european corporate governance institute

The Strategies of Anticompetitive Common Ownership

Law Working Paper N° 423/2018
Revised April 2020

C. Scott Hemphill
New York University
Marcel Kahan
New York University and ECGI

© C. Scott Hemphill and Marcel Kahan 2020. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

This paper can be downloaded without charge from:
https://doi.org/10.67929/ecgi-law-423-2018

european corporate governance institute

ECGI Working Paper Series in Law

The Strategies of Anticompetitive Common Ownership

Working Paper N° 423/2018

April 2020

C. Scott Hemphill
Marcel Kahan

We thank Ryan Bubb, Emiliano Catan, Isaac Corre, Florian Ederer, Einer Elhauge, Brad Howells, Bert Huang, Wei Jiang, Adi Libson, Louis Kaplow, Al Klevorick, Doug Melamed, John Morley, Tejas Narechania, Ittai Paldor, Eric Posner, Ed Rock, Nancy Rose, Dan Rubinfeld, Steve Salop, Martin Schmalz, Holger Spamann, David Walker, Glen Weyl, Lawrence White, and audiences at Columbia, Fordham, Harvard, the New York State Bar Association, Northwestern, NYU, Oxford, Stanford, Tel Aviv University, the annual meetings of the American Law and Economics Association and the Western Economic Association, and a Federal Trade Commission hearing on common ownership for helpful comments and discussions. Tim Keegan, Catalina Villalobos, and Felix Zhang provided outstanding research assistance.

© C. Scott Hemphill and Marcel Kahan 2020. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Abstract

Scholars and antitrust enforcers have raised concerns about anticompetitive effects that may arise when institutional investors hold substantial stakes in competing firms. Their concern rests on empirical evidence that such common concentrated ownership is associated with higher prices and lower output. This evidence sharply challenges both antitrust orthodoxy and corporate governance scholarship.

In this Article, we examine the causal mechanisms that might link common ownership to anticompetitive effects. We consider whether the current empirical evidence supports the existence of these mechanisms and whether institutional investors would plausibly employ them.

Our main conclusion is that most proposed mechanisms either lack significant empirical support or else are implausible. Notably, some widely discussed mechanisms—for example, cartel facilitation and passive failures to encourage competition among portfolio firms—are not empirically tested. Moreover, institutional investors' incentives to increase portfolio value are weak, reducing the likelihood that these investors will pursue mechanisms that carry significant reputational or legal risks. We find, however, that a different mechanism, which we call "selective omission," is both consistent with the evidence and plausibly employed by institutional investors. Looking ahead, our analysis suggests paths for future research and provides a guide for further investigation into how common owners and firms may interact to produce anticompetitive effects.

Keywords: airlines, antitrust, common shareholding, common ownership, collusion, executive compensation, horizontal, HHI, institutional investors, MHHI, modified Herfindahl-Hirschman Index, shareholdings, Blackrock, Vanguard, State Street

JEL Classifications: D21, D43, G11, G20, G23, G30, G32, G34, K21, K22, L10, L13, L21, L22, L40, L41

C. Scott Hemphill*
Moses H. Grossman Professor of Law
New York University, School of Law
40 Washington Sq. South
New York, NY 10012, United States
phone: +1 212 992 6156
e-mail: hemphill@nyu.edu

Marcel Kahan
George T. Lowy Professor of Law
New York University, School of Law
40 Washington Square South
New York, NY 10012, United States
phone: +1 212 998 6268
e-mail: marcel.kahan@nyu.edu

*Corresponding Author

THE YALE LAW JOURNAL

C. SCOTT HEMPHILL & MARCEL KAHAN

The Strategies of Anticompetitive Common Ownership

ABSTRACT. Scholars and antitrust enforcers have raised concerns about anticompetitive effects that may arise when institutional investors hold substantial stakes in competing firms. Their concern rests on empirical evidence that such common concentrated ownership is associated with higher prices and lower output. This evidence sharply challenges both antitrust orthodoxy and corporate governance scholarship.

In this Article, we examine the causal mechanisms that might link common ownership to anticompetitive effects. We consider whether the current empirical evidence supports the existence of these mechanisms and whether institutional investors would plausibly employ them.

Our main conclusion is that most proposed mechanisms either lack significant empirical support or else are implausible. Notably, some widely discussed mechanisms — for example, cartel facilitation and passive failures to encourage competition among portfolio firms — are not empirically tested. Moreover, institutional investors' incentives to increase portfolio value are weak, reducing the likelihood that these investors will pursue mechanisms that carry significant reputational or legal risks. We find, however, that a different mechanism, which we call "selective omission," is both consistent with the evidence and plausibly employed by institutional investors. Looking ahead, our analysis suggests paths for future research and provides a guide for further investigation into how common owners and firms may interact to produce anticompetitive effects.

AUTHORS. C. Scott Hemphill is Moses H. Grossman Professor of Law, New York University School of Law. Marcel Kahan is George T. Lowy Professor of Law, New York University School of Law. We thank Ryan Bubb, Emiliano Catan, Isaac Corre, Florian Ederer, Einer Elhauge, Brad Howells, Bert Huang, Wei Jiang, Adi Libson, Louis Kaplow, Al Klevorick, Doug Melamed, John Morley, Tejas Narechania, Ittai Paldor, Eric Posner, Ed Rock, Nancy Rose, Dan Rubinfeld, Steve Salop, Martin Schmalz, Holger Spamann, David Walker, Glen Weyl, Lawrence White, and audiences at Columbia, Fordham, Harvard, the New York State Bar Association, Northwestern, NYU, Oxford, Stanford, Tel Aviv University, the annual meetings of the American Law and Economics Association and the Western Economic Association, and a Federal Trade Commission hearing on common ownership for helpful comments and discussions. Tim Keegan, Catalina Villalobos, and Felix Zhang provided outstanding research assistance.

Electronic copy available at: https://ssrn.com/abstract=3210373



ARTICLE CONTENTS

INTRODUCTION 1395

I. CONFLICT AND CONSENSUS 1401
- A. Two Theories of Anticompetitive Effect 1402
- B. Measuring Ownership Conflicts 1404
- C. Detecting Consensus Mechanisms 1406

II. ACROSS-THE-BOARD MECHANISMS 1409
- A. Empirical Evidence 1410
  - 1. Detecting Passive Mechanisms 1410
  - 2. Single-Industry Studies 1411
  - 3. Cross-Industry Studies 1413
- B. Plausibility 1415
  - 1. Diluted Managerial Incentives 1416
  - 2. Long Time Horizon 1418

III. TARGETED MECHANISMS 1419
- A. Active Mechanisms 1420
- B. Passive Mechanisms: Selective Omission 1427

IV. THE ECONOMIC INTERESTS OF INVESTMENT ADVISORS 1429
- A. Benefits 1429
- B. Costs 1434

V. IMPLICATIONS 1440
- A. Assessing Mechanisms 1440
- B. The Importance of Owner Type 1442
  - 1. Systematic Differences 1442
  - 2. The Special Case of Index Fund Advisors 1443
- C. Beneficial Effects of Common Owners 1445
- D. The Need for More—and Different—Evidence 1447
- E. The Unproven Case for Broad Reform 1450

Electronic copy available at: https://ssrn.com/abstract=3210373



CONCLUSION 1453

APPENDIX 1455

A. Calculating MHHI 1455
B. CCOs and Firm Profits: The Case of Cournot Duopoly 1457
C. MHHIΔ with Three Airlines 1458
D. Relative Performance MHHIΔ 1458

Electronic copy available at: https://ssrn.com/abstract=3210373

INTRODUCTION

Institutional investors often hold shares of competing firms. Recent scholarship has considered whether such common ownership has anticompetitive effects. Antitrust theorists have long suggested that the interests of a common concentrated owner (CCO) differ from those of an owner of a single firm and that a CCO might be able to induce firms in which it holds a stake to further these interests.[1] Recent empirical evidence, finding that CCOs are associated with higher prices and lower output, seems to support this theory.[2]

This new evidence, along with the dramatic growth in institutional investors' holdings over the last several decades, has stimulated a major rethinking of antitrust enforcement. The Department of Justice has acknowledged concerns about the anticompetitive effects of common ownership and investigated common ownership of competing airlines.[3] In 2018, the Federal Trade Commission took these concerns a step further, conducting an all-day hearing on the subject.[4] In Europe, antitrust enforcers have taken a more aggressive approach: in addi-

1. The leading contribution to economic theory about CCOs is Daniel P. O'Brien & Steven C. Salop, *Competitive Effects of Partial Ownership: Financial Interest and Corporate Control*, 67 ANTITRUST L.J. 559, 579-80, 583, 608-11 (2000). *See also* Timothy F. Bresnahan & Steven C. Salop, *Quantifying the Competitive Effects of Production Joint Ventures*, 4 INT'L J. INDUS. ORG. 155 (1986) (developing Modified Herfindahl-Hirshman Index (MHHI) to evaluate how ownership of a joint venture alters incentives to compete). For further discussion of the theoretical literature, see *infra* Section I.A.

2. The leading empirical study is José Azar, Martin C. Schmalz & Isabel Tecu, *Anticompetitive Effects of Common Ownership*, 73 J. FIN. 1513 (2018) [hereinafter AST]. There has been a great deal of additional empirical work, which is discussed in detail *infra* Sections I.C and II.A.

3. *See* Steven Davidoff Solomon, *Rise of Institutional Investors Raises Questions of Collusion*, N.Y. TIMES (Apr. 12, 2016), https://www.nytimes.com/2016/04/13/business/dealbook/rise-of-institutional-investors-raisesquestions-of-collusion.html [https://perma.cc/WE7V-AN84] (reporting the existence of such an investigation based on Senate testimony by the head of the Antitrust Division).

4. *Transcript of FTC Hearings Session #8: Competition and Consumer Protection in the 21st Century*, FED. TRADE COMMISSION (Dec. 6, 2018), https://www.ftc.gov/system/files/documents/public_events/1422929/ftc_hearings_session_8_transcript_12-6-18.pdf [https://perma.cc/2M24-SZ3Q].

Electronic copy available at: https://ssrn.com/abstract=3210373

tion to announcing a potentially wide-ranging inquiry into the effects of common ownership,[5] the European Commission actually relied on theory and evidence about the anticompetitive effects of common ownership in a 2017 decision analyzing a major merger.[6]

Academic commentators have advocated more extreme measures. They urge policies that would require funds to cease their ownership of competing firms, shrink to a fraction of their current size, or lose the right to vote their shares in portfolio firms.[7] This line of scholarship makes the startling suggestion that large index funds and many large, actively managed mutual funds contravene antitrust law. These proposals, if adopted, would fundamentally transform the landscape of institutional investing.

The new empirical evidence also poses a challenge to corporate governance scholarship. This literature has long viewed most institutional investors—and mutual funds in particular—as largely benign actors that seldom exercise their

5. Margrethe Vestager, Comm'r for Competition, *Competition in Changing Times*, EUROPEAN COMMISSION 1 (Feb. 16, 2018), https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/competition-changing-times-0_en [https://perma.cc/UAR3-XMRY] (disclosing that the Commission is "looking carefully" at the prevalence of common ownership given indications of its increase and potential for anticompetitive effects).

6. Commission Decision M.7932, 2017 O.J. (C 353), 382-83 ¶¶ 2346-52, annex 4 ¶¶ 51-60, annex 5 (relying, as part of review of $130 billion merger between Dow and DuPont, upon AST and related work for the proposition that traditional concentration measures understate anticompetitive effects).

7. *See* Einer Elhauge, *Horizontal Shareholding*, 129 HARV. L. REV. 1267, 1302-09 (2016) (arguing that stock acquisitions that increase common ownership and thereby produce anticompetitive effects are unlawful under the Clayton Act); Eric A. Posner, Fiona Scott Morton & E. Glen Weyl, *A Proposal to Limit the Anticompetitive Power of Institutional Investors*, 81 ANTITRUST L.J. 669, 708 (2017) [hereinafter PSW] (proposing that an investor should be limited to a maximum one percent total holding in an oligopolistic industry or else confine itself to shares in a single firm); Eric Posner, Fiona Scott Morton & Glen Weyl , Opinion, *A Monopoly Donald Trump Can Pop*, N.Y. TIMES (Dec. 7, 2016), https://www.nytimes.com/2016/12/07/opinion/a-monopoly-donald-trump-can-pop.html [https://perma.cc/DNH7-M98T] (arguing that the holdings of CCOs are "already illegal" but, "because the antitrust implications of institutional investment were not recognized until recently, legal action has not yet been taken"); Eric Posner & Glen Weyl, Opinion, *The Real Villain Behind Our New Gilded Age*, N.Y. TIMES (May 1, 2018), https://www.nytimes.com/2018/05/01/opinion/monopoly-power-new-gilded-age.html [https://perma.cc/7Q26-P8LX] ("Institutional investors need to be blocked from further expansion and forced to restructure. They should be allowed to own shares of no more than one company per industry, or to own no more than a small portion of every company—say, 1 percent—if they want to remain fully diversified."); *see also* Fiona Scott Morton & Herbert Hovenkamp, *Horizontal Shareholding and Antitrust Policy*, 127 YALE L.J. 2026, 2047 (2018) (arguing that Section 7 of the Clayton Act prohibits certain acquisitions of stock in competitors by institutional investors).

