Theory of Executive Compensation*, 28 CARDOZO L. REV. 2025, 2035 (2007) (arguing that “the application of this research—which generally tests groups with questions that have an objectively correct answer—to corporate decisions—which generally do not—may turn out to be problematic.”); Pollman, *supra* note 6, at 139 (criticizing “problem solving and decision-making tasks substantively unrelated to the corporate context”).

251. PATRICK LAUGHLIN, *GROUP PROBLEM SOLVING 5* (Princeton Univ. Press 2011) (arguing that “[a]lthough the judgments . . . had correct answers . . . correct answers in this research tradition are closer to the judgmental end of the intellectual judgmental continuum.”).

252. As another analogy, take the stock market: Do price movements follow some predictable pattern? Is stock market prediction an intellectual or judgmental task? Only the man with the invisible hand knows, but managers far and wide treat this task *as if* it was one or the other.

253. Pioneered by James Davis, *Group Decision and Social Interaction: A Theory of Social Decision Schemes*, 80 PSYCHOL. REV. 97 (1973). See also Norbert Kerr et al., *On the Virtues of Assuming Minimal Differences in Information Processing in Individuals and Groups*, 3 GROUP PROCESSES & INTERGROUP RELATIONS 203 (2000); LAUGHLIN, *supra* note 251, at 8-20.

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The other way is to compare real groups with their constituent members in a within-subject-design, i.e. an experimental protocol where each participant takes the same decision once by herself and once as a group member, in whichever order. Since group members will be differently proficient by themselves, two different points of reference may be considered. These must be distinguished with great care, since they imply very different interpretations of the original question: One interpretation is to ask whether groups are better than their average or typical member. If that is the case, the group is said to create *weak synergy*.<sup>254</sup> The other interpretation is to ask whether groups are better than their best member. These are said to create *strong synergy*,<sup>255</sup> also known as *creative plus* or, more commonly, as *assembly effect bonus*.<sup>256</sup> Note that in disjunctive tasks, strong synergy only occurs if the group considers more alternatives than any of its members, including one that is better than the alternative preferred by any member. In other words, strong synergy in disjunctive tasks is impossible if any group member preferred the best alternative right from the start.<sup>257</sup>

Given these two interpretations of our original question, let us consider them in turn.

### 2. *Weak Synergy (Discovering Hidden Profiles)*

In theory, if individuals join to form a group, each of them has access to some information that was previously not available to any other member of the group. Therefore, “group members collectively have more information available than does any individual.”<sup>258</sup> The group as a whole, then, can access all common (central) and unique (distributed) information possessed by its members. But does it?

Consider a very simple example—a board with three members and majoritarian voting rule. The board wishes to hire a manager, with one candidate available. Each board member knows something different about this candidate. One knows about the candidate’s excellent reputation, another knows about her effective leadership style, and the third knows that the candidate is well connected in the relevant business sector. Given that every board member knows something the others do not, none of them commands the full *information profile* of the group at the outset. With one candidate available,

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254. LARSON, *supra* note 187, at 6.

255. *Id.* at 7.

256. BARRY COLLINS & HAROLD GUETZKOW, A SOCIAL PSYCHOLOGY OF GROUP PROCESSES FOR DECISION-MAKING 58 (John Wiley & Sons Inc. 1964) (“[T]he group is able to achieve collectively something which could not have been achieved by any member working alone or by a combination of individual efforts.”); LARSON, *supra* note 187, at 4-5.

257. LARSON, *supra* note 187, at 67.

258. Janet Sniezek, *Groups Under Uncertainty: An Examination of Confidence in Group Decision Making*, 52 *Organizational Behav. & Hum. Decision Processes* 124, 131 (1992).

this does not hurt since each board member favors this candidate independently of the others. But assume that a second candidate enters the stage. Two of the three board members happen to know that the new candidate is both of immaculate repute and an effective leader. Now each of these two board members finds more arguments in favor of the second than the first candidate. Still the board as a whole should better hire the first candidate who—unlike her competitor—has the requisite business ties. In group research jargon,<sup>259</sup> the board faces a *weak hidden profile* with respect to the first candidate: no group member knows everything the group “knows” about her, and, based on their unique information, most but not all group members favor the competitor.<sup>260</sup>

In this situation, advocates of collegial decision-making seem to assume that a collegial structure will help the three board members figure out that the first candidate is stronger than the second. Assume that the board member who is unfamiliar with the second candidate starts the discussion by putting forward his argument in favor of the first candidate—her good connections, that is. Now the remaining board members realize that they had not known this fact, and find themselves indifferent between both candidates. As soon as they, too, put their information on the table, the full information profile will be revealed and the group will likely hire the better candidate. This way, the group as a whole will have made a better decision than its average member would have—the group would have obtained *weak synergy*. It is this picture of group discussions that dominated early group research. According to persuasive arguments theory (PAT),<sup>261</sup> group discussion tends to discover distributed information, since group decision-makers take shared information for granted and hardly talk about it.

Things might turn out differently, though. Assume that one of the two board members who favor the competing candidate speaks up first. One of his colleagues might then nod in agreement since his information converges. The less knowledgeable third board member would discover that he knows less about either candidate than his two colleagues do about the competitor, so he might be persuaded to favor the competitor, too. In this sequence of events, the first candidate might not be talked about at all. That is the picture of group discussions that has continuously gained credence following seminal studies on hidden profiles in 1985.<sup>262</sup> Groups tend to be captured by their shared

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259. See Li Lu et al., *Twenty-Five Years of Hidden Profiles in Group Decision Making*, 16 PERSONALITY AND SOC. PSYCHOL. REV. 54, 59 (2012).

260. For a similar example, see Felix Brodbeck et al., *Group Decision Making Under Conditions of Distributed Knowledge: The Information Asymmetries Model*, 32 ACAD. MGMT. REV. 459, 461 (2007).

261. Eugene Burnstein et al., *Interpersonal Comparison Versus Persuasive Argumentation: A More Direct Test of Alternative Explanations for Group-Induced Shifts in Individual Choice*, 9 J. EXPERIMENTAL SOC. PSYCHOL. 236 (1973); Eugene Burnstein & Amiram Vinokur, *Persuasive Argumentation and Social Comparison as Determinants of Attitude Polarization*, 13 J. EXPERIMENTAL SOC. PSYCHOL. 315, 316-17 (1977).

262. Garold Stasser & William Titus, *Pooling of Unshared Information in Group Decision Making:*

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information, resulting in biased information sampling and a failure to discover the hidden profile—a phenomenon sometimes called the *common knowledge effect*.<sup>263</sup> In this picture, shared information will not be taken for granted, but will be used by the group majority to reinforce its mutual illusion of being optimally informed.<sup>264</sup>

Which of the two accounts is more adequate? Let us turn to a recent meta-analysis which covers 65 hidden profile experiments from 1985 to 2010 and replicates two previous meta-analyses.<sup>265</sup> The analysis concludes that in cases such as the one described above, groups are generally biased in favor of common knowledge.<sup>266</sup> They are only one third as likely to discover their best option when the information favoring that option is distributed in a weak hidden profile, as opposed to when the information is manifest for each group member.<sup>267</sup> Mediation analyses revealed that group size and amount of information contribute to the bias: “every additional group member was found to increase the gap between mentions of common and unique information by 0.32 standard deviations . . . every additional piece of information increased . . . [it] by 0.003 standard deviations.”<sup>268</sup> Lastly, task difficulty and solution demonstrability were relevant concerns. “Taken together, the results of these three meta-analyses indicate that hidden profile tasks without a clear preferred solution are most detrimental.”<sup>269</sup>

Given that group research strongly suggests the existence of information sampling bias in decision tasks with a hidden profile, team research (see *supra* III.B) is surprisingly confident in the performance of collegial decision-making bodies. This confidence is largely based on research into *shared cognition*. Among the many different incarnations of that concept,<sup>270</sup> currently the most established one is known as the *team mental model* (TMM): “Teams who share mental models are expected to have common expectations of the task and team, allowing them to predict the behavior and resource needs of team members

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*Biased Information Sampling During Discussion*, 48 J. PERSONALITY & SOC. PSYCHOL. 1467 (1985); Garold Stasser & William Titus, *Hidden Profiles: A Brief History*, 14 PSYCHOL. INQUIRY 304 (2003) (providing a historical account of the research tradition started by the former publication).