Electronic copy available at: https://ssrn.com/abstract=3210373

substantial powers.[8] Institutional investors—due to their large shareholdings, access to sophisticated advice, and economies of scope—have the capacity to help overcome the collective action problems that plague corporate America. Alas, in the view of corporate governance scholars, institutional investors have not been active enough.[9] In particular, mutual funds are mostly reactive and generally refrain from openly pushing for the removal of ineffective management.[10] Thus, an important goal of corporate governance reformers has been to increase the activity level of institutional investors.[11]

From the traditional corporate governance perspective, evidence that CCOs have an anticompetitive effect is therefore disconcerting. Many corporate governance scholars harbor doubts that this conclusion, so different from their long-held notions, can be correct. Moreover, even talk of potential antitrust liability or additional regulation of institutional-investor voting might discourage these already-reluctant shareholders from becoming more assertive. Such threats could play into the hands of supporters of managerial primacy who, for their own reasons, have been skeptical about the influence of institutional shareholders.

The most important piece of empirical evidence so far, and the trigger for an outpouring of related work, is a study of the airline industry by José Azar, Martin Schmalz, and Isabel Tecu (AST).[12] AST concludes that common ownership of competing airlines, evaluated at the route level, is associated with higher prices on that route.[13] Critics have subjected AST to sustained scrutiny, contesting its

8. *See, e.g.*, Bernard S. Black, *Agents Watching Agents: The Promise of Institutional Investor Voice*, 39 UCLA L. REV. 811 (1992); Bernard S. Black, *Shareholder Passivity Reexamined*, 89 MICH. L. REV. 520 (1990); Edward B. Rock, *The Logic and (Uncertain) Significance of Institutional Shareholder Activism*, 79 GEO. L.J. 445 (1991).

9. *See, e.g.*, Lucian A. Bebchuk, Alma Cohen & Scott Hirst, *The Agency Problems of Institutional Investors*, 31 J. ECON. PERSP. 89, 97-101 (2017).

10. *See* Marcel Kahan & Edward Rock, *The Insignificance of Proxy Access*, 97 VA. L. REV. 1347, 1370 (2011) (noting that mutual funds waged no proxy contests between 2005 and 2009).

11. *See, e.g.*, Ronald J. Gilson & Reinier Kraakman, *Reinventing the Outside Director: An Agenda for Institutional Investors*, 43 STAN. L. REV. 863 (1991); Joseph A. Grundfest, *Just Vote No: A Minimalist Strategy for Dealing with Barbarians Inside the Gates*, 45 STAN. L. REV. 857 (1993).

12. *See* AST, *supra* note 2.

13. A related paper, which uses a similar methodology to study consumer banking, reaches similar conclusions. José Azar, Sahil Raina & Martin C. Schmalz, Ultimate Ownership and Bank Competition (May 4, 2019) [hereinafter ARS] (unpublished manuscript), https://ssrn.com/abstract=2710252 [https://perma.cc/C2JJ-EHV3]. For discussion of this and other empirical studies of common ownership, see *infra* Section I.A.

Electronic copy available at: https://ssrn.com/abstract=3210373

methodology and conclusions.[14] At the same time, commentators have offered AST and related studies as the empirical basis for sweeping reforms.[15]

Missing from the debate thus far has been a systematic explication and assessment of the causal mechanisms that might link common ownership to higher prices. This inquiry is important for several reasons. First, the absence of a plausible mechanism would raise doubts about proponents' preferred interpretation of the statistical relationship between common ownership and market outcomes.

---

14. *Compare* Matthew Backus, Christopher Conlon & Michael Sinkinson, *The Common Ownership Hypothesis: Theory and Evidence*, ECON. STUD. BROOKINGS 3 (2019), https://www.brookings.edu/wp-content/uploads/2019/02/ES_20190205_Common-Ownership.pdf [https://perma.cc/4CVR-L9TG] (arguing that for differentiated product markets, competitive pricing could generate spurious correlation between prices and ownership concentration), Daniel P. O'Brien & Keith Waehrer, *The Competitive Effects of Common Ownership: We Know Less than We Think*, 81 ANTITRUST L.J. 729 (2017) (arguing that AST findings are the result of reverse causation or joint determination), Edward B. Rock & Daniel L. Rubinfeld, *Antitrust for Institutional Investors*, 82 ANTITRUST L.J. 221 (2018), Jacob Gramlich & Serafin Grundl, *Estimating the Competitive Effects of Common Ownership* (Fin. & Econ. Discussion Series, Fed. Reserve Bd., Working Paper No. 2017-029, 2017), https://ssrn.com/abstract=2940137 [https://perma.cc/J2VU-A5BH] (replicating and critiquing the methodology of the banking study), Patrick Dennis, Kristopher Gerardi & Carola Schenone, Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry 3 (Aug. 12, 2019) (unpublished manuscript), https://ssrn.com/abstract=3063465 [https://perma.cc/RW72-VZHA] (replicating AST data and approach and concluding that its results are the product of spurious correlation), Pauline Kennedy, Daniel P. O'Brien, Minjae Song & Keith Waehrer, The Competitive Effects of Common Ownership: Economic Foundations and Empirical Evidence (July 26, 2017) (unpublished manuscript), https://ssrn.com/abstract=3008331 [https://perma.cc/253K-4FER] (estimating a model of common ownership in the airline industry and finding no evidence that common ownership raises prices), *and* Katharina Lewellen & Michelle Lowry, Does Common Ownership Really Increase Firm Coordination? (Nov. 2018) (unpublished manuscript), http://faculty.tuck.dartmouth.edu/images/uploads/faculty/katharina-lewellen/LL_Crossownership_20181118.pdf [https://perma.cc/CLE7-7HG7] (reviewing identification strategies used in common-ownership literature and concluding that there is little robust evidence that common ownership affects firm behavior), *with* José Azar, Martin C. Schmalz & Isabel Tecu, The Competitive Effects of Common Ownership: Economic Foundations and Empirical Evidence: Reply (Sept. 21, 2018) (unpublished manuscript), https://ssrn.com/abstract=3044908 [https://perma.cc/8JBM-4966] (replying to criticisms), José Azar, Martin C. Schmalz & Isabel Tecu, Reply to "Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry" (Apr. 24, 2018) (unpublished manuscript), https://ssrn.com/abstract=3168095 [https://perma.cc/B9TV-F4P8] (responding to criticisms that their results were driven by, first, their use of passenger volume as regression weights, and second, the top fifth percentile of markets in the passenger-count distribution), *and* Einer Elhauge, New Evidence, Proofs, and Legal Theories on Horizontal Shareholding (Jan. 4, 2018) (unpublished manuscript), https://ssrn.com/abstract=3096812 [https://perma.cc/6XER-N9AJ] (addressing critics of AST and ARS).

15. *See supra* note 7 and accompanying text.

Electronic copy available at: https://ssrn.com/abstract=3210373

Second, a finding that only certain types of investors can plausibly avail themselves of the mechanism would suggest the need for narrower, more targeted reform proposals and enforcement actions, as well as targeted investigations to uncover direct evidence of CCOs influencing corporate policy.

This Article is an effort to fill this gap. We identify a wide range of potential mechanisms linking common ownership to anticompetitive effects. As to each mechanism, we evaluate, first, whether the current empirical literature tests the mechanism—that is, whether its use would generate the observed empirical results. Second, we assess whether the mechanism is plausible, in the sense that it is feasible, effective, and in a CCO's interest.

As we explain, potential mechanisms differ along three main dimensions. First, some mechanisms produce conflict, rather than consensus, between the CCO and other firm shareholders, by inducing a firm to take actions that raise CCO portfolio value at the expense of that firm's value. Second, certain mechanisms target specific firm actions, while others affect the firm's actions across the board. Finally, some mechanisms are active—the CCO speaks with management, votes on a proposal, or otherwise takes some positive step to further its strategy—rather than passive.

Our evaluation yields three main results. First, some widely discussed mechanisms are, in fact, not tested through the methodology employed in the empirical literature. Specifically, AST and many other studies are limited to targeted conflict mechanisms and apply neither to consensus mechanisms[16] nor to passive across-the-board mechanisms.[17]

Second, some mechanisms face major challenges as to feasibility and effectiveness. To be feasible, a CCO must have the power and ability to employ the mechanism. Yet institutional investors are poorly structured to generate, transmit, induce, and monitor compliance with targeted active strategies or otherwise lack the capacity to pursue them.[18] To be effective, the use of the mechanism must generate benefits to the CCO by raising the value of companies held by the CCO net of any collateral value reductions caused by the mechanism. Yet most across-the-board strategies, such as reducing the degree to which compensation depends on firm performance, dilute incentives to maximize firm value, resulting in harm that may exceed the benefits associated with the strategy.[19]

---

16. *See infra* Part I.

17. *See infra* Section II.A.

18. *See infra* Section III.A.

19. *See infra* Section II.B.1. A second effectiveness problem discussed *infra* Section II.B.2, particularly for actively managed funds, stems from the long time frame needed to implement the strategy.

Electronic copy available at: https://ssrn.com/abstract=3210373

Third, some mechanisms are implausible because they do not serve the interests of institutional-investor CCOs. To be in a CCO's interest, the profits that the CCO obtains from any net increase in portfolio value must exceed the costs to the CCO from employing a mechanism. Yet institutional CCOs generally have only weak incentives—much weaker than the common-ownership literature presumes—to maximize the aggregate value of their portfolio securities.[20] Furthermore, some mechanisms entail significant legal and reputational risk to CCOs, making their employment by institutional investors implausible.[21]

Our main conclusion is that, for most mechanisms, there is either no strong theoretical basis for believing that institutional CCOs could or would want to employ them, no significant evidence suggesting that they do employ them, or both.[22] Our findings, however, are not uniformly negative. A mechanism that we call "selective omission" is consistent with both theory and empirical evidence.[23] A CCO engaged in selective omission presses for firm actions that increase both firm value and portfolio value, while remaining silent as to actions where the two conflict. Aside from selective omission, some across-the-board mechanisms may plausibly be employed, but substantial empirical evidence of their use is currently lacking.

Our analysis has several important implications. First, the empirical literature has paid insufficient attention to systematic differences in the incentives of different investor types. For example, in any analysis of anticompetitive effects, advisors that mostly manage index funds should be distinguished from other CCOs.[24] Index funds are, at first blush, the most plausible culprits because they tend to own similar stakes across multiple competitors and maintain stable holdings over time, which, as we show, facilitates the use of certain mechanisms. Index funds, however, have the weakest incentives and the least ability to employ targeted mechanisms. Our analysis therefore suggests that index funds either play no significant role in generating anticompetitive effects or systematically employ different mechanisms than other types of CCOs.

Second, the welfare effects of CCOs are ambiguous even if common concentrated ownership is associated with anticompetitive effects.[25] If CCOs do induce

20. *See infra* Section IV.A.

21. *See infra* Section IV.B.

22. *See infra* Section V.A and Table 3 (summarizing our assessment of each mechanism).

23. *See infra* Section III.B.

24. *See infra* Section V.B.

25. *See infra* Section V.C.

Electronic copy available at: https://ssrn.com/abstract=3210373

anticompetitive outcomes, they can also be expected to induce actions that improve a firm's efficiency and, in turn, its profits—for example, by eliminating redundant expenditures.

Third, our analysis reveals top priorities for further research.[26] The current empirical literature raises concerns that deserve significant attention but that are neither sufficient to establish that CCOs engage in selective omission nor well designed to test certain other plausible causal mechanisms. We suggest studies to fill these gaps and emphasize the importance of seeking direct evidence of the steps CCOs take, and the steps firms take in response, that produce anticompetitive results. The studies should include examinations of internal communications among officials of an investment advisor and external communications between officials of an investment advisor and executives of portfolio firms.

Finally, our analysis shows that blunt, wide-ranging reform proposals are likely to be ineffective and counterproductive.[27] The most probable effects of these proposals, if adopted, are greater shareholder passivity and fragmentation of institutional shareholdings in portfolio companies in all industries, not just in concentrated ones. The proposals would thus be ineffective if passive mechanisms are responsible for anticompetitive results, and counterproductive because they reduce shareholder power and incentives to induce portfolio companies to increase their value where doing so is not anticompetitive.

This Article proceeds in five Parts. Part I sets out the fundamental distinction between conflict- and consensus-based mechanisms and demonstrates that the bulk of the empirical evidence relates only to conflict-based mechanisms. Part II assesses the empirical evidence for and the plausibility of across-the-board mechanisms. Part III analyzes targeted mechanisms. Part IV examines the economic interests of investment advisors, showing that the limited benefits and comparatively large costs of some mechanisms render them implausible. Part V discusses the implications of our analysis.

I. CONFLICT AND CONSENSUS

As a matter of economic theory, the potential anticompetitive effects of common ownership have long been a concern.[28] As we explain in Section I.A, theories of anticompetitive ownership can be divided into two categories, depending

26. *See infra* Section V.D.

27. *See infra* Section V.E.

28. *See* O'Brien & Salop, *supra* note 1; Julio J. Rotemberg, *Financial Transaction Costs and Industrial Performance* (Mass. Inst. of Tech., Alfred P. Sloan Sch. of Mgmt., Working Paper No. 1554-84, 1984); Ariel Rubinstein & Menahem E. Yaari, *The Competitive Stock Market as Cartel Maker:*

Electronic copy available at: https://ssrn.com/abstract=3210373

on whether the anticompetitive effects entail conflict or consensus among the firm's investors. Sections I.B and I.C spell out the implications of this distinction for assessing the empirical evidence—primarily that the bulk of the economic evidence so far pertains only to conflict, and not to consensus, mechanisms.

A. Two Theories of Anticompetitive Effect

Suppose that a CCO—call it "WhiteRock"—owns ten percent of the shares of both American Airlines and Delta Air Lines. WhiteRock encourages each airline to compete less aggressively by reducing capacity and increasing prices. Such encouragement might take a variety of forms. The CCO might act as a "cartel ringmaster" by expressly detailing and coordinating specific actions that each airline should take to maximize profits. Alternatively, WhiteRock might make a public announcement about the desirability of capacity reduction, thereby encouraging each airline to take parallel actions to reduce capacity. (To simplify matters for now, let us suppose that the CCO's conduct is lawful or else difficult for antitrust enforcers to detect.)

Such encouragement would appear quite natural, particularly where WhiteRock's action has the effect of increasing both airlines' profits. Indeed, we might expect each airline, as well as their shareholders, to welcome this development. In particular, a *noncommon* concentrated owner (NCO) with a stake in American alone would benefit if WhiteRock were successful in inducing collusion. The NCO would neither disagree with nor oppose such an action by the CCO.[29]

However, not all actions that a CCO may take to increase its portfolio value benefit NCOs. Some CCO actions instead decrease firm value in order to increase total portfolio value. For example, a CCO that owns both a branded drug maker and its generic competitor might pressure the generic firm to delay its market entry for the benefit of the branded firm, at the expense of the generic firm.[30] An action that reduces the firm's profits, in order to benefit the CCO's

Some Examples (London Sch. of Econ., Suntory and Toyota Int'l Ctrs. for Econ. and Related Disciplines, Theoretical Econ. Paper Series 84, 1983); *see also* Bresnahan & Salop, *supra* note 1 (developing the MHHI in the context of ownership of a joint venture).

29. To take a further example, suppose WhiteRock induces each airline to reduce capacity and lower its profits for the benefit of its competitors. Each airline is harmed in the first instance by its own action but benefited by the actions of its competitors. If WhiteRock's success in reducing capacity at Delta *depends on WhiteRock's success at American*, then the CCO's net positive effect on American is contingent on American's own actions. An NCO that owns shares of American can be expected to support American's participation in the scheme.

30. For studies of the pharmaceutical setting, see, for example, Joseph Gerakos & Jin Xie, *Institutional Horizontal Shareholdings and Generic Entry in the Pharmaceutical Industry* 15-16 (Tuck Sch. of Bus., Working Paper No. 3285161, 2019), https://ssrn.com/abstract=3285161 [https://

Electronic copy available at: https://ssrn.com/abstract=3210373

portfolio, is against the interest of other shareholders and, in particular, against the interests of an NCO. In such cases, the NCO can be expected to disagree with and resist the CCO's preferred course of action. This disagreement makes the firm the site of a conflict of interest between the NCO, which seeks to maximize *firm* profits, and the CCO, which seeks to alter the firm's objective function and maximize *portfolio* profits at the expense of the firm.[31]

This divide—between CCO-induced firm actions (or failures to act) that give rise to a conflict between CCOs and NCOs and those that give rise to a consensus—is fundamental.[32] In the next Section, we spell out an influential

perma.cc/Q4SA-QEMA], which examines whether common ownership between brand-name and generic drug makers increases the likelihood of settlement of patent litigation between the two; and Melissa Newham, Jo Seldeslachts & Albert Banal-Estañol, *Common Ownership and Market Entry: Evidence from the Pharmaceutical Industry* 7-8 (DIW Berlin Discussion Papers, Paper No. 1738, 2018), https://ssrn.com/abstract=3194394 [https://perma.cc/M8KD-2ZHR], which examines whether common ownership decreases the likelihood of generic entry.

31. A more subtle form of conflict arises when the CCO's presence has a net positive effect on firm value, but that positive effect is attributable to the CCO's independent effect on the actions of other firms. For example, return to the WhiteRock example, discussed *supra* note 29, but now suppose that WhiteRock induces Delta to take the action (beneficial to American) *regardless of WhiteRock's success at American*. WhiteRock's effect on American is now independent, and an NCO that owns shares of American can be expected to resist American reducing capacity or any other WhiteRock-induced action that decreases American's firm value.

In the Appendix, we offer a numerical illustration of this point in which an American/Delta duopoly faces linear demand and competes in Cournot quantities. *See infra* Table A2. As shown there, where NCOs hold similar shares in American and Delta, the addition of a CCO increases the profits of both firms. When NCO shares differ, CCO presence still increases industry profits, but the airline with greater NCO presence benefits disproportionately because it is in a stronger position to resist the CCO. It benefits from the CCO's influence on competitors but does not itself engage in much value-reducing action. If the NCO stakes are sufficiently dissimilar, the presence of a CCO actually lowers the value of the airline in which an NCO exerts weaker influence.

32. In general, the outcome of the conflict at one firm does not depend on the existence or outcome of a conflict in a competing firm. *But see* Einer Elhauge, The Causal Mechanisms of Horizontal Shareholding 22 (Aug. 4, 2019) (unpublished draft), https://ssrn.com/abstract=3370675 [https://perma.cc/3K93-FTRG] ("One cannot separate horizontal shareholding's effect [i.e., the effect of a CCO] on one firm from its effect on the rival firms, because horizontal shareholders by definition are invested in both and profit from reducing competition at both."). Elhauge's contrary view misses the quite different effects that a CCO can have on competing firms in a setting where a CCO and NCO have conflicting interests. A stark example is the pharmaceutical setting, discussed *supra* note 30 and accompanying text, in which one firm is harmed to benefit its competitor. More generally, in mechanisms where a conflict exists between CCOs and NCOs, the effect at each firm depends upon (and varies with) the number and importance of NCOs. *See supra* note 31. Indeed, the MHHI-based literature, discussed *infra* Section I.B, postulates that a CCO tries to hamper independently each firm in its portfolio for the benefit of rival firms in the CCO's portfolio.

Electronic copy available at: https://ssrn.com/abstract=3210373

method used to estimate the degree to which CCOs will be successful in altering the objective function of the firm when their interests conflict with the interests of NCOs.

B. Measuring Ownership Conflicts

The insight that CCOs might influence and thereby alter the objective function of the firm is not new. Timothy Bresnahan, David O'Brien, and Steven Salop wrote two influential articles that emphasize this idea.[33] They modeled how common ownership — under different assumptions about the degree of influence that CCOs and NCOs have over competing firms — would change how firms act. The key to their analysis is the Modified Herfindahl-Hirschman Index (MHHI).[34]

As the name suggests, MHHI is a modification of the Herfindahl-Hirschman Index (HHI), a commonly used measure of market concentration. In any market, the HHI is the sum of the squared market shares of each competitor. In a monopoly market, where one firm has a 100% market share, the HHI is 100^2, or 10,000. In a duopoly of American and Delta equally sharing the market, the HHI is $50^2 + 50^2$, or 5,000. In a market with a very large number of small competitors, the HHI approximates zero.

MHHI adjusts the HHI to account for ownership overlap among competing firms.[35] In the absence of any ownership overlap, the HHI is equal to the MHHI. But if competitors have common owners, the MHHI exceeds the HHI. The difference between the MHHI and the HHI is referred to as MHHIΔ. To continue with the American/Delta duopoly example, where the HHI is 5,000, if a CCO had total control of both firms, the MHHI would be 10,000, which is equal to the HHI (and MHHI) for a monopoly. In this situation, the MHHIΔ would be 5,000.

---

33. Bresnahan & Salop, *supra* note 1; O'Brien & Salop, *supra* note 1.

34. Technically, MHHIΔ rather than MHHI, as we explain shortly.

35. Bresnahan & Salop, *supra* note 1; O'Brien & Salop, *supra* note 1. MHHI has been used as a tool of economic theory to describe both *cross ownership*, where one firm holds a stake in a rival, and *common ownership*, where an investor (the CCO) holds stakes in competing firms. An early example of the latter use is O'Brien & Salop, *supra* note 1, at 583, which discusses "proportional control" structures wherein the board and managers of the acquired firm "take into account their shareholders' interests in other firms . . . [by taking] shareholders' interests into account in proportion to their financial interests in the acquired firm." *See also id.* at 579 (discussing "partial control" structures in which "decision makers of the acquired firm take into account the fact that certain of its shareholders hold financial interests in competing firms . . . [and] the influence of each shareholder is constrained by the other shareholders of the acquired firm").

Electronic copy available at: https://ssrn.com/abstract=3210373

Between the extremes of no CCO influence and total CCO control, CCOs have partial control. Let us now assume that American has ten owners, each of which owns ten percent of the company, and that Delta has the same ownership structure. Each ten-percent owner might be either a CCO or else an NCO that owns a stake in only one of American or Delta. If one out of the ten owners is WhiteRock, a CCO, and the rest are NCOs, the MHHIΔ is one-tenth as large as total CCO control$-$500, compared to 5,000.[36] The other nine owners, the NCOs, limit and counteract the influence of the CCO. As the number and influence of CCOs rise, MHHI increases.[37]

The intuition here is that a common ten-percent owner has both the incentive and some ability to induce a firm in which it holds a stake not to maximize firm value but instead to maximize the value of the CCO's joint stake in multiple competitors. In the extreme case of ten common ten-percent owners of all firms, that influence is complete and generates incentives equivalent to those of a monopolist.

MHHIΔ has an important but often overlooked feature: MHHIΔ not only *increases* with the number and importance of *common* concentrated owners (the CCOs) but also *decreases* with the number and importance of *noncommon* concentrated owners (the NCOs). Importantly, NCOs do not merely reduce MHHIΔ mechanically by making fewer shares available to be held by CCOs, as in the ten-owner example above. Rather, noncommon concentrated ownership reduces MHHIΔ because an NCO holds the shares not held by CCOs in a concentrated fashion and thereby exercises influence as a counterweight to the CCOs.

As an illustration, suppose once again that WhiteRock owns ten percent of both American and Delta; in addition, an NCO holds a ten-percent stake in American, a different NCO holds a ten-percent stake in Delta, and the remaining shares are held by atomistic owners. Now MHHIΔ equals 2,500, halfway to total control. If a second NCO at American acquires a ten-percent stake from the dispersed owners and, likewise, a second NCO at Delta acquires a ten-percent stake, there are now two ten-percent NCOs at each airline. MHHIΔ correspondingly falls to 1,667, one-third of the way to total control. This example illustrates the

36. This calculation is set out in the Appendix.

37. In this example, if there are n CCOs and $10 - n$ NCOs, then the numerator of each term is n percent instead of 1 percent, and hence MHHI$\Delta = 500n$. In the Appendix, we explain the basis for this calculation.