263. Daniel Gigone & Reid Hastie, *The Common Knowledge Effect: Information Sharing and Group Judgment*, 65 J. PERSONALITY & SOC. PSYCHOL. 959 (1993).

264. BARON & KERR, *supra* note 192, at 105.

265. Lu et al., *supra* note 259.

266. *Id.* at 65-66, 69 (stating that “on average two standard deviations more of the common information than of the unique information is pooled”).

267. *Id.* at 66.

268. *Id.* at 70.

269. *Id.*

270. Richard Klimoski & Susan Mohammed, *Team Mental Model: Construct or Metaphor?*, 20 J. MGMT. 403 (1994) (“Terms such as shared mental models, common cause maps, shared frames, teamwork schemas, transactional memory, and sociocognition are being offered by investigators.”). Klimoski and Mohammed note further that “[e]ven terminology like ‘teamthink’ is being bandied about in the popular press.” *Id.* at 407. See, e.g., Leslie DeChurch & Jessica Mesmer-Magnus, *The Cognitive Underpinnings of Effective Teamwork: A Meta-Analysis*, 95 J. APPLIED PSYCHOL. 32, 39 (2010).

more accurately.”<sup>271</sup> While “the concept of shared mental models is often merely invoked post hoc,”<sup>272</sup> it is justified theoretically with reference to the notion of a *transactive memory*—a “shared awareness of who knows what within the group.”<sup>273</sup> For instance, a business decision based on ten pieces of information each from the areas of technology, procurement and finance may be handled by the Chief Technology Officer (CTO), Chief Procurement Officer (CPO) and Chief Financial Officer (CFO) jointly, without any one officer keeping track of even half the information required: each of them provides ten pieces of information from her own department plus the two facts that ten more pieces of information rest with each of her colleagues. While each officer preserves merely twelve, they jointly command thirty pieces of information. Such transactive memories have been empirically observed even without formal division of labor.<sup>274</sup> Insofar as group members distribute information according to each other’s competences or preferences, hidden profiles might be prevented from the start. In fact, an experiment that combined a hidden profile task with just this kind of cognitive division of labor concluded that groups whose members specialized on certain types of information decided correctly nearly twice as often (61 %) as groups without specialization (35 %) and almost as often as groups with no hidden profile at all (70 %).<sup>275</sup>

However, transactive memories may in practice not prevent hidden profiles as effectively as we hope. They depend critically on group members’ knowledge of the group architecture.<sup>276</sup> This may be easy where responsibilities are clearly defined (e.g., CFO, CTO, CPO) and matched by the content of incoming information (finance, technology, procurement), but is vastly more difficult when facing multi-layered information on complex issues. Such issues challenge each group member to rely on her colleagues as much as necessary, but no more. Given the general behavioral tendency of people to assess others’ knowledge relative to their own (*the curse of knowledge*), transactive memories

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271. Klimoski & Mohammed, *supra* note 270, at 412; Peter Kim, *When What You Know Can Hurt You: A Study of Experiential Effects on Group Discussion and Performance*, 69 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 165, 166 (1997); Kozlowski & Ilgen, *supra* note 152, at 81 (summarizing that “[p]rocess begets structure, which in turn guides process”); Susan Mohammed et al., *Metaphor No More: A 15-Year Review of the Team Mental Model Construct*, 36 J. MGMT. 876 (2010); Leslie DeChurch & Jessica Mesmer-Magnus, *Measuring Shared Team Mental Models: A Meta-Analysis*, 14 GROUP DYNAMICS: THEORY, RES., & PRAC. 1 (2010) (presenting meta-analysis of 23 primary studies).

272. Klimoski & Mohammed, *supra* note 270, at 413.

273. Vesa Peltokorpi, *Transactive Memory Systems*, 12 REV. GEN. PSYCHOL. 378 (2008); Ilgen et al., *supra* note 152, at 526; see also Garold Stasser et al., *Expert Roles and Information Exchange During Discussion: The Importance of Knowing Who Knows What*, 31 J. EXPERIMENTAL SOC. PSYCHOL. 244 (1995).

274. Anecdotal examples are contained in LARSON, *supra* note 187, at 244, and a review can be found in Peltokorpi, *supra* note 273. See also Stasser et al., *supra* note 273, at 246 (“[G]roups that have a history of working together may develop a division of responsibility for obtaining, processing and communicating certain types of information.”).

275. Stasser et al., *supra* note 273, at 251-52.

276. *Id.* at 262; Peltokorpi, *supra* note 273, at 379.

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may even worsen group performance over time: “those who have gained experience with their partners and/or task would not have their own lack of familiarity as a reminder that others may not know what they know and they may, therefore, form less conservative assumptions about their partners’ knowledge.”<sup>277</sup> One experiment on that hypothesis varied familiarity with both the task at hand and the other group members (2x2 design) and concluded that groups performed *worst* in cases where they were familiar with both task and colleagues.<sup>278</sup> Another study tested “Individual versus Group Spot Price Forecasting in the International Petroleum Market”—using data from a frequently convening committee of six upper-level executives—and concluded that “[t]he evidence, using the rational expectations tests as criteria, shows group-produced forecasts inferior to the mathematical average of individually produced predictions.”<sup>279</sup> These studies cast doubts on the beneficial effect of shared cognition. Even where those benefits exist, however, they may change group dynamics for the worse insofar as they promote over-confidence at the group level.<sup>280</sup>

### 3. *Strong Synergy (Assembly Effect Bonus)*

The previous section argued that groups can potentially access all common and unique information of their members. Yet, how about generating entirely new decision alternatives?

Consider, again, our example above of the three board members assessing managerial candidates. Since that example supposed the existence of two candidates, each of which was favored by at least one board member, the group could not come up with entirely new alternatives. It could not, therefore, surpass its best member (the board member in favor of the first candidate), but only its average member (the two board members in favor of the second candidate). Let us modify the case just a little bit: let not two, but all three members of the board know about the strengths of the second candidate. In this variation, no board member would favor the first candidate right away—even though she is still more suitable than her competitor. Since the best decision alternative, then, is not even at issue, the group faces a *strong hidden profile*. For it to be discovered, the group has to surpass even its best member and thereby to realize *strong synergy*—also known as an assembly effect bonus. This is certainly the most that can be expected from collegial decision-making.

It is, however, also the most unlikely outcome. The same meta-analysis cited earlier concludes that groups are only 6 % as likely to discover their best

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277. Kim, *supra* note 271, at 167.

278. *Id.* at 172.

279. Joe Brocato et al., *Individual Versus Group Spot Price Forecasting in the International Petroleum Market: A Case Study*, 10 *MANAGERIAL & DECISION ECON.* 13, 22 (1989).