Electronic copy available at: https://ssrn.com/abstract=3210373

general point that MHHI∆ increases as CCO ownership rises but decreases, independently of CCO ownership, as NCO ownership rises.[38]

NCOs reduce MHHI∆ in this way because the metric assumes that NCOs, unlike CCOs, use their influence to induce a firm to maximize firm value, without placing any weight on the profits of competitors. Put differently, MHHI∆ measures the degree to which a firm's profit maximization decision is distorted by concentrated owners with conflicts of interest.[39] As CCOs become more influential in firm decision-making, the distortion increases; as NCOs become more influential, the distortion decreases. Conflicts of interest between NCOs and CCOs thus lie at the heart of the theoretical foundation for MHHI∆.

C. Detecting Consensus Mechanisms

The disparate effect of CCOs and NCOs on the level of MHHI∆ limits the set of causal mechanisms tested by any analysis that relies on MHHI∆ or other metrics of common ownership that rise with increased common concentrated ownership but decline, independently of CCO ownership, with increased non-common concentrated ownership. The causal mechanism that these metrics test must be one in which the conduct in question is preferred by CCOs but opposed by NCOs because it reduces firm value. Otherwise, these measures are not suitable for testing the proposed mechanism.

AST, for example, reports regressions with the price of an airline ticket as the dependent variable and MHHI∆ on a particular route as the key independent variable. The use of MHHI∆ is central to AST's analysis,[40] its critics and defenders,[41] and policy recommendations premised on its results.[42] Indeed, most of the extant empirical literature on the anticompetitive effects of common ownership,

38. In the Appendix, we offer a more detailed explanation of the contrasting effects on MHHI of CCOs and NCOs.

39. This distortion can be seen directly in AST's formal model, which features a firm objective function in which the firm "maximizes its own profits, plus a linear combination of the profits of other firms in which the shareholders with control hold ownership stakes." José Azar, Martin C. Schmalz & Isabel Tecu, *Internet Appendix for "Anticompetitive Effects of Common Ownership*," READCUBE 2-3 (2018) [hereinafter AST Appendix], https://www.readcube.com/articles/supplement?doi=10.1111%2Fjofi.12698 [https://perma.cc/WFZ9-2WFE]. Formally, a firm maximizes its own profits plus an expression that mirrors the calculation of MHHI. For technical details, see *infra* note 174.

40. Other secondary metrics used by AST, such as the overlap among the largest ten owners, share the feature that they properly test only conflict mechanisms. *See* AST, *supra* note 2, at 1544-45.

41. Scholars continue to debate the AST study's results. *See supra* note 14 and accompanying text.

42. *See, e.g.*, Elhauge, *supra* note 7; PSW, *supra* note 7 (basing policy proposals on MHHI levels).

Electronic copy available at: https://ssrn.com/abstract=3210373

including the only other study that directly links common ownership to higher prices,[43] is based on MHHIΔ or other measures that, like MHHIΔ, decrease with the importance of NCOs.[44] There is thus virtually no empirical evidence that CCOs employ consensus mechanisms to achieve anticompetitive effects.

---

43. *See* ARS, *supra* note 13.

44. *E.g.*, Andrew Koch, Marios Panayides & Shawn Thomas, *Common Ownership and Competition in Product Markets*, 9 J. FIN. ECON. (forthcoming 2020), https://ssrn.com/abstract=2965058 [https://perma.cc/RBD5-ZS7J] (finding no relationship between MHHIΔ and profit weight measure on one hand and markups or price-cost ratios on the other in a cross-industry study); Miguel Antón, Florian Ederer, Mireia Giné & Martin Schmalz, *Common Ownership, Competition, and Top Management Incentives* (European Corp. Governance Inst., Finance Working Paper No. 511/2017, 2018) [hereinafter Antón et al., *Common Ownership*], https://papers.ssrn.com/abstract=2802332 [https://perma.cc/9J7K-CLME]; Matthew Backus, Christopher Conlon & Michael Sinkinson, Common Ownership and Competition in the Ready-to-Eat Cereal Industry 31-32 (Sept. 6, 2018) (unpublished manuscript) (on file with authors) (finding a negative relationship between MHHIΔ and ready-to-eat cereal prices, finding no relationship between kappa (a related profit weight measure) and prices, and providing a theoretical explanation of how, with differentiated products, one could find a positive or negative relationship between MHHIΔ and price even if the true effect is no relationship); Rebecca DeSimone, Stealth Socialism? Common Ownership and Executive Incentives (June 5, 2017) (unpublished manuscript) (on file with authors); Heung Jin Kwon, Executive Compensation Under Common Ownership (Nov. 29, 2016) (unpublished manuscript) (on file with authors); Mohammad Torshizi & Jennifer Clapp, Price Effects of Common Ownership in the Seed Sector (Apr. 22, 2019) (unpublished manuscript), https://ssrn.com/abstract=3338485 [https://perma.cc/38SR-9LUL] (finding a relationship between MHHIΔ and seed prices). *But see* Lantian (Max) Liang, Common Ownership and Executive Compensation (Oct. 2016) (unpublished manuscript) (on file with the Chicago Booth Center for Research in Security Prices) (using metric of common ownership that does not imply conflict between CCOs and NCOs).

In addition, studies of common ownership have examined investment levels. *See* Germán Gutiérrez & Thomas Philippon, *Investment-Less Growth: An Empirical Investigation* (Nat'l Bureau of Econ. Research, Working Paper No. 22897, 2016) [hereinafter Gutiérrez & Philippon, *Investment-Less Growth: An Empirical Investigation*], https://ssrn.com/abstract=2880335 [https://perma.cc/E3LN-8ZGR] (finding positive association between MHHI and investment but cautioning that results do not establish causality); Germán Gutiérrez & Thomas Philippon, Ownership, Governance and Investment (Mar. 2017) [hereinafter Gutiérrez & Philippon, Ownership, Governance and Investment] (unpublished manuscript) (on file with authors) (regressing investment on HHI, MHHIΔ and an interaction term and finding that HHI and MHHIΔ are both negatively related to industry-level investment, but the interaction term is positively related to investment).

A third set of papers examines outcomes within the pharmaceutical industry. Gerakos and Xie, *supra* note 30, employs a measure of the weight, $w_{j,k}$, that a manager of generic drug maker j places on the profits of branded drug maker k. This measure is drawn from AST and is a simplified variant of the formula used to calculate MHHIΔ. The numerator is each investor's voting share in j, multiplied by the investor's ownership in k, and summed across all investors. The denominator is each investor's voting share in j, multiplied by its ownership in j, once again summed across all investors. $w_{j,k}$ declines with increasing NCO ownership. In

Electronic copy available at: https://ssrn.com/abstract=3210373

In other words, this entire literature is limited to testing conflict mechanisms, where CCOs and NCOs try to pull management in opposite directions. Indeed, although this literature is usually characterized as testing the hypothesis that CCOs have an anticompetitive effect, the research design is equally consistent with testing the hypothesis that NCOs have a procompetitive effect.[45] Thus, an MHHI-based design not only fails to test the use of consensus mechanisms favored by both CCOs and NCOs, but its empirical results — that increased NCO ownership is associated with lower prices — are also inconsistent with their use.

To be sure, although not tested by these papers, a CCO might encourage firms to compete less aggressively in a way that an NCO would applaud. For example, as suggested in Section I.A, a CCO might serve as a cartel ringmaster or otherwise promote collusive conduct by the rival firms. But the theoretical case for this behavior cannot be grounded in the firm having a different objective function on account of the investment by CCOs. After all, NCOs — and, for that matter, dispersed owners — would share the same objective: to increase the firm's profits. Rather, the theoretical case would need to be grounded in the superior *ability* of CCOs to accomplish this result, a subject that the MHHI line of inquiry — from Bresnahan, O'Brien, and Salop to the modern empirical literature — does not address.

---

regressions, the authors use an increasing function of $w_{j,k}$, $w_{j,k}/(1 + w_{j,k})$, that is bounded between 0 and 1 and, like $w_{j,k}$, declines with increasing NCO ownership. *See also* Newham et al., *supra* note 30 (examining the relationship between entry and common ownership and proposing a framework where interests conflict).

Finally, MHHI is used in Alon Brav, Wei Jiang, Tao Li & James Pinnington, *Picking Friends Before Picking (Proxy) Fights: How Mutual Fund Voting Shapes Proxy Contests* (European Corp. Governance Inst., Finance Working Paper No. 601/2019, 2019), https://ssrn.com/abstract=3101473 [https://perma.cc/6CGB-YMH6] (examining the relationship between MHHI and votes in proxy contests); Miguel Antón, Florian Ederer, Mireia Giné & Martin Schmalz, *Innovation: The Bright Side of Common Ownership?* (June 21, 2018) [hereinafter Antón et al., *Innovation*] (unpublished manuscript), https://ssrn.com/abstract=3099578 [https://perma.cc/7RH8-2J6X] (arguing that common ownership can mitigate impediments to corporate innovation); and Svetoslav Semov, *Common Ownership, Competition and Firm Financial Policy* (Apr. 19, 2017) (unpublished manuscript), https://ssrn.com/abstract=2888722 [https://perma.cc/A69Z-4NGZ] (finding that increases in MHHIΔ are associated with lower cash holdings).

45. This point has been acknowledged by one of AST's authors. *See* Martin C. Schmalz, *Common Ownership and Competition: Facts, Misconceptions, and What to Do About It* 5 (Org. for Econ. Co-operation and Dev., Paper No. DAV/COMP/WD(2017)93, 2017), https://ssrn.com/abstract=3176696 [https://perma.cc/6F3T-UDJ5] ("Perhaps more important than the presence of common ownership is the absence of powerful undiversified shareholders who would benefit from increased competition.").

Electronic copy available at: https://ssrn.com/abstract=3210373

CCOs, the argument would have to go, have some superior ability to induce actions that increase firm value and require some form of coordination or parallelism between competitors. A coherent argument along these lines would need to specify what, specifically, CCOs do to facilitate coordination that firm managers, noncommon owners, or a host of other consultants and advisors cannot do equally well. As applied to institutional investors, that account would need to establish that investment advisors possess the requisite information, power, and incentives to effect coordination.[46] The theoretical basis for that argument and the manner in which it would be tested empirically, however, would be entirely distinct from theoretical and empirical work that is premised on MHHI.

II. ACROSS-THE-BOARD MECHANISMS

Beyond the question of conflict versus consensus, mechanisms that link common ownership to anticompetitive effects differ along a second dimension. Some mechanisms target specific decisions of the firm, while others operate across the board, affecting the firm's operations broadly. In this Part, we assess across-the-board mechanisms, deferring our analysis of targeted mechanisms to Part III.

The most commonly mentioned across-the-board mechanism is the structure of executive compensation—in particular, whether managers are paid for performance and thereby encouraged to compete aggressively in order to maximize firm value. In the airline example, WhiteRock benefits if American managers live the "quiet life." Aggressive competition by American would undercut Delta, thereby reducing the value of WhiteRock's holdings there. Some commentators have suggested that CCOs may actively discourage pay for performance.[47] Others have argued, more influentially, that CCOs simply neglect or

46. Some scholars have begun to develop such a theory. *See* Menesh S. Patel, *Common Ownership, Institutional Investors, and Antitrust*, 82 ANTITRUST L.J. 279 (2018) (suggesting that a CCO may, by virtue of its ownership stake, have information about firm strategies that enables it to detect deviations from a collusive agreement); Edward B. Rock & Daniel L. Rubinfeld, *Common Ownership and Coordinated Effects* (N.Y.U. Law & Econ. Research Paper Series, Working Paper No. 18-40, 2018), https://ssrn.com/abstract=3296488 [https://perma.cc/E6JS-8DRS] (suggesting that CCOs may have superior knowledge, influence, incentives, credibility, and power to support collusion, compared to NCOs). To test such a theory, a study would have to employ a metric of common ownership that does not decline with noncommon concentrated ownership. *See, e.g.*, Liang, *supra* note 44 (using such a metric).

47. *See, e.g.*, Antón et al., *Common Ownership*, *supra* note 44; *see also* AST, *supra* note 2, at 1556 (citing Antón et al., *Common Ownership*, *supra* note 44).