280. See Peltokorpi, *supra* note 273, at 379.



option when the information favoring that option is distributed in a strong hidden profile, as opposed to when the information is manifest for each group member.<sup>281</sup> While 6% is not nil, group research does not lend much credence to the widespread occurrence of assembly effect bonuses: “In contrast to weak synergy, there is relatively sparse evidence for the existence of strong synergy, especially on tasks that require mental rather than physical effort.”<sup>282</sup> Similarly, Professor Seidenfeld concluded that “scholarship on group decisionmaking indicates that groups virtually never approach the accuracy of the best choice of their individual members for each problem posed.”<sup>283</sup>

Oddly, though, team research quite generally disagrees. Management practitioners often observe that everyday task groups and teams make better decisions than individuals, and conclude that laboratory experiments are just too artificial to capture essential characteristics of real-life decision-making processes. One of the most prominent and most vigorous attacks ever leveled on group research emanated from an attempt to finally provide “A Realistic Test of Individual Versus Group Consensus Decision Making.” The study published under that title in 1989 boldly concluded that “this study is an unequivocal demonstration that, in a setting similar in many ways to a typical work environment, a vast majority of groups can outperform their most knowledgeable member [i.e., realize strong synergy] on decision-making tasks.”<sup>284</sup>

Unequivocal it should not remain. Group researchers later attempted—and failed—to replicate the study, determining that its seemingly spectacular results were really artifactual, since the original authors had “analyzed their data inappropriately.”<sup>285</sup> This reply was followed by a rejoinder<sup>286</sup> and a counter-rejoinder<sup>287</sup> as well as another critical assessment some years later.<sup>288</sup> Eventually, a review article in 1997 concluded that the original study was “mistaken” and its results caused by an “equivocal method of analysis.”<sup>289</sup> Yet, this conclusion never transpired in other disciplines, not least because the main author of the 1989 study concealed its weaknesses in subsequent publications

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281. Lu et al., *supra* note 259, at 66.

282. LARSON, *supra* note 187, at 7; Hill, *supra* note 193, at 535.

283. Seidenfeld, *supra* note 4, at 532.

284. Michaelsen et al., *supra* note 249, at 836.

285. Scott Tindale & James Larson, *Assembly Bonus Effect or Typical Group Performance? A Comment on Michaelsen, Watson, and Black (1989)*, 77 J. APPLIED PSYCHOL. 102 (1992).

286. Larry Michaelsen et al., *Group Decision Making: How You Frame the Question Determines What You Find*, 77 J. APPLIED PSYCHOL. 106 (1992).

287. Scott Tindale & James Larson, *It's Not How You Frame the Question, It's How You Interpret the Results*, 77 J. APPLIED PSYCHOL. 109 (1992).

288. Mark Stasson & Scott Bradshaw, *Explanations of Individual-Group Performance Differences*, 26 SMALL GROUP RES. 296 (1995).

289. Daniel Gigone & Reid Hastie, *Proper Analysis of the Accuracy of Group Judgments*, 121 PSYCHOL. BULL. 149, 153 (1997).

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and promulgated his findings as though they were entirely uncontroversial.<sup>290</sup> It is not surprising, then, that most corporate law scholars misread the 1989 study. While it is not literally incorrect to refer to the 1989 study as “an interesting experiment the results of which suggest that group decisionmaking has synergistic effects,”<sup>291</sup> the implied understanding—that groups perform “better than their best member”<sup>292</sup>—is unsubstantiated. Similar misconceptions arose in economics, where a recent review article reported the 1989 study to show that “groups actually beat this [best member] benchmark.”<sup>293</sup>

Because some scholars continue to cite the 1989 study in defense of a long-standing belief in strong synergy, its flaws ought to be addressed thoroughly.<sup>294</sup> The study reported results from university course exams, elicited from groups and individuals in a within-subject variation. First off, it is unclear whether the study reported absolute test scores or percentages of correct answers. Since the length of exams varied, one would expect percentages, yet the authors unambiguously report “cumulative scores”<sup>295</sup> and “mean scores” without a percentage sign.<sup>296</sup> (Curiously, this disparity seems to have gone unnoticed entirely, possibly because a small-scale replication found percentages similar to the original study’s values and thus interpreted the original study as a report of percentages, too.<sup>297</sup>) Secondly, the original study failed to have a control condition and thus cannot disentangle its main effect from mere practice effects; a later replication study could not exclude that practice alone would lead to similar improvements in decision quality.<sup>298</sup> Third, and most importantly, the original study reported cumulative scores, for lack of having recorded subjects’ individual exam item scores.<sup>299</sup> Since strong synergy requires the group to generate new alternatives (see *supra* 1.), groups would have had to answer exam questions right that each of their members had answered wrongly. By cumulating answers, these individual decisions were

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290. E.g., Larry Michaelsen et al., *Beyond Groups and Cooperation: Building High Performance Learning Teams*, 12 *TO IMPROVE ACAD.* 127, 142 (1993); LARRY MICHAELSEN ET AL., *TEAM-BASED LEARNING: A TRANSFORMATIVE USE OF SMALL GROUPS* 30, 47, 220 (Praeger, 2002); LARRY MICHAELSEN ET AL., *TEAM-BASED LEARNING FOR HEALTH PROFESSIONS EDUCATION: A GUIDE TO USING SMALL GROUPS FOR IMPROVING LEARNING* 12, 28 (Stylus, 2008).

291. Bainbridge, *supra* note 7, at 24-25.

292. Pollman, *supra* note 6, at 150 n.48.

293. Charness & Sutter, *supra* note 197, at 172.

294. For another recent critique, see LARSON, *supra* note 187, at 33-38.

295. Michaelsen et al., *supra* note 249, at 835 (“Data consisted of the cumulative scores obtained from a series of six individual and group tests. Each of these tests contained 12 to 18 multiple-choice and true/false questions, for a total of 84 to 101 items in all.”).

296. *Id.* at 836 (“[M]ean group score . . . mean average individual score . . . group scores and best individual scores.”).

297. Tindale & Larson, *supra* note 287, at 103; see also Stasson & Bradshaw, *supra* note 288, at 297; LARSON, *supra* note 187, at 34.

298. Stasson & Bradshaw, *supra* note 288, at 299, 304 (“[G]roups did perform significantly better than the highest scoring individual, but . . . not significantly above the . . . improvement rate obtained through re-testing. Thus the practice effect hypothesis could not be rejected.”).

299. Michaelsen et al., *supra* note 286, at 107.

obscured and effectively overridden by the experimenter's decision of how many answers to aggregate: "The students, whether working individually or as a group, affect only *what* is aggregated—exam item answers—not *how* those answers are aggregated. . . . Thus, it is really the instructor, not the students, who creates the total exam scores."<sup>300</sup> In other words, the "best members" that the group allegedly surpassed were "really only best on average."<sup>301</sup> Surpassing average members is a sign of weak rather than strong synergy and undoubtedly much more common. Accordingly, a subsequent computer simulation showed that groups in the original study even fell short of the performance rate expected if two or more group members with correct answers had been able to persuade the misguided majority of their group.<sup>302</sup>

While the 1989 study thus provided no evidence of an assembly effect bonus, a later replication study succeeded to some extent. While in this study many groups (35 %) selected a sub-optimal alternative despite one of their members having favored the correct decision, many groups (28%) also selected the correct decision, even though no group member favored it initially.<sup>303</sup> Even though this replication study was "based on responses to a set of five items testing different mathematical concepts"<sup>304</sup>—which might generally be more favorable to strong synergy<sup>305</sup>—they are the clearest indication of an assembly effect bonus in the whole debate ensuing after the 1989 study. Quite ironically, the artificiality criticism that inspired the first study to look for strong synergy eventually defeated itself, given that "data from [a] laboratory experiment in an artificial context showed nearly the identical effect size as a field study in which groups had significant rewards contingent on quality of performance."<sup>306</sup> But, again, we should emphasize that this single study is no reliable indication, either. Remember that the meta-analysis resulted in a much more conservative estimate of the likelihood for strong synergy to occur across a wide range of studies.

### C. Moderation?

Psychologists traditionally "assumed that group discussion would have a mellowing influence on hotheads and extremists within the group,"<sup>307</sup> and economists even today assert that collegial bodies are "more moderate and

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300. LARSON, *supra* note 187, at 35; *see also* Tindale & Larson, *supra* note 287, at 105; Gigone & Hastie, *supra* note 289, at 153.

301. LARSON, *supra* note 187, at 37.

302. Tindale & Larson, *supra* note 287, at 103.

303. Stasson & Bradshaw, *supra* note 288, at 302-03.

304. *Id.* at 301.

305. *See* Sunstein, *supra* note 5, at 1009 (arguing that "the relevant conditions" for strong synergy to occur "include highly competent group members attempting to solve statistical problems that all members knew to have demonstrably correct answers.>").

306. Stasson & Bradshaw, *supra* note 288, at 304.

307. BARON & KERR, *supra* note 192, at 98.

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more cautious than individuals.”<sup>308</sup> It is no surprise, then, that legal scholars historically assumed that collegial decision-making has an “equalizing and restraining influence” on single decision-makers.<sup>309</sup> Legal scholars attributed to groups a “tendency to avoid extreme judgments and restrict themselves to middle grounds. This innate tendency to compromise is evident to anyone who has participated in group decisions behind the judges’ bench.”<sup>310</sup> Similarly, collegial decision-making in corporations presumably “facilitates mutual monitoring and checks idiosyncratic decision-making.”<sup>311</sup> Yet these delicate checks and balances might fail in adverse conditions, or so Professor Bainbridge argued: “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.”<sup>312</sup>

This “groupthink” theory was put forward by Irving Janis,<sup>313</sup> and was characterized later as “arguably the most widely publicized application of psychological principles to high-level . . . group decision making in the history of experimental psychology.”<sup>314</sup> Both management scholars and corporate lawyers consider “groupthink” the principal cause for managerial mistakes or even outright misconduct,<sup>315</sup> up to the scale of world-shaking disasters such as the collapses of Enron and WorldCom.<sup>316</sup> For groupthink to occur, Janis’ theory

308. Sibert, *supra* note 230, at 147.

309. RUDOLF VON IHERING, *LAW AS A MEANS TO AN END* 299 (The Boston Book Company 1913).

310. Jörg Berkemann, *Die Richterliche Entscheidung in Psychologischer Sicht*, 26 JURISTENZEITUNG 537, 539 (1971) (quote translated by myself, as one of many such statements in the German legal debate).

311. Kraakman et al., *supra* note 31, at 14.

312. Bainbridge, *supra* note 7, at 32; *see also* Donald Langevoort, *Organized Illusions: A Behavioral Theory of Why Corporations Mislead Stock Market Investors (And Cause Other Social Harms)*, 146 U. PA. L. REV. 101, 138 (1997); Haft, *supra* note 10, at 29 (arguing for the “fine balance between incest and indifference among group members”).

313. Irving Janis, *VICTIMS OF GROUPTHINK - A PSYCHOLOGICAL STUDY OF FOREIGN-POLICY DECISIONS AND FIASCOES* (Houghton Mifflin Company 1972).

314. Robert Baron, *So Right It's Wrong: Groupthink and the Ubiquitous Nature of Polarized Group Decision Making*, 37 *ADVANCES EXPERIMENTAL SOC. PSYCHOL.* 219 (2005).

315. Christopher Neck, *Letterman or Leno: A Groupthink Analysis of Successive Decisions Made by the National Broadcasting Company (NBC)*, 11 *J. MANAGERIAL PSYCHOL.* 3 (1996) (referring to mistakes at NBC); Ronald Sims, *Linking Groupthink to Unethical Behavior in Organizations*, 11 *J. BUS. ETHICS* 651 (1992) (referring to fraud at Beech-Nut, E. F. Hutton and Salomon Brothers).

316. Kath Hall, *Looking Beneath the Surface. The Impact of Psychology on Corporate Decision Making*, 49 *MANAGERIAL L.* 93, 102 (2007) (“In recent scandals there was evidence of groupthink.”); Marleen O’Connor, *The Enron Board: The Perils of Groupthink*, 71 *U. CINN. L. REV.* 1233 (2003); M.M. Scharff, *Understanding WorldCom’s Accounting Fraud: Did Groupthink Play a Role?*, 11 *J. LEADERSHIP & ORGANIZATIONAL STUD.* 109 (2005); Roland Bénabou, *Groupthink: Collective Delusions in Organizations and Markets* (Nat’l Bureau of Econ. Research, Working Paper No. 14764), available at <http://www.nber.org/papers/w14764> (referring in Appendix A to cases “from NASA to the FED, SEC and Fannie Mae, from Enron to major investment banks, A.I.G and individual investors”); critically Bernard Sharfman & Steven Toll, *Dysfunctional Deference and Board Composition: Lessons From Enron*, 103 *NW. U. L. REV. COLLOQUY* 153, 159-60 (2008) (“Dysfunctional deference—not groupthink—was the more likely cause of these serious errors in board decisionmaking.”).

postulates a number of specific antecedents (group cohesion,<sup>317</sup> threatened identity, etc.) that the traditional “boardroom culture” arguably satisfies: “Boards emphasize politeness and courtesy at the expense of oversight. CEOs foster and channel groupthink through the exercise of their powers to control information flows, reward consensus, and discourage reelection of troublemakers.”<sup>318</sup>

Yet empirical surveys have long been critical of groupthink: “the theory has certain conceptual limitations and . . . weak research support,”<sup>319</sup> and even today “findings supporting groupthink are sparse.”<sup>320</sup> So it might not be very surprising that some legal scholars were more skeptical than Professor Bainbridge, with Professor Seidenfeld leading the way.<sup>321</sup> A few years after both authors wrote on the subject, a comprehensive review of extant reviews concluded drily: “On the basis of this disappointing lack of support for [its] key predictions, the great majority of reviews . . . recommend revisions, replacement or even outright rejection of the [groupthink] model.”<sup>322</sup> This, however, does not make the problems that Professor Bainbridge described disappear. On the contrary, if groupthink theory is wrong with respect to its narrow antecedent conditions, then its consequence is likely to be even more ubiquitous than previously acknowledged. After all, the “rapid dissemination of the groupthink notion” points to a “certain ‘ring of truth’ that resonates with readers.”<sup>323</sup> So while the specific formulation of groupthink theory is likely wrong, its “main contribution . . . in the long run will be the provocative research that it spawned, research that has shown us that constructs that typically are seen as positive aspects of groups (cohesiveness, collective efficacy, etc.) do not invariably lead to improved group outcomes.”<sup>324</sup> With the benefit of current knowledge, we may thus conclude that a “large body of empirical evidence shows that erroneous judgments often result when deliberations are undertaken by like-minded people; those who agree with one another typically end up at a more extreme point in line with their predeliberation tendencies.”<sup>325</sup>

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317. Hall, *supra* note 316, at 102 (“The most significant element of groupthink is the existence of a cohesive group.”); *see also* Dorff, *supra* note 250, at 2035 (“[C]ohesive groups which strive for unanimity.”).

318. Bainbridge, *supra* note 7, at 32.

319. Levine & Moreland, *supra* note 190, at 604, 619.

320. Kugler et al., *supra* note 200, at 473.

321. Seidenfeld, *supra* note 4, at 541-43 (“I suspect that groupthink is more of a problem when the work group’s interactions become hierarchical.”).

322. Baron, *supra* note 314, at 224.

323. *Id.* at 227.

324. Kerr & Tindale, *supra* note 190, at 640.

325. Christine Jolls & Cass Sunstein, *Debiasing Through Law*, 35 J. Legal Stud. 199, 218 (2006); Bernard Sharfman & Steven Toll, *A Team Production Approach to Corporate Law and Board Composition*, 103 Nw. U. L. Rev. Colloquy 380, 388-89 (2009) (arguing that “[t]he corporate board is no exception to this problem”).