Electronic copy available at: https://ssrn.com/abstract=3210373

otherwise passively fail to encourage more incentive-based compensation, leaving managers free to live the "quiet life."[48]

To a striking degree, however, across-the-board mechanisms are neither well tested nor generally plausible.[49] As Section II.A explains, the leading empirical studies do not provide a proper test of the passive account. Moreover, single-industry studies such as AST are poorly designed to pick up across-the-board effects. In principle, cross-industry studies might help fill the gap, but these have limitations of their own. In addition, some across-the-board mechanisms are ineffective or infeasible—and hence implausible—for reasons set out in Section II.B.

A. Empirical Evidence

1. Detecting Passive Mechanisms

As explained in Part I, studies of common ownership, including AST, rely upon MHHI or other measures of common concentrated ownership.[50] However, these measures are poorly designed to test the role of passive across-the-board mechanisms.

The central problem is that shifts in ownership can change the level of common concentrated ownership while having no effect on the level of passivity. Consider, for example, a shift from dispersed ownership to ownership by a CCO. As we showed in Part I, CCOs increase MHHIΔ, while NCOs lower it. Dispersed owners, due to their low stakes and low influence, simply drop out of the equation.[51] A change in ownership from dispersed owners to CCOs increases MHHIΔ yet should have no effect if CCO passivity is the source of anticompet-

48. AST, *supra* note 2, at 1518; Jose Azar, Martin C. Schmalz & Isabel Tecu, *Why Common Ownership Creates Antitrust Risks*, CPI ANTITRUST CHRON., June 2017, at 10, 15 [hereinafter AST CPI] (arguing that it is "*an absence of incentives to compete (rather than an increased incentive to collude)* that leads to reduced competition under common ownership"); *see also* Einer Elhauge, *The Growing Problem of Horizontal Shareholding*, CPI ANTITRUST CHRON., June 2017, at 1, 2 ("Nor does the anticompetitive effect require any communication between shareholders and managers, because managers know whether their leading shareholders are horizontal and know that lessening competition benefits those shareholders."); Elhauge, *supra* note 7, at 1270 (making a similar point).

49. These points generally apply to conflict- and consensus-based mechanisms alike.

50. *See supra* Section I.C.

51. As explained in the Appendix, the MHHIΔ formula multiplies an ownership fraction and control fraction for each owner. For small holdings, the product is close to zero.

Electronic copy available at: https://ssrn.com/abstract=3210373

itive effects. The same is true of a merger of two CCOs. The problem is not limited to MHHIΔ or similar measures but is instead endemic to any use of common concentrated ownership as the independent variable of interest. Common-concentrated-ownership measures are thus flawed metrics to test such passive mechanisms.[52]

A proper metric of passive across-the-board mechanisms would consider only the extent to which NCOs are present in the shareholder base. Indeed, some proponents of the passivity mechanisms have emphasized that it is the absence of NCOs that matters, not the presence of CCOs.[53] Common concentrated ownership would figure into such a comparison only indirectly, to the extent that it replaces noncommon concentrated ownership but not, as it does in AST and other studies, to the extent that it replaces dispersed owners or reflects increased concentration among CCOs. An empirical study of passive across-the-board mechanisms would thus be very different from the design of AST and other studies of common ownership.

2. Single-Industry Studies

The specific structure of the tests performed in single-industry studies further limits their ability to detect the use of across-the-board mechanisms. For example, AST exploits the fact that different airlines compete on different routes. It relates route-level airline prices to a route-level measure of common ownership.[54] In regressions with route-level price as the dependent variable and route-level common ownership and various control variables as independent variables, route-level common ownership is positively related to route-level prices.

---

52. The AST authors, in response to the criticism that they have not identified an observable mechanism linking CCOs to higher prices, have replied that such a critique "seems to reflect a misunderstanding of the economic mechanism that we argue can lead to anti-competitive outcomes. . . . It is hard to see why *not* implementing aggressive competition needs a mechanism or could produce measurable traces." AST CPI, *supra* note 48, at 15. This reply misses the mark insofar as our criticism is concerned. While a mere passive failure by CCOs to implement aggressive competition may leave few traces, such a failure would not explain AST's empirical results; thus, the results provide no support for the use of this mechanism.

53. *See* Antón et al., *Common Ownership*, *supra* note 44, at 4 ("The simplest mechanism is that the absence of a large active blockholder (with a strong interest in the target firm and without interests in competitors) [i.e., an NCO] is associated with reduced efforts to design high-powered managerial incentives. In other words, common owners need not actively design flat incentives; they may merely fail to design steep ones the way a non-common owner would.").

54. The measure used, route-level MHHIΔ, is calculated by combining route-level market share data with information about the ownership structure on that route.

Electronic copy available at: https://ssrn.com/abstract=3210373

This structure makes the study well suited to pick up targeted effects at the route level. If a fund acquires a stake in some but not all competitors, the route-level model predicts a differential impact on price for different routes, depending on which airlines compete on each route. This differences-in-differences design is structured to pick up such differential route effects but not effects that arise equivalently for the entire route network.

By contrast, the structure of the study is poorly designed to test for firm-wide, across-the-board effects. Route-level common ownership is not a proper metric to evaluate a mechanism that is firm-wide rather than route-specific.[55] Moreover, because AST includes approximately seven thousand different routes but only fifty-six different time periods, the principal source of variation as to common ownership is likely to be variation across routes rather than variation over time. Thus, AST's result that MHHIΔ is associated with higher prices is most likely due to route-level variations in MHHIΔ. To test an across-the-board mechanism, however, it is only price variation over time that is relevant. An across-the-board mechanism, such as making pay less sensitive to performance, might well generate route-level price variation. Yet such route-level effects do not depend on route-level common ownership.[56] Thus, an empirical study of across-the-board mechanisms would be quite different from the design of AST and other single-industry studies.[57]

55. In an online appendix, the AST authors report a set of regressions that includes a variable for an airline's average MHHIΔ across all its routes. *See* AST Appendix, *supra* note 39. Average MHHIΔ across all routes is positively associated with route-level prices. *See* Elhauge, *supra* note 32, at 29 (emphasizing this result as evidence of firm-wide effects). However, average MHHIΔ across all routes lacks theoretical foundation as an explanation for route-level pricing. Adding average MHHIΔ as a control variable implies that the price level for (say) American flying on route #1 depends on whether, on a different route #2 that American flies with Delta and United, those airlines have common owners. But that attribute of route #2 has no evident impact on the price American would charge on route #1.

56. To illustrate, suppose that an across-the-board mechanism predicts that a CCO-owned firm will set a higher price on a particular route, for example, due to higher marginal costs. *See, e.g.*, Antón et al., *Common Ownership*, *supra* note 44. That effect exists even if all the other firms on the route are owned by NCOs; that is, there is an effect even though MHHIΔ=0.

57. Other studies with the same limitation include Gerakos & Xie, *supra* note 30; Newham et al., *supra* note 30; and ARS, *supra* note 13.

Electronic copy available at: https://ssrn.com/abstract=3210373

3. Cross-Industry Studies

In principle, cross-industry studies are better suited than single-industry studies to detect across-the-board mechanisms.[58] A second strand of the empirical literature takes a cross-industry approach by examining the relationship, across different industries, between common concentrated ownership and executive pay for performance.

Considered as a set, however, the results of these papers yield no firm conclusion. For example, Miguel Antón, Florian Ederer, Mireia Giné, and Martin Schmalz find a negative association between various common-ownership metrics (including MHHIΔ) and their measure of pay for performance.[59] Rebecca DeSimone largely finds no statistically significant relation between MHHIΔ and her measure.[60] Heung Jin Kwon finds a positive association between MHHIΔ and relative performance incentives.[61] Lantian Liang finds that CEO compensation is positively associated with the performance of firms in the same industry that have at least one blockholder—that is, a large shareholder—in common.[62]

Beyond their conflicting conclusions, the papers share several limitations that recommend caution in interpreting their results. First, all of them rely on ownership data that omits the holdings of certain categories of blockholders. The ownership data is drawn from Forms 13F, quarterly reports filed by large institutional investors. But other owners who do not file Form 13F, such as firm founders, managers, and noninstitutional corporate holders, are often major blockholders. One detailed survey of publicly traded companies found that 52% of the firms had an individual and another 11% had a corporation as its largest owner.[63] For firms where the largest owner was an individual, the individual's mean block size was 32%, and the individual had a board representative in 91%

58. On the other hand, industry-level analysis weakens any causal interpretation and raises concerns about omitted-variable bias. *See* Martin C. Schmalz, *Common-Ownership Concentration and Corporate Conduct*, 10 ANN. REV. FIN. ECON. 413, 431-32 (2018).

59. Antón et al., *Common Ownership*, *supra* note 44, at 3.

60. DeSimone, *supra* note 44, at 2.

61. Kwon, *supra* note 44, at 2.

62. Liang, *supra* note 44, at 14.

63. Alex Edmans & Clifford G. Holderness, *Blockholders: A Survey of Theory and Evidence* 95 tbl.2 (European Corp. Governance Inst., Finance Working Paper No. 475/2016, 2017), https://ssrn.com/abstract=2820976 [https://perma.cc/62NP-UQL7] (examining ownership in a sample of 375 firms as of 1995). All such blockholders had an ownership share of at least five percent. These results exclude 15 firms (out of 375) in which no individual or entity owned at least five percent. *Id.*

Electronic copy available at: https://ssrn.com/abstract=3210373

of the firms.[64] For firms in which the largest owner was a corporation, the analogous figures were 39% and 83%.[65] These results suggest that individual and corporate blockholders are highly influential.

Individual and corporate blockholders are presumptively much less likely to be CCOs than are the institutional investors that appear in the Form 13F data. The omission of such blockholders is thus likely to yield incorrect calculations of MHHIΔ and other ownership metrics. Moreover, to the extent that individual blockholders are executives, they have substantial performance incentives derived from their stockholdings, which are largely ignored in the compensation studies.[66]

An additional problem is that the theoretical relationship between MHHIΔ and compensation at a particular firm remains unclear. MHHIΔ is measured at the industry (or product-market) level, not the firm level, and can change even if nothing of consequence shifts for a firm in the industry. If a holder of stock in Delta were to acquire stock in United, for example, industry MHHIΔ would rise, but it is not evident why this should have any effect on executive compensation at American, which would have experienced no change in common ownership.[67] On the whole, therefore, these papers shed little light on whether many CCOs employ compensation-related mechanisms.[68]

---

64. *Id.*

65. *Id.*

66. The same criticism applies to other papers that rely exclusively on Form 13F data, such as Gutiérrez & Philippon, Ownership, Governance and Investment, *supra* note 44.

67. This objection does not apply to analyses that use a firm-level metric of common ownership, in particular, regressions in Antón et al., *Innovation*, *supra* note 44, which use overlap in top five shareholders as a metric, and Liang, *supra* note 44. These results, however, raise other questions. Liang finds that the positive relationship between CEO compensation and competitor performance at firms with common ownership is limited to markets with low levels of HHI (i.e., the most competitive markets) and to firm pairs with low levels of combined market shares. Yet, incentives of CCOs to induce executives to compete less aggressively should be weakest in the most competitive industries and with respect to firms with the lowest market shares. Likewise, in Antón et al.'s regressions using the overlap in top five shareholders as a firm-specific measure of common ownership, HHI is—contrary to the theoretical prediction—not significantly related to their measure of compensation.

68. For additional criticisms of this strand of the literature, see David I. Walker, *Common Ownership and Executive Incentives: The Implausibility of Compensation as an Anticompetitive Mechanism* (Bos. Univ. Sch. of Law, Law & Econ. Series Paper No. 19-3, 2019), https://ssrn.com/abstract=3345120 [https://perma.cc/WQ7H-C9KU], which argues that the use of competition-enhancing relative performance evaluation has increased and criticizes the executive-wealth sensitivity measure used by Antón et al., *Common Ownership*, *supra* note 44.