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The first such evidence hailed from an unpublished 1961 Master's thesis by James Stoner. He observed that individuals tended to accept greater risk after having discussed their course of action in a group, which became known as the *risky shift*.<sup>326</sup> Subsequently, hundreds of studies<sup>327</sup> demonstrated the generality of such *group-induced attitude polarization*. Even “a group of moderately profeminist women will be more strongly profeminist following group discussion. Thus, on decisions in which group members have, on the average, a moderate proclivity in a given direction, group discussion results in a more extreme average proclivity in the same direction.”<sup>328</sup> This seems to be caused by two distinct processes:<sup>329</sup>

Most theorists acknowledge that two . . . social influence processes, normative and informational influence, contribute to group polarization. If there is a pre-existing group preference or norm . . . , normative influence will make group members reluctant to deviate from that norm. In this case, those who are relatively least committed to the group norm are likely to be seen as deviates. Thus, if group members simply find out the positions taken by other group members, this information by itself can exert influence by initiating a subtle competition among group participants to be at least ‘above average’ in terms of their adherence to any group norm. . . .

On the other hand, informational influence will also affect group members when they hear the arguments and reasons that other group members provide when discussing decision preferences.<sup>330</sup>

These two processes are often referred to as *social comparison* and *persuasive argumentation*. Both a meta-analysis on 21 primary studies from 1974 to 1982 and a more recent review concluded that neither of the two processes can singly explain group polarization, since “outside of the laboratory they almost always co-occur.”<sup>331</sup>

As a particularly severe consequence, group polarization may facilitate *escalation of commitment*,<sup>332</sup> the tendency of decision-makers to justify

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326. See Daniel Isenberg, *Group Polarization: A Critical Review and Meta-Analysis*, 50 J. PERSONALITY & SOC. PSYCHOL. 1141 (1986) (containing further references).

327. *Id.* (“several hundred studies”); BARON & KERR, *supra* note 192, at 103 (“over 500 studies”); Sunstein, *supra* note 5, at 1004 (“hundreds of studies involving over a dozen countries”); Sibert, *supra* note 230, at 161 (“more than 300 studies”).

328. Isenberg, *supra* note 326, at 1141; see, e.g., BARON & KERR, *supra* note 192, at 98.

329. For earlier attempts at explanation, see Isenberg, *supra* note 326, at 1141. For a more recent, third explanatory approach (self-categorization), see BARON & KERR, *supra* note 192, at 100.

330. BARON & KERR, *supra* note 192, at 99-100; see also Sunstein, *supra* note 5, at 75, 88-90; Sunstein, *supra* note 5, at 176-80 (2002); Seidenfeld, *supra* note 4, at 535-37.

331. Isenberg, *supra* note 326, at 1149 (1986); BARON & KERR, *supra* note 192, at 99-100.

332. Langevoort, *supra* note 312, at 142-43; Langevoort, *supra* note 188, at 811 (2001); Troy Paredes, *Too Much Pay, Too Much Deference: Behavioral Corporate Finance, CEOs, and Corporate Governance*, 32 FLA. ST. U. L. REV. 673, 691 (2005).

capsized projects by increasing their investment or, as it were, by “throwing good money after the bad.” This commitment bias was first observed by Barry M. Staw and depends critically on whether decisions on follow-up investments are taken by the people responsible for unsuccessful previous investments.<sup>333</sup> Group polarization might dissuade even group members who were opposed to the first investment from objecting to the second.<sup>334</sup> In legal practice, “scholars have identified the commitment bias as a primary cause of the chronic overcapacity often observed in industry,”<sup>335</sup> as well as the low profitability of corporate acquisitions in the 1980s.<sup>336</sup> Escalation of commitment is seen behind bidding wars like the one for Bloomingdale’s in 1987 and 1988 (whose acquirer went straight into bankruptcy),<sup>337</sup> or more recently for Guidant in 2005 and 2006 (where the “victorious” of two competing bidders lost more than half its market value as a result).<sup>338</sup> Even rogue traders such as Nick Leeson, who bankrupted Barings Bank in 1995, “showed the dramatic consequences that can result from escalation of commitment to avoid losses.”<sup>339</sup> Given this presumed practical relevance of escalation of commitment, it is crucial to understand its interaction with collegial decision-making bodies. Two vignette studies have previously attempted that.

The first study demonstrated in a between-subjects design “that groups as well as individuals show evidence of escalation of commitment.”<sup>340</sup> Despite this modest claim, the study was later reported to have shown “that groups are less likely than individuals to escalate commitment; however, groups that escalate tend to do so to a greater degree than individuals.”<sup>341</sup> While the former claim cannot be found in the original publication, the latter is substantiated by the fact that follow-up investments by individuals were 24.6% larger if the first investment failed than if it succeeded (everything else being constant), while the same figure was 68.9 % for groups.<sup>342</sup> Because of considerable variation in the study, however, this effect was not significant.<sup>343</sup>

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333. Max Bazerman et al., *Escalation of Commitment in Individual and Group Decision Making*, 33 ORGANIZATIONAL BEHAV. & HUM. PERFORMANCE 141, 142-43 (1984).

334. *Id.* at 143-44 (arguing on the outdated basis of risky shift and groupthink).

335. Langevoort, *supra* note 312, at 143.

336. MAX BAZERMAN & DON MOORE, JUDGMENT IN MANAGERIAL DECISION MAKING 105 (John Wiley & Sons, 7th ed. 2009) (noting that “in the aggregate, the synergy that was obtained in acquisitions went to the sellers”).

337. Max Bazerman & Margaret Neale, *Nonrational Escalation of Commitment in Negotiation*, 10 EUR. MGMT. J. 163, 163-64 (1992).

338. BAZERMAN & MOORE, *supra* note 336, at 107-08 (2009) (noting as an encouraging exception the example of American Airlines, which in 1995 successfully avoided a bidding war against United Airlines for the acquisition of USAir).

339. *Id.* at 109.

340. Bazerman et al., *supra* note 333, at 150.

341. BAZERMAN & MOORE, *supra* note 336, at 104.

342. Bazerman et al., *supra* note 333, at 148 (percentages calculated from data reported in table 1).

343. *Id.* at 147 (“A 2 x 2 ANOVA on amount of funds allocated to the previously chosen division yielded a statistically significant main effect for Responsibility,  $F(1,71) = 15.45$ ,  $p < .001$ , and no other

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The other vignette study was conducted with senior undergraduates and graduates of business administration with “approximately 2 years full-time work experience.”<sup>344</sup> It employed a within-subjects design with three different investment decisions (all with an expected value of zero)<sup>345</sup> which were elicited first individually, then from five participants as a deliberating group.<sup>346</sup> One of the three decisions concerned the first investment, the other two concerned follow-up investments after a failed first investment. In one of the other two decisions, the subject bore personal responsibility for the first failure, in the other she did not.<sup>347</sup> Results showed that 29% of individuals and 26% of groups went for the first investments, but 66% of individuals and 77% of groups for the follow-up investment after the first investment had failed. Being personally responsible for the failure increased the numbers again, to 72% for individuals and 94% for groups. This “significant interaction between decision frame and performing unit indicates that decision frame had a more pronounced effect on the frequency of escalation in group decision making than in individual decision making.”<sup>348</sup> The study thus provides evidence that groups do indeed aggravate the tendency to escalate commitment. At first glance, this result seems to belie the conclusion drawn elsewhere that “the group decision-making unit has a unique potential to ‘debias’ nonrational escalation of commitment.”<sup>349</sup> What this conclusion aptly points out, however, is the great *potential* of additional empirical knowledge for designing beneficial institutions.<sup>350</sup>

### D. Debiasing?

The last quote points to another function of collegiality that is often appealed to, most prominently by the school of libertarian paternalism: using group process to mitigate individual cognitive biases. As early as 1981, corporate lawyers argued that “systematic errors” due to individuals’ “cognitive limitations” indicated “that corporations are safer committing major business decisions to an intelligent peer group than to any intelligent individual.”<sup>351</sup> The

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effects.”); see also Glen Whyte, *Escalating Commitment in Individual and Group Decision Making: A Prospect Theory Approach*, 54 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 430, 432 (1993).