Electronic copy available at: https://ssrn.com/abstract=3210373

B. Plausibility

The limitations in the extant empirical evidence about across-the-board mechanisms do not mean that CCOs do not employ them. From a theoretical and anecdotal perspective, compensation-related mechanisms are feasible, in the sense that CCOs have the power and ability to employ them. For example, institutional shareholders regularly vote on compensation structures, frequently discuss compensation in engagement meetings,[69] and at least implicitly claim expertise in evaluating compensation. In addition, evidence from merger votes indicates that mutual funds take into account other holdings in deciding how to vote.[70] By contrast, other across-the-board pathways that commentators have suggested are unlikely to be feasible. In particular, it has been suggested that CCOs might try to manipulate a firm's capital structure or payout policies to make it compete less aggressively or elect directors who favor a strategy involving less competition.[71] But shareholders have no direct influence over capital structure or payoff policies.[72] And while shareholders elect directors, most elections are uncontested, and there is no evidence that outside director candidates in uncontested elections stand for any particular competitive strategy or that institutional shareholders are given a choice of candidate to fill board openings.[73]

---

69. AST, *supra* note 2, at 1556.

70. Gregor Matvos & Michael Ostrovsky, *Cross-Ownership, Returns, and Voting in Mergers*, 89 J. FIN. ECON. 391 (2008) (presenting evidence that mutual funds that own a stake in the target firm are more likely to vote for mergers that result in negative returns for the acquirer); *see also* Marcel Kahan & Edward Rock, *Index Funds and Corporate Governance: Let Shareholders Be Shareholders* (N.Y.U. Sch. of Law, Law & Econ. Research Paper Series, Working Paper No. 18-39, 2019), https://ssrn.com/abstract=3295098 [https://perma.cc/6BYG-VE9A] (noting that different Vanguard funds voted differently in the CVS-Caremark merger depending on their stakes in the two companies). *But see* Jarrad Harford, Dirk Jenter & Kai Li, *Institutional Cross-Holdings and Their Effect on Acquisition Decisions*, 99 J. FIN. ECON. 27 (2011) (presenting evidence that cross holdings are too small to matter in most acquisitions and that bidders do not bid more aggressively even when cross holdings are large, and concluding that cross holdings do not explain value-reducing acquisitions). Note that, unlike the literature on anticompetitive effects of common ownership, these studies relate to fund-level, not advisor-level, common ownership. The fact that mutual funds vote shares in their self-interest in merger votes is unremarkable and raises none of the feasibility and plausibility issues that are posed by claims that common ownership has anticompetitive effects.

71. AST, *supra* note 2, at 1553.

72. Moreover, the link between capital structure or payout policies and price variation in particular product markets is highly unclear. *Cf. id.* (acknowledging that any such link is "subtle").

73. *See* Rock & Rubinfeld, *supra* note 14, at 239. To be sure, activist hedge funds sometimes obtain board representation without an election contest and, to that extent, have some ability to choose the person to add to the board. Activist hedge funds, however, are generally not CCOs.

Electronic copy available at: https://ssrn.com/abstract=3210373

A final across-the-board mechanism that has been suggested proceeds from the premise that managers are broadly aware that the firm's shares are held by mutual fund CCOs. Because managers have been socialized to further the interest of their shareholders, this general awareness, on its own, leads managers to compete less aggressively.[74] But it is not clear that managers think that their job is to further the overall interests of shareholders, extending beyond a particular firm's performance, rather than only the firm-specific interests of shareholders qua shareholders of that firm.[75]

Beyond these threshold questions of feasibility, compensation-based mechanisms face two significant obstacles that undermine their effectiveness: the dilution of managerial incentives overall and the relatively long time frame needed to accomplish the change.

1. Diluted Managerial Incentives

Most compensation-related mechanisms do not give the CCO an effective way of increasing portfolio value because they weaken managers' overall incentives. A CCO prefers managers to have weak incentives to maximize firm value

---

The possibility that a CCO will use the threat of casting "withhold" votes in uncontested elections on directors to pressure incumbent directors to pursue a targeted anticompetitive strategy (as opposed to the possibility that CCOs use votes to elect certain directors who favor a business strategy involving less competition) is discussed *infra* Part III.

74. A point along these lines has been made by Matt Levine:

> CEOs want to do a good job, and their understanding of what a good job is changes with intellectual currents. They learned in business school that their job is to maximize shareholder value; they learned in another class in business school that shareholders ought to be, and generally are, broadly diversified. Their understanding of their job is that they are supposed to make shareholders happy; their understanding of shareholders is that they own the market portfolio. Why wouldn't they have internalized those lessons, and make choices that maximize the wealth of diversified shareholders?

Matt Levine, *CEOs Learn Something in Business School*, BLOOMBERG OPINION: MONEY STUFF (Apr. 9, 2019, 11:58 AM EDT), https://www.bloomberg.com/opinion/articles/2019-04-09/ceos-learn-something-in-business-school [https://perma.cc/JPX7-KA8A].

75. Nor does the existing empirical evidence on the relationship between common ownership and reduced competition point to the involvement of this mechanism. The shareholders whose overall interest managers would try to further are the underlying economic owners—that is, the investors in mutual funds. AST and others examine the relationship between common ownership *at the investment-advisor level* and reduced competition. That approach makes sense if the advisor influences firm action. By contrast, if management on its own acts to further *shareholder* interests, the right approach is to examine the relationship between common ownership *at the fund level* and reduced competition. Even this approach is a simplification, given that investors can own multiple mutual funds and can own stocks directly.

Electronic copy available at: https://ssrn.com/abstract=3210373

to the extent that this benefits another portfolio firm. For example, a CCO might prefer that the firm avoid investing in marginal cost reduction on the ground that a higher marginal cost leads to higher prices and softer competitive conditions with rivals.[76] At the same time, however, the CCO would prefer that the managers have strong incentives to maximize firm value in other respects. But a compensation scheme is usually a blunt instrument, affecting managerial incentives generally. Thus, the use of a compensation-based mechanism is likely to have substantial adverse side effects on other aspects of the firm's operations.

Diluting managerial incentives often carries heavy costs. Marianne Bertrand and Sendhil Mullainathan, from whose well-known article AST borrows the phrase "quiet life," report evidence that the "quiet life" reduces productive efficiency.[77] It is far from clear whether CCOs accrue sufficient benefits from the less aggressive competition resulting from reduced incentives to offset these inefficiencies.

A wholesale dilution of incentives makes sense, if at all, only for firms where the bulk of managerial effort, absent CCO influence, would be primarily devoted to competition at the expense of other CCO portfolio firms. Where competition is directed against nonportfolio firms or where managerial actions increase the firm's profits without significantly harming rivals' profits, the costs of diluting incentives are likely to exceed the benefits, and a CCO is likely to steer clear of incentive-dilution strategies.[78]

An exception to this critique arises when a CCO favors absolute over relative performance incentives.[79] Relative performance incentives, whereby compensation is based on how a firm's performance compares to the performance of other firms in the industry,[80] have both advantages and disadvantages over the more

---

76. For a model making this point, see Antón et al., *Common Ownership*, *supra* note 44.

77. Marianne Bertrand & Sendhil Mullainathan, *Enjoying the Quiet Life? Corporate Governance and Managerial Preferences*, 111 J. POL. ECON. 1043, 1072 (2003) (reporting, in response to weakened corporate governance, an increase in employee compensation without any increase in operating efficiency, reduced creation of new plants, and reduced retirement of old plants). Those authors, in turn, draw upon J.R. Hicks, *Annual Survey of Economic Theory: The Theory of Monopoly*, 3 ECONOMETRICA 1, 8 (1935), which states that "[t]he best of all monopoly profits is a quiet life."

78. This discussion presumes that the CCO is capable of conscious strategizing. If the CCO passively accepts the managerial quiet life because it lacks any strategy at all—think of an index fund running on autopilot—then the fund's status *as a common owner* has no significance; it is a merely coincidental effect. For further discussion, see *infra* Part V.

79. Other critiques may still apply, such as the need (discussed next) for a longer-term perspective that is often lacking in a CCO. *See infra* Section II.B.2.

80. We do not focus on a further type of relative performance incentive, which is to compare firm performance to the performance of the economy rather than a single industry.

Electronic copy available at: https://ssrn.com/abstract=3210373

common absolute performance incentives.[81] Compared to absolute performance incentives, relative performance incentives tend to penalize firm managers if their competitors do well and reward them if competitors do poorly. Since CCOs, unlike NCOs, lose out when managers reduce competitor value and benefit when managers increase competitor value—exactly the opposite of what relative performance incentives reward—CCOs may actively favor, or simply fail to oppose, the use of absolute over relative performance incentives to a substantially greater extent than NCOs.[82]

2. *Long Time Horizon*

Across-the-board strategies based on voting or passivity are limited in yet another way. It may take several years of voting or passivity—whether about compensation or something else—before the votes or failure to act affect competitive strategy. A multiyear lead time is likely to be unworkable, at least for CCOs that mostly manage active funds.[83]

The asset-weighted average portfolio-turnover rate of actively managed U.S. equity mutual funds and ETFs was fifty-one percent in 2011.[84] Even over a single year, industry holdings of active funds change significantly. Market structure will often change as well. When a CCO casts its first vote or first decides to be passive, it would be difficult for the CCO to predict accurately what competitive strategy

---

81. Relative performance incentives have the desirable property of imposing lower risk-bearing cost on managers than absolute incentives, which reward managers in part based on industry-wide and economy-wide developments that bear on firm performance but may be outside managerial control. At the same time, managers have some control over the extent to which a firm is exposed to industry-wide and economy-wide developments as well as over the industries their firms operate in, thus reducing risk-bearing costs (while potentially introducing other distortions). Relative performance incentives are hard to implement for firms that operate in multiple or hard-to-define industry segments. Moreover, in concentrated industries, relative performance incentives provide excessive incentives for managers to take actions that *reduce* competitor value and insufficient incentives for actions that increase both firm and competitor value. Actions that increase both firm value and competitor value can be either anticompetitive or procompetitive (for example, a cost-saving device that is easily copied by competitors).

82. *See supra* note 67 (discussing the limited evidence in Liang, *supra* note 44, that institutional common ownership is associated with a positive relationship between CEO compensation and competitor performance).

83. We return to this aspect of index funds *infra* Section IV.B.

84. James J. Rowley Jr. & Joel M. Dickson, *Mutual Funds—Like ETFs—Have Trading Volume*, VANGUARD 5 (Nov. 2012), https://web.archive.org/web/20190202062839/https://personal.vanguard.com/pdf/s344.pdf [https://perma.cc/NP2Z-BRZQ]. By comparison, the turnover rates for index mutual funds and ETFs were nine percent and fifteen percent. *Id.*

Electronic copy available at: https://ssrn.com/abstract=3210373

will maximize its portfolio by the time its strategy comes to fruition. Hence, strategies based on voting and passivity are not likely to be effective for active funds.

An exception to this critique pertains to contested elections and companies targeted by activists, given the shorter time frame for action. In these scenarios, shareholders are faced with an activist who proposes a different business strategy than incumbent management, a component of which may include a different competitive strategy. By lending support to management or the activist, CCOs may influence competitive strategy more quickly.[85]

III. TARGETED MECHANISMS

Targeted mechanisms are directed at specific actions of the firm. As an illustration of the difference between targeted and across-the-board mechanisms, suppose that American, Delta, and United compete on two distinct routes. On Route 1, American and Delta share the market equally. On Route 2, by contrast, American and United share the market equally. As before, WhiteRock owns ten percent of American and Delta—but not United.

Compare three hypothetical actions that American might take, each of which requires the same amount of managerial effort and increases American's value by the same amount:

> [1] reduce the price charged on Route 1, thereby reducing the profits and value of Delta;
> [2] reduce the price charged on Route 2, thereby reducing the profits and value of United; or
> [3] move its headquarters to a cheaper location, which reduces fixed costs and has no effect on its competitors' profits.

An across-the-board strategy, along the lines discussed in Part II, would be for WhiteRock to reduce managerial effort at American by altering its management compensation system, thereby discouraging all three actions.[86] A targeted strategy, by contrast, would have WhiteRock induce American to reduce the price on Route 2 and move its headquarters—but not to reduce price on Route 1

85. As activists are generally NCOs, the most likely reason why strategies may differ on this dimension is that a management team, used to enjoying the "quiet life," faces an activist hedge fund advocating increased competition to raise firm value. This hypothesis could be tested by checking whether, in these situations, common ownership is associated with support for incumbents in concentrated industries.

86. *See supra* Section II.B.

Electronic copy available at: https://ssrn.com/abstract=3210373

(a price reduction that would increase the value of American but harm WhiteRock's investment in Delta).[87]

Targeted mechanisms of this sort, which give rise to conflict between a CCO and other investors, are well tested in the empirical literature.[88] However, as we explain in Section III.A, real-world CCOs would face substantial barriers in implementing targeted active strategies. In Section III.B, we offer the alternative mechanism of selective omission, which is similarly consistent with the empirical evidence but more plausible given its lower barriers to implementation.