344. Whyte, *supra* note 343, at 437.

345. For a sample scenario, see Appendix 1, *id.* at 450.

346. *Id.* at 440.

347. *Id.* at 437.

348. *Id.* at 442 (reporting “ $F(2,59) = 11.8, p > .0001$ ”).

349. Sniezek, *supra* note 258, at 147 (1992); see also Hall, *supra* note 316, at 103 (arguing that “[c]orporate boards in particular have the potential to become more aware of the common weaknesses that can influence their decision making.”).

350. Sniezek, *supra* note 258, at 147 (defending her previously cited conclusion by arguing “that reducing group cohesiveness, e.g., by having different sets of group members responsible for initial and subsequent decisions, could inhibit the need to justify and result in diminished escalation.”).

351. Haft, *supra* note 10, at 57.



most salient systematic error (bias) and “the effect that is best studied in managers is overoptimism,” with research results being summarized as follows:

Managers are prone to self-serving reinterpretations of reality. They take credit for good outcomes and lay blame on the environment for bad outcomes. They tend to pay selective attention to regulatory concerns, like safety, and to perceive reality in a filtered way. They even misperceive objective facts that are key to assessing their position in the market, such as last year’s sales, or the percentage change in their industry’s sales in the previous year.<sup>352</sup>

The practical relevance of such misperceptions can hardly be overstated. Managerial overconfidence has been blamed for the “fall of the behemoths” IBM and General Motors in the 1980s,<sup>353</sup> for the failure of Disneyland Paris in the early 1990s,<sup>354</sup> for fraud allegations involving Apple, TimeWarner, and Polaroid,<sup>355</sup> as well as for the general “underperformance of companies undertaking mergers.”<sup>356</sup> This last phenomenon has been provocatively labeled the *hubris hypothesis*,<sup>357</sup> and has triggered calls for the reform of corporate and takeover law.<sup>358</sup> While one should expect that “persons who rise in the organization to achieve . . . power are not ordinary, but rather the survivors in a tournament that presumably weeds out those with inferior cognitive traits,”<sup>359</sup> numerous studies have nevertheless managed to trace managerial overconfidence effects in stock markets.<sup>360</sup>

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352. Engel, *supra* note 193, at 452 (citing further references on each statement and adding that “[i]n all of these respects, manager behaviour does not seem to systematically deviate from the behaviour of independent individuals”); Langevoort, *supra* note 188 at 803 (“A sizable body of research in cognitive psychology indicates that, left to their own, managers tend to develop biased constructions of the firm’s strategic position. Moreover, they will be overconfident and heavily invested in those beliefs, and hence disinclined to seek out information that would suggest that they might be wrong.”).

353. Harry Levinson, *Why the Behemoths Fell. Psychological Roots of Corporate Failure*, 49 AM. PSYCHOLOGIST 428, 431-32 (1994) (“That kind of corporate narcissism on the part of General Motors led it to discount the Japanese automakers; in the computer industry, it led IBM to ignore the shift in emphasis from hardware to software.”).

354. Hall, *supra* note 316, at 96-97.

355. Langevoort, *supra* note 312, at 146-47 (“In most of these cases, a highly successful organization . . . was sued for not disclosing some bits of adverse information later found in the company’s files.”).

356. Stefano DellaVigna, *Psychology and Economics: Evidence from the Field*, 47 J. ECON. LITERATURE 315, 342 (2009); James Fanto, *Quasi-Rationality in Action: A Study Of Psychological Factors in Merger Decision-Making*, 62 OHIO ST. L. J. 1333, 1368 (2001); Hall, *supra* note 316, at 99.

357. Richard Roll, *The Hubris Hypothesis of Corporate Takeovers*, 59 J. BUS. 197 (1986).

358. James Fanto, *Braking the Merger Momentum: Reforming Corporate Law Governing Mega-Mergers*, 49 BUFF. L. REV. 249, 285 (2001); Paredes, *supra* note 332, at 736.

359. Donald Langevoort, *Heuristics Inside the Firm – Perspectives from Behavioral Law and Economics*, HEURISTICS & L. 91 (Gerd Gigerenzer & Christoph Engel eds., 2006).

360. Bernard Black, *Bidder Overpayment in Takeovers*, 41 STAN. L. REV. 597 (1989); Mathew Hayward & Donald Hambrick, *Explaining the Premiums Paid for Large Acquisitions: Evidence of CEO Hubris*, 42 ADMIN. SCI. Q. 103 (1997); James Heaton, *Managerial Optimism and Corporate Finance*, 31 FIN. MGMT. 33 (2002); Mark Simon & Susan Houghton, *The Relationship Between Overconfidence and the Introduction of Risky Products: Evidence from a Field Study*, 46 ACAD. MGMT. J. 139 (2003); Ulrike

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Considering this evidence, it seems natural to turn to collegial decision-making to alleviate such “well-known CEO tendencies . . . as overconfidence and self-aggrandizement”<sup>361</sup> and thereby debias corporate decision-making. “The averaging function may also imply that group decisionmaking may reduce the overconfidence of decisionmakers. By improving the accuracy of decisions, the averaging mechanism will make those decisions fall more in line with members’ individual estimations of their accuracy.”<sup>362</sup> Professor Bainbridge stated the case clearly, with reference to a number of previous studies and an anecdote from RJR Nabisco: “[g]roup decisionmaking presumably checks individual overconfidence by providing critical assessment and alternative viewpoints . . . The board serves to constrain subordinates who have become wedded to their plans and ideas, rather than developing such plans in the first instance.”<sup>363</sup>

Yet this presumption can easily be questioned on the grounds that “information processing in groups can be flawed in the same manner as individual information processing.”<sup>364</sup> In particular, group polarization as introduced above might escalate overconfidence. If the “group is initially populated by overconfident individuals, the resulting dynamic will strengthen the effect, not be a moderating influence.”<sup>365</sup>

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Malmendier & Geoffrey Tate, *CEO Overconfidence and Corporate Investment*, 60 J. FIN. 2661 (2005); Ulrike Malmendier & Geoffrey Tate, *Does Overconfidence Affect Corporate Investment? CEO Overconfidence Measures Revisited*, 11 EUR. FIN. MGMT. 649 (2005); Yueh-hsiang Lin et al., *Managerial Optimism and Corporate Investment: Some Empirical Evidence from Taiwan*, 13 PAC.-BASIN FIN. J. 523 (2005); Rayna Brown & Neal Sarma, *CEO Overconfidence, CEO Dominance and Corporate Acquisitions*, 59 J. ECON. & BUS. 358 (2007); Itzhak Ben-David et al., *Managerial Overconfidence and Corporate Policies* (Nat’l Bureau of Econ. Research, Working Paper No. 13711), available at <http://www.nber.org/papers/w13711>; John Doukas & Dimitris Petmezas, *Acquisitions, Overconfident Managers and Self-attribution Bias*, 13 EUR. FIN. MGMT. 531 (2007); Rose Trevelyan, *Optimism, Overconfidence and Entrepreneurial Activity*, 46 MGMT. DECISION 986 (2008); Ulrike Malmendier & Geoffrey Tate, *Who Makes Acquisitions? CEO Overconfidence and the Market’s Reaction*, 89 J. FIN. ECON. 20 (2008); Xia Wang et al., *Managerial Overconfidence and Over-Investment: Empirical Evidence from China*, 3 FRONTIERS BUS. RES. CHINA 453 (2009); Jens Martin, *The Impact of Optimistic and Privately Informed Managers on Firm Performance and Corporate Decisions*, UNIVERSITÀ DELLA SVIZZERA ITALIANA, available at [http://www.common.unisi.ch/pdf\\_pub/3894\\_2](http://www.common.unisi.ch/pdf_pub/3894_2); Arijit Chatterjee & Donald Hambrick, *It’s All About Me: Narcissistic Chief Executive Officers and Their Effects on Company Strategy and Performance*, 52 ADMIN. SC. Q. 351 (2007).