A. Active Mechanisms

Targeted mechanisms avoid the blunt effects of across-the-board mechanisms: many profit-increasing actions are left undisturbed. Narrowness, however, comes at a price. First, a targeted strategy may require the CCO to identify which specific actions harm its portfolio. Here, WhiteRock would have to know enough about route-level operations (capacity, prices, costs, and competitors) to determine that competition on Route 1 is bad for its portfolio.[89] Second, at least indirectly, WhiteRock would need to communicate its preferences to management: do not reduce price on Route 1, but do reduce price on Route 2 and move your headquarters. Third, WhiteRock would have to induce management to take the action that the CCO prefers. Fourth, WhiteRock would have to determine whether management took the action WhiteRock sought. Put differently, effective implementation of a targeted active strategy requires generation, transmission, inducement, and monitoring.

Commentators have made several suggestions that bear on how a CCO might generate, transmit, induce, and monitor compliance with a targeted strategy. As to transmission, for example, they point to institutional investors' frequent meetings with management, during which competitive strategy could be discussed.[90] As to inducement, they suggest that a CCO obtains leverage over

87. If WhiteRock also owned shares in United, it might also oppose the price reduction on Route 2.

88. *See supra* Sections I.B and I.C (discussing the applicability of the extant empirical literature to conflict-based mechanisms).

89. It would generally not be sufficient for firm management alone to have such knowledge because a CCO would need a credible capability to monitor whether management faithfully executes the strategy.

90. AST, *supra* note 2, at 1554-56. AST also notes that "market-level capacity decisions are a frequent topic of conversation" in public earnings calls. *Id.* at 1555. However, the conversations cited appear to be with sell-side analysts, rather than representatives of CCOs. More generally, there are of course various anecdotal reports of shareholders and advisors, including mutual

Electronic copy available at: https://ssrn.com/abstract=3210373

managers through its voting power and its ability to sell shares and depress the market price of the firm's stock.

We agree that a CCO might be able to generate, transmit, induce, and monitor compliance with a targeted strategy, but doing so is complex. Complexity undercuts the plausibility of a targeted mechanism in two ways. First, it makes execution of the strategy more difficult. Second, execution of a complex strategy tends to leave detectable traces in the internal operations of and communications within the CCO and the firm, as well as in communications between the CCO and the firm. As we discuss below, the fewer the traces uncovered, the less likely it is that this mechanism is in fact employed.

Among CCOs, the complexity and resulting difficulty are particularly great for investment advisors. For investment advisors, an effective targeted strategy likely requires the support and involvement of some top-level managers as well as several other lower-level employees of the CCO, together with participation of senior executives and lower-level employees at the firm.

To understand the barriers to investment advisors executing a targeted active strategy, it is necessary to examine their operations more closely. With a few exceptions, the most prominent CCOs identified in the literature on anticompetitive common ownership are entities named "BlackRock," "Vanguard," and "Fidelity." That literature treats each as a single entity—as though there is only a single Fidelity, Vanguard, or BlackRock. For example, "Fidelity," as analyzed in AST, is FMR LLC (FMR), the legal entity making the Form 13F filings that supply the ownership data in the study. FMR is an investment advisor and has investment power over the stock listed in the Form 13F. But FMR is not the "owner" of these shares in any economic sense. Rather, the shares are owned by various mutual funds that Fidelity sponsors and by other Fidelity clients.[91] The mutual funds, in turn, are owned by mutual fund shareholders, not by FMR or any FMR affiliate.

Treating "Fidelity" as a single owner of the assets of the various Fidelity mutual funds and its other clients is problematic in two respects. First, it implies

---

funds and investment advisors, urging companies to increase prices or reduce capacity. *See, e.g.*, Patti Waldmeir & Pan Kwan Yuk, *United Boss Under Fire as Price War Bites*, FIN. TIMES (Oct. 19, 2017), https://www.ft.com/content/62d690f4-b4e9-11e7-a398-73d59db9e399 [https://perma.cc/8898-JA2R] (noting that United's CEO had been under pressure from unnamed sources for slashing fares and increasing the supply of flights and seats). Such evidence, however, is consistent with a shareholder's motivation to increase the firm's value, without any distinctive effect of common ownership. *See id.* (noting the decline in United's share price due to a price war).

91. *See* John Morley, *The Separation of Funds and Managers: A Theory of Investment Fund Structure and Regulation*, 123 YALE L.J. 1228, 1238-41 (2014); *see also* Douglas H. Ginsburg & Keith Klovers, *Common Sense About Common Ownership*, CONCURRENCES REV., May 2018, at 5 (discussing how "ownership and voting often are separate").

Electronic copy available at: https://ssrn.com/abstract=3210373

that FMR acts like a single *owner*—and hence that it seeks to maximize the value of its total portfolio. But in fact, as we explain in Part IV, an investment advisor that has investment power over certain shares has incentives that are quite different from those of an individual with an ownership stake in those shares. Second, it implies that FMR acts like a *single* owner. As we now explain, such treatment obscures the multilayered structure and divergent interests within each investment advisor.

Investment advisors are complex organizations. To run their investment and voting operations, larger investment advisors generally employ fund portfolio managers, analysts, and a centralized voting unit. These groups have different economic interests, powers, and competencies. Fund portfolio managers make the ultimate investment decisions for specific funds managed by the investment advisor. Fund portfolio managers differ from fund to fund within the same investment-advisor complex. For example, Fidelity's Contrafund has been run by William Danoff since 1990, and its Growth Company Fund by Steven Wymer since 1997.[92]

Fund portfolio managers generally have incentives to maximize the value of the fund they manage. Thus, Danoff cares much less about the performance of other Fidelity funds than about the performance of his Contrafund.[93] The portfolio of a specific fund (such as the Contrafund) is likely to differ from the port-

92. *Fidelity Contrafund*, FIDELITY (Sept. 20, 2019), https://fundresearch.fidelity.com/mutual-funds/summary/316071109 [https://perma.cc/5X25-NV8S]; *Fidelity Growth Company Fund*, FIDELITY (Sept. 20, 2019), https://fundresearch.fidelity.com/mutual-funds/summary/316200104 [https://perma.cc/7K6R-NW5J].

93. Linlin Ma, Yuehua Tang & Juan-Pedro Gómez, *Portfolio Manager Compensation in the U.S. Mutual Fund Industry*, 74 J. FIN. 587, 597 tbl.1 (2019), reports the structure of compensation for a large sample of portfolio managers between 2006 and 2011. Nearly all (99%) had a nonfixed salary. For 79%, compensation was based on the fund's investment performance. Compensation was tied to the overall profitability of the advisor and the fund's assets under management (AUM) for 51% and 20% of the funds, respectively. Even though it is common for fund-manager pay to be tied to advisor profitability, it is unlikely that this would materially counteract fund managers' incentives to disfavor targeted strategies that do not maximize the value of the fund they manage. First, in larger fund families, which are more likely to be significant CCOs, fund performance-based compensation is significantly more common, and advisor profit-based and AUM-based compensation is significantly less common, than in smaller families. *See id.* at 609-11 tbl.3. Second, investment advisors' profits derive from multiple sources, including, for the most significant advisors, fees obtained from a large number of mutual funds, management of defined benefit plans, and other services they perform. Thus, even to the extent that a portfolio manager's compensation depends on advisor profitability in addition to her fund's investment performance, the performance of other funds that hold stock in the same industry would have only a small impact on the advisor's overall profitability.

Electronic copy available at: https://ssrn.com/abstract=3210373

folio of another fund (such as the Growth Company Fund) and from the aggregate portfolio holdings of the investment advisor (such as FMR) in the relative proportion of shares of competing firms held. As a consequence, fund portfolio managers within the same investment-advisor complex have interests that conflict with one another and with the interests of the advisor as a whole. Moreover, because individual funds will tend to own many fewer shares in a competing firm than the reported aggregate stake of the investment advisor, no individual fund portfolio manager would have the influence over a firm attributed to the advisor based on the advisor's Form 13F stake.

Analyses that treat investment advisors such as Fidelity as a consolidated whole fail to account for these internal conflicts among individual funds. For example, as characterized by AST, Fidelity at the end of 2016 "owned" 5.5% of the stock of Southwest, 7.6% of the stock of JetBlue, 10.7% of the stock of Spirit Airlines, and sizable but smaller stakes in several other airlines, making it one of the most significant CCOs.[94] But the Fidelity Contrafund owned 2.0% in Southwest—which would make the fund Southwest's seventh-largest holder—and no other airline stock.[95] Danoff would thus have incentives to oppose any strategy that reduced the value of Southwest even if it increased overall Fidelity portfolio value. To be sure, the Fidelity Growth Company Fund held 0.5% of Southwest, 3.0% of JetBlue, and 3.3% of Spirit Airlines.[96] Its portfolio value, like Fidelity's overall, could increase if Southwest sacrificed some of its profits for the benefit of its competitors. But its 0.5% stake would give Wymer little sway over management of Southwest, and it is unclear why Southwest would think that Wymer represented the entire 5.5% holdings of Fidelity.

Most investment advisors also employ analysts who specialize in certain firms and industries, supply research to fund portfolio managers, and are evaluated by them. Although some investment advisors have different analyst teams work with different fund portfolio managers, often a single analyst, or a single group, covers a certain portfolio company for all funds on a centralized basis. Since analysts focus on a smaller subset of firms than fund portfolio managers do, they likely have the largest amount of firm-specific information. However, their principal focus is to predict short- and medium-term stock price changes

94. AST, *supra* note 2, at 1516 tbl.1.

95. *See* Fidelity Contrafund, Quarterly Schedule of Portfolio Holdings of Management Investment Companies (Form N-Q) (Nov. 28, 2016) (12,408,705 shares); Sw. Airlines Co., Annual Report (Form 10-K) (Feb. 7, 2017) (615,254,524 shares).

96. *See* Fidelity Growth Co. Fund, Annual Report (Form N-CSR) (Nov. 30, 2016) (3,188,315 shares of Southwest, 10,018,423 shares of JetBlue, and 2,294,460 shares of Spirit); JetBlue Airways Corp., Annual Report (Form 10-K) (Feb. 17, 2017) (337,036,221 shares); Sw. Airlines Co., Annual Report, *supra* note 95; Spirit Airlines, Inc., Annual Report (Form 10-K) (Feb. 13, 2017) (69,336,418 shares).

Electronic copy available at: https://ssrn.com/abstract=3210373

to inform buy and sell decisions, not to generate suggestions to enhance portfolio value. Suppose, for example, that an analyst predicted an increase in the value of American stock. If American and Delta stock both rise, the analyst would benefit from her recommendation of American, but it is doubtful that she would obtain equivalent benefits from the price rise at Delta.

The centralized voting unit, as a practical matter and sometimes as a legal one, generally controls the voting of the shares of advised funds and of other client assets where the client has delegated voting authority to the advisor. The voting unit may communicate with fund portfolio managers and analysts before it makes voting decisions. Depending on the advisor, fund portfolio managers or other fund officials have greater or lesser authority to deviate from the voting recommendations made by the voting unit. But the voting unit lacks the know-how and, ordinarily, the incentives to develop a targeted strategy and monitor whether it is faithfully executed.

Of the three groups—portfolio managers, analysts, and voting officials—analysts who cover an entire industry on a centralized basis are most likely to possess the industry knowledge and financial expertise to generate a targeted active strategy and monitor its execution. Moreover, their job, at least to some extent, relates to all industry holdings by the investment advisor. Analysts who assist only certain fund portfolio managers or who cover only certain firms in an industry would be unlikely to take into account, respectively, holdings of other funds or in other firms. Fund portfolio managers usually lack the requisite industry knowledge and also have potentially conflicting incentives to maximize fund portfolio value, rather than the aggregate portfolio value of the investment advisor. Officials working at the investment-advisor level and dealing with voting are unlikely to possess the requisite industry knowledge and financial expertise.