361. Fanto, *supra* note 358, at 260; see also Langevoort, *supra* note 312, at 140 (“[O]verconfidence . . . [is] frequently observed in field studies of particular firms.”); Jayne Barnard, *Narcissism, Over-Optimism, Fear, Anger, and Depression: The Interior Lives of Corporate Leaders*, 77 U. CIN. L. REV. 405 (2008) (“recurring pathologies of CEOs”).

362. Seidenfeld, *supra* note 4, at 531-32.

363. Bainbridge, *supra* note 7, at 30; Dallas, *supra* note 144, at 785 (“[G]roup decisionmaking . . . decreases . . . the chance that a dominant CEO will become convinced of his invincibility.”).

364. Sniezek, *supra* note 258, at 135. For an overview, see Norbert Kerr et al., *Bias in Judgment: Comparing Individuals and Groups*, 103 PSYCHOL. REV. 687, 692 (1996); BARON & KERR, *supra* note 192, at 131; see also Hall, *supra* note 316, at 102 (“Just as individuals are subject to cognitive weaknesses in decision making, research suggests that these flaws can be amplified in the group context.”); Engel, *supra* note 193, at 454-55, 459-60, 463 (“In many respects, collective and corporate actors suffer from the same biases as individuals.”).

365. Langevoort, *supra* note 359, at 95; Jolls & Sunstein, *supra* note 325, at 218 (“As a result, boards might well end up more optimistic than the median board member before deliberation began.”);

Whether groups moderate or strengthen overconfidence is ultimately an empirical question, which requires us to consider pertinent experimental research. A 1996 review article reported “mixed evidence” and concluded that “groups are generally more confident than individuals, but whether this reflects overconfidence varies between studies.”<sup>366</sup> Even this conclusion was based on rather sparse evidence, consisting of merely three studies, one of which was never published. This study was the only one among the three reviewed studies that found an increase in confidence through group work,<sup>367</sup> whereas the older study reported a decrease and the newer study found no effect of group work on confidence. Another study that had not been included in the 1996 review reported that the mere prospect of having to justify a decision in a group already reduces confidence, even if the effect was rather small.<sup>368</sup> On the other hand, a newer study has found groups with wrong decisions to report even higher confidence than individuals with correct decisions—and worse, group members carried this overconfidence over to subsequent individual work.<sup>369</sup>

Given this state of research, it seems quite challenging to derive any general conclusions. Yet two further studies may cast some light on the issue.<sup>370</sup> The earlier study from 1997 involved decision tasks with five alternatives each, exactly one of which was correct. The study used 20 tasks, consisting of four from each of five categories along the intellectualive-judgmental continuum (see *supra* B.1), from moderately difficult math problems to forecasts of future events. For each task, subjects had to report both their reply and their confidence in being correct. After the first iteration, they were assigned to one of three experimental conditions—working individually, as a member of a dyad, or as a member of a pentad—and started over. Within-subject comparison of data from the first and second iteration revealed that subjects’ confidence generally determined their influence on other group members, “regardless of accuracy or task type,” and that confidence was itself determined by whether subjects answered correctly, but only “to the degree that the task was intellectualive rather than judgmental in nature.”<sup>371</sup> Taken together, these

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*see also* Seidenfeld, *supra* note 4, at 536-37 (arguing that “polarization can cause the group decision to magnify the impact of that bias.” and that “the only bias not likely to be magnified by group polarization is the compromise bias”).

366. Kerr et al., *supra* note 364 at 692.

367. David Dunning & Lee Ross, *Overconfidence in Individual and Group Prediction: Is The Collective Any Wiser?*, CORNELL UNIV., CENTER FOR BEHAV. ECON. AND DECISION RES., WORKING PAPER SERIES BEDR 90-02, 15 (1990) (concluding from two studies that “[i]n both studies, aggregated judgments . . . were more overconfident when the group deliberated as opposed to when its members rendered separate predictions”).

368. Hal Arkes et al., *Two Methods of Reducing Overconfidence*, 39 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 133, 139-40 (1987).

369. Judith Puncochar & Paul Fox, *Confidence in Individual and Group Decision Making: When “Two Heads” Are Worse than One*, 96 J. EDUC. PSYCHOL. 582, 590 (2004).

370. Zarnoth & Sniezek, *supra* note 364; Koriat, *supra* note 243.

371. Zarnoth & Sniezek, *supra* note 364, at 361.

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findings suggest that following the most confident group member is beneficial in intellectual tasks and detrimental in judgmental tasks. Depending on task type, then, the groups will be correct more or less frequently, thereby decreasing or increasing its *overconfidence* accordingly. Additionally, group size mediated this relationship: “reported confidence increased with group size to a greater degree for intellectual than judgmental tasks. . . . As a result, (a) smaller groups may be more overconfident than larger groups on intellectual tasks, and (b) larger groups may be more overconfident than smaller groups on judgmental tasks.”<sup>372</sup>

Following a different approach, but yielding strikingly similar results, a much more recent study tried to combine decisions of non-interacting individuals into virtual “groups” based solely on the confidence attached to the decisions. The study concluded that such a procedure led to better “group” decisions in cases where “participants’ decisions are correct by and large,” but to worse “group” decisions where they are not. “[I]n situations in which most participants tend to make the wrong decisions, . . . it is the low-confidence individuals who are more likely to be correct, and reliance on the more confident members should lead the group astray.”<sup>373</sup>

In other words, the more complicated a problem is, the less likely that a group composed of overconfident individuals will be able to alleviate this bias.

Of course, alleviating overconfidence may not be desirable in the first place. It is an adaptive trait that has proven quite useful in the competition for management authority.<sup>374</sup> Overconfidence may “generate higher levels of internal effort and, by projecting self-confidence, be more successful in attracting external resources.”<sup>375</sup> In team research jargon, a group’s *efficacy* or *potency* often correlates with higher success rates,<sup>376</sup> so the “enhanced confidence” of groups may be just the reason why they “are often preferred over the individual in situations with great uncertainty and a higher need for quality.”<sup>377</sup> Additionally, economic analysis suggests that “an optimistic culture

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372. *Id.* at 362.

373. Koriat, *supra* note 243 at 362.

374. Chip Heath & Forest Jourden, *Illusion, Disillusion, and the Buffering Effect of Groups*, 69 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 103 (1997); Langevoort, *supra* note 312, at 152; Paredes, *supra* note 332, at 684-85; Langevoort, *supra* note 359, at 92; *see also* Levinson, *supra* note 353, at 430 (“winners in this socioeconomic combat”).

375. Langevoort, *supra* note 312, at 155. *But see id.* at 145 (qualifying that “we can see an optimistic culture as two-headed. On the one hand, it may be very useful to the firm as a motivator. On the other hand, optimism has a dark side.”); Langevoort, *supra* note 359, at 94; Paredes, *supra* note 332, at 701 (pointing to the “capitalized value of the reputational assets a management team builds when confidence and commitment are credibly projected”).

376. Stanley Gully et al., *A Meta-Analysis of Team-Efficacy, Potency, and Performance: Interdependence and Level of Analysis as Moderators of Observed Relationships*, 87 J. APPLIED PSYCHOL. 819 (2002) (presenting meta-analysis of sixty-seven primary studies); Kozlowski & Ilgen, *supra* note 152, at 90-91; Mathieu et al., *supra* note 151, at 426.

377. Sniezek, *supra* note 258, at 150.

or subculture may be an agency-cost reduction mechanism<sup>378</sup> in that it fosters managerial risk-taking<sup>379</sup> and silences doubts about the future which might otherwise encourage abusive endgame behavior.<sup>380</sup> In short, “[w]hile there are serious costs associated with ignoring danger signs in a small subset of cases, these costs may be outweighed by the profitability produced by the benign influences of organizational self-deception in others.”<sup>381</sup> These words should be put into perspective insofar as they were written well before any of the major economic crises of the last fifteen years, but they nonetheless caution against debiasing as an end rather than a means. Even if collegial decision-making fails to check overconfidence, any policy implications require reflection on whether this is normatively such a bad result.

### *E. Conclusion*

Does “the board’s existence follow logically from the evidence on group decisionmaking,” as Professor Bainbridge proposed?<sup>382</sup> Not necessarily. While Professor Bainbridge may have been overly pessimistic in some domains (e.g., by referring only to research on social inhibition instead of social facilitation), he was overly optimistic in others (e.g., by relying on a flawed 1989 study on the assembly effect bonus). His conclusion—that collegial decision-making is generally superior to that of individuals—requires substantial qualification. Professor Sunstein may have put it best: “it makes no sense to celebrate deliberation in the abstract,”<sup>383</sup> for the overall picture is quite nuanced.

*Motivational* effects of collegial decision-making depend strongly on the task that the group has to solve. Simple conjunctive tasks, which require every group member’s input, may be helped rather than hindered by collegial decision-making. The presumed majority of board tasks, however—since they are typically disjunctive, complex and hard to evaluate externally—seem to induce an inhibitory effect as indicated by Professor Bainbridge.

*Information aggregation* may enable collegial decision-making to surpass its average contributor’s decision, but rarely ever its best contributor’s. While Professor Bainbridge urged us to content ourselves “that the group is sure to get the benefit of its best decisionmaker” in collegial decisions,<sup>384</sup> there might be more efficient decision structures. For any type of situation, corporate law

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378. Langevoort, *supra* note 312, at 155 n.192.

379. Paredes, *supra* note 332, at 682, 739; Langevoort, *supra* note 359, at 94.

380. Paredes, *supra* note 332, at 694 (explaining that “when a manager believes he is in a final period (that is, that he will be ousted from his job unless he has a major success), he may reasonably conclude that he has little to lose by taking a big risk”); Langevoort, *supra* note 312, at 155; Langevoort, *supra* note 188, at 809.

381. Langevoort, *supra* note 312, at 156.

382. Bainbridge, *supra* note 7, at 3.

383. Sunstein, *supra* note 5, at 1049.

384. Bainbridge, *supra* note 7, at 26.

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should seek (and might find) structures to determine the best decision-maker,<sup>385</sup> rather than prescribe the flawed collegial structure as the best averaging mechanism available so far.

*Moderation and control* are very likely disrupted by collegial decision-making. Explained less by groupthink theory than by the more general concept of group polarization,<sup>386</sup> groups often go toward extremes in their decision-making. While group polarization “is not, by itself, a decisionmaking pathology,”<sup>387</sup> it may facilitate adverse economic effects like escalation of commitment, as demonstrated in vignette studies. Research on these issues is rather sparse, though.

*Debiasing* by collegial decision-making is certainly an interesting idea. So far, empirical “results are based upon small sample sizes, but they are promising nonetheless,”<sup>388</sup> even though research is not abundant and partly contradictory. With respect to overconfidence, two studies plausibly indicate that the debiasing function of groups may be mediated by task difficulty, with difficult tasks eliciting more rather than less overconfidence. This conclusion remains tentative, though.

Methodologically, the above review cautions against relying on single studies, joining in a plea that was most forcefully articulated by Professor Richard Lempert: “Do not rest policy change or analysis on a single study, no matter how good it is.”<sup>389</sup> Instead, we should rely on research synthesis—and meta-analysis in particular—to reliably distill the essence of empirical research into a potion for use in legal debate.

## V. SUMMARY AND OUTLOOK

Professor Bainbridge famously concluded from his analysis of collegial decision-making that “[c]orporate law’s strong emphasis on collective decisionmaking by the board” is based empirically on “a compelling efficiency rationale.”<sup>390</sup>

The three steps of the above analysis warrant a more cautious conclusion: corporate law’s *occasional* emphasis on collective decision-making by the board seems to improve efficiency to *some* extent, but research conducted in *several* empirical disciplines adds a host of qualifications.<sup>391</sup>

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385. See Seidenfeld, *supra* note 4, at 533 (arguing that “it may be much easier for an agency work group to identify the best member of the team to perform a task, and therefore to be more proficient at pooling the talents of the group than the literature would suggest”).

386. Sibert, *supra* note 230, at 162 (considering groupthink “a particular type of group polarization,” but without reflecting what additional explanatory value groupthink theory might have).

387. Seidenfeld, *supra* note 4, at 536.

388. Zarnoth & Sniezek, *supra* note 248, at 352-53.

389. Richard Lempert, *Empirical Research for Public Policy: With Examples from Family Law*, 5 J. EMPIRICAL LEGAL STUD. 907, 925 (2010).

390. Bainbridge, *supra* note 7, at 19.

391. See also Fanto, *supra* note 8, at 467 for vehement criticism of the “common sense intuition

This analysis started with the observation that previous treatments of empirical research were anecdotal rather than systematic. Previous studies thus provided neat tests of certain theories, but gave too little attention to the robustness of findings. The present review of empirical evidence instead centered on research syntheses (meta-analyses) and offered no strong conclusions where such syntheses are lacking. Similarly, it determined the legal status quo by way of a comparative account of twenty jurisdictions, which revealed that corporate law's presumed preference for collegial decision-making is not ubiquitous. Instead, the policy preference for group decision-making is limited to only some decision-making bodies in certain corporations—usually large listed stock corporations, and sometimes only by virtue of soft law. The group requirement is also widely in retreat from a historical perspective. These developments may be caused by corporate deregulation and cost-cutting concerns rather than recourse to the actual benefits and shortcomings of collegial decision-making, but the latter nonetheless warrant a closer look. Previous analyses only considered part of the picture by relying on merely two disciplines, one of which—experimental economics—does not even offer a very strong footing in empirical research on collegial decision-making. If one takes into account the wealth of research into collegial decision-making rather than individual discipline-specific studies, some previous findings can be shown to be robust while others ought to be reconsidered. Specifically, groups tend to deteriorate decision quality and to amplify cognitive biases, thereby falling short of the potential of their ablest member. Rather than contenting itself with having this decision-maker “in the crowd,” corporate law should try to identify who is best suited for any task, and should be reluctant to unthinkingly install collegial bodies. Greater simplicity comes at the price of inferior quality and—more importantly yet—diminished accountability.

Eventually, legal matters will not be decided by empirical findings. While research has hugely improved our understanding of collegial processes, we may be far from seeing the full picture. As Professor Lempert aptly observed, “[s]ince the world is complex and outcomes often have multiple causes, considerable research may be necessary to develop a theory complete enough to provide a reliable guide to policy.”<sup>392</sup> This complete theory may be a vain hope altogether, but our ambitions need not be so high. Empirical research serves a valuable function, as described by Professor Rachlinski: “Empirical studies cannot always answer the ultimate question, but they can rule out certain arguments.”<sup>393</sup> That by itself is worth a lot.

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[...], which is enshrined at least in corporate law: that groups enhance the quality of a decision.”

392. Lempert, *supra* note 389, at 911.

393. Jeffrey Rachlinski, *Evidence-Based Law*, 96 CORNELL L. REV. 901, 919 (2011).