Once generated, the strategy would have to be transmitted and compliance induced. But analysts, on their own, are unlikely to have that capacity. They would have to convey the favored strategy to senior executives of the portfolio company—lower-level firm managers would be unlikely, on their own, to agree to a strategy that lowers firm profits. But analysts lack control over investments and voting and generally stand lower in the hierarchy of mutual fund officials than large-fund portfolio managers.[97] Even if senior firm executives are willing

97. John Walthausen, *The Portfolio Manager, the Analyst, and the Trader*, *in* INSTITUTIONAL MONEY MANAGEMENT: AN INSIDE LOOK AT STRATEGIES, PLAYERS, AND PRACTICES 89, 92 (David M. Smith & Hany A. Shawky eds. 2012) ("A portfolio manager has typically spent many years as an analyst and learned by working with a portfolio manager. . . . Analysts are a critical part of the [portfolio manager's] team."); Amy Whyte, *America's Most Lucrative Portfolio Management Jobs*, INSTITUTIONAL INV. (Nov. 8, 2018), https://www.institutionalinvestor.com/article

Electronic copy available at: https://ssrn.com/abstract=3210373

to meet with the analysts, they may not be willing to heed their demands to pursue a firm-value-decreasing strategy.[98]

To put pressure on firm executives, analysts might try to brief voting officials on the strategy. Investment-advisor officials with authority over voting hold regular meetings with management and the board and, perhaps, could use these meetings, as well as their control over voting decisions, to influence executives to adopt the strategy favored by the analysts. Doing so would be unusual, though, and almost certainly raise eyebrows.[99] Voting officials normally discuss matters like compensation structure and corporate governance (issues on which they regularly have to vote) or broad issues that require little firm-specific knowledge, such as whether the board has an executive succession plan or risk-management controls. They do not normally discuss targeted strategies such as route-level pricing.[100]

Alternatively, top-level managers of the advisor could get involved in transmission and inducement. In principle, these managers would have the strongest incentives to maximize the overall profitability of the advisor, rather than fund-level returns. Top advisor managers could arrange private meetings with senior firm executives, with or without analysts present, where they would convey their thoughts on how the firm should be managed.[101] An advisor's top managers

/b1bqjg6550pbbj/America-s-Most-Lucrative-Portfolio-Management-Jobs [https://perma.cc/33JT-Q9PW] (reporting $1.37 million in anticipated average compensation for surveyed mutual fund portfolio managers in 2018, compared to approximately $389,000 for analysts).

98. To be sure, analysts could threaten managers with making a negative recommendation that would induce portfolio managers of a fund to sell the firm's stock. (Note that accounts that rely on such threats likely accept, at least implicitly, that the strategy is firm-value reducing; otherwise a threat seems unnecessary.) But it is doubtful that such threats could induce a firm to adopt a value-reducing strategy. If a stock sale depresses the stock price and the negative report is not warranted by fundamental factors, the fund would lose value and the analyst would look foolish. And since the anticompetitive strategy the CCO wants to induce is *value reducing*, a firm's refusal to execute it should raise rather than lower its stock price. Moreover, analysts rely on good relations with management to obtain clarifications and get their questions answered. Antagonizing management is generally not conducive to their career prospects.

99. *See* Dorothy S. Lund, *The Case Against Passive Shareholder Voting*, 43 J. CORP. L. 493, 519 (2018) ("[A]ctive fund analysts, not members of corporate governance teams, are the primary drivers of informal meetings and interactions with management.").

100. *See, e.g.*, *Investment Stewardship: 2017 Annual Report*, VANGUARD GROUP 7 (2017), https://about.vanguard.com/investment-stewardship/annual-report.pdf [https://perma.cc/3T2S-TXXE].

101. A recent survey of institutional investors reports that 63 percent of respondents had discussions with top management in the prior five years. Joseph A. McCahery, Zacharias Sautner & Laura T. Starks, *Behind the Scenes: The Corporate Governance Preferences of Institutional Investors*, 71 J. FIN. 2905, 2912 (2016). However, only 21 percent of the respondents were from mutual

Electronic copy available at: https://ssrn.com/abstract=3210373

would more likely be viewed as peers by senior firm executives and may have supervisory authority over voting officials and fund portfolio managers. As a result, they have more clout than analysts.

But even if top advisor managers are involved, their involvement would not be enough. They would also need the assistance of analysts (to monitor whether firm executives implement the proposed strategy) and voting officials or fund portfolio managers (to respond if the firm does not follow the strategy). Effective implementation of a targeted strategy would also involve several management layers within the firm, from senior management to those in charge of the specific decisions in question. The involvement of so many people, along with the likelihood of conflicts among those involved, increases the probability that such a strategy, if important in practice, would leave a visible trace.

Moreover, NCOs and firm managers can be expected to dissent from the CCO's firm-value-reducing strategy. CCOs that hold different stakes in competing firms may disagree as well. These conflicts of interest further increase the likelihood that such a strategy, if deployed, would be detected, both because they generate the need for additional communication and because the dissatisfied parties may have incentives to report the CCO's actions to the press or to regulators. Indeed, because targeted strategies are designed to induce firms to take actions that reduce firm profits, it should be common for a firm to resist a proposed strategy, increasing the likelihood of disclosure.

That targeted strategies would leave detectable traces and entail heightened risks of disclosure is, as we discuss below, significant for two reasons. First, targeted strategies generate legal and reputational risks for a CCO. A heightened risk of disclosure thus makes the pursuit of these strategies more costly. Second, if no direct evidence that CCOs pursue targeted strategies is uncovered—despite strong reasons to believe that a targeted strategy should be detected—it becomes less likely that CCOs commonly employ such strategies.[102]

---

funds. *Id.* at 2910. Even setting aside the issue of whether top advisor managers would need to be present, public earnings calls are for multiple reasons an unlikely vehicle for a fund to use to induce a firm to pursue an anticompetitive strategy. As to conflictual strategies, other analysts who work for NCOs may voice opposition; public earnings calls are recorded and transcribed, leaving a record of past statements by any participant available to any other shareholder, reporter, or investigator whose suspicions are aroused; participants in calls can only talk if called on by management to ask a question, a format designed to have the company provide explanations to investors, not to have investors provide input on company strategy; and mutual fund analysts' active participation in these calls is so uncommon such that a high level of involvement would be likely to raise suspicion. *See generally* Michael J. Jung, M.H. Franco Wong & X. Frank Zhang, *Buy-Side Analysts and Earnings Conference Calls*, 56 J. ACCT. RES. 913, 915, 949-50 (2018) (showing that, in a sample of 57,584 conference calls, analysts from BlackRock and Fidelity participated in 173 and 74 calls, respectively, and that analysts from State Street and Vanguard participated in fewer than 71 calls).

102. For a further discussion of this inference, see *infra* Section V.A.

Electronic copy available at: https://ssrn.com/abstract=3210373

B. Passive Mechanisms: Selective Omission

In the example of a targeted active strategy discussed in the preceding Section, WhiteRock (the investor in American and Delta) advocated suppressing competition on Route 1, promoting competition on Route 2, and reducing costs. The first action reduced the value of American; the latter two actions increased the value of American; and all three increased the value of WhiteRock's portfolio.

An alternative targeted strategy would be for WhiteRock to press only for actions that increase the value of both American and its portfolio holdings, while remaining passive where the two conflict. For example, WhiteRock could actively promote competition on Route 2 and cost reduction but remain silent as to Route 1. Such selective omission is, in effect, a targeted passive mechanism. The two actions by WhiteRock—promoting competition on Route 2 and cost reduction—match those that an NCO would take. CCOs that are engaged in selective omission generate an anticompetitive effect because they selectively fail to push certain firm-value-increasing actions that would be procompetitive, rather than because they actively push the firm to implement firm-value-decreasing measures that are anticompetitive (as in a targeted active mechanism). Only a CCO's failure to push for firm-value-increasing procompetitive actions is a source of conflict between it and an NCO.

In terms of feasibility, the selective omission strategy has significant benefits compared to a targeted active strategy. Selective omission requires similar effort to generate, but there is no affirmative promotion of a strategy that reduces firm value. As a result, the additional steps needed to execute a targeted active strategy—transmission, inducement, and monitoring—are comparatively simple. A CCO could rely on the persuasive force of its arguments, rather than on explicit or implicit threats, to push for strategies—all firm-value-increasing—that it actively favors and would find common cause with most other shareholders. The CCO could advocate such strategies openly, convey them to lower-level executives, and execute them without involving top advisor managers or risking managerial resentment or disclosure.[103]

Moreover, selective omission could emerge from the natural interests of individual analysts working for a CCO. It requires neither involvement from portfolio managers, the centralized voting group, or top advisor managers nor, for that matter, their awareness that analysts are engaged in selective omission. All

103. For similar reasons, transmission and inducement of a consensus strategy would be simpler. However, a consensus strategy that entails coordination among competitors would require monitoring and, as discussed *supra* Part I, is not tested by MHHIΔ. Moreover, as discussed *infra* Part IV, a consensus strategy may entail high legal and reputational costs and thus not be in the interest of institutional CCOs.

Electronic copy available at: https://ssrn.com/abstract=3210373

that is needed is that analysts sometimes give business advice to firm executives, that firm executives are sometimes influenced by such advice, and that analysts want to maximize the return on the overall portfolio of certain stocks (such as stocks that they recommended for purchase) and therefore omit advice that would benefit the company at issue but prove harmful to portfolio interests.

Unlike the purely passive across-the-board mechanisms discussed in Part II, selective omission could account for the results found by AST. Assume that absent shareholder pressure, firms would sometimes fail to compete aggressively, compared to the course of action that maximizes firm value, and other times would compete too aggressively. Compare the differences between NCOs, CCOs, and dispersed owners across these two scenarios. CCOs would push less hard, compared to NCOs, to correct the first error, due to its effect on the value of competitors in which the CCO has a stake. CCOs (along with NCOs) would push harder, compared to dispersed owners, to correct the second error. These results are summarized in Table 1.

TABLE 1.
COMPARISON OF NCOS, CCOS, AND DISPERSED OWNERS UNDER SELECTIVE OMISSION

		Advocate		
		NCO	**CCO**	**Dispersed Owners**
Action to increase firm value	More aggressive competition	Yes		
	Less aggressive competition	Yes	Yes	

The average effects of NCO, CCO, and dispersed ownership on different firms (or on different product decisions, such as pricing on a particular route) would roughly align with the effects of NCO, CCO, and dispersed ownership on MHHIΔ: a move from dispersed ownership to CCO ownership increases MHHIΔ and, on average, increases prices (by increasing pressure to raise prices on routes where less aggressive competition increases firm value); a move from NCO to CCO ownership also increases MHHIΔ and, on average, also increases

Electronic copy available at: https://ssrn.com/abstract=3210373

prices (by reducing pressure to lower prices on routes where more aggressive competition increases firm value).[104]

As Table 1 illustrates, the quantitative anticompetitive effect of selective omission depends on how frequently analysts (or other CCO officials) otherwise would make the business suggestions that are omitted—that is, suggestions that would increase company value but decrease portfolio value—and the extent to which such suggestions affect company policy.[105] If CCOs rarely make such suggestions or if they are largely ignored, selective omission would be present but would have little anticompetitive effect.

IV. THE ECONOMIC INTERESTS OF INVESTMENT ADVISORS

So far, we have accepted the assumption that the CCO's objective is to raise portfolio value. This assumption is widespread in the literature on the anticompetitive effects of common ownership. But as we indicated in Part III, the archetypal CCO—the investment advisor—has incentives quite unlike those of an individual CCO. In this Part, we elaborate on this argument. As we show, pursuing many of the proposed mechanisms is contrary to the financial interest of investment advisors.

A. Benefits

Although investment advisors have been treated as common concentrated *owners* in the literature, it bears repeating that they are not, in fact, the owners of the shares attributed to them. They lack an ownership interest both legally and economically.

The reason that investment advisors are treated as owners is that they have investment authority over the shares, which requires them to list these shares when filing a Form 13F.[106] The ownership of the shares, however, rests with the various mutual funds and other clients advised by the investment advisor. The

104. A move from NCO to dispersed ownership increases MHHIΔ and has an indeterminate predicted effect on prices. Still, if CCOs effectively pursue selective omission, an increase in route-level MHHIΔ should be correlated with an increase in route-level prices. However, a more direct test of selective omission would include separate variables for CCO and NCO ownership.

105. By contrast, the quantitative effect of active targeted strategies depends on how frequently CCOs make business suggestions that are designed to increase portfolio value but *reduce* company value and the extent to which these suggestions affect company policy.

106. *See* 17 C.F.R. § 240.13f-1 (2019).

Electronic copy available at: https://ssrn.com/abstract=3210373

economic interest in these shares is held by the ultimate economic beneficiaries—in the case of mutual funds, by the mutual fund shareholders.

If an individual shareholder manages to raise the value of her portfolio securities by $1 billion, she would be $1 billion richer. But if an investment advisor manages to raise the value of the securities listed in its 13F filings by $1 billion, the value of the investment advisor does not increase by $1 billion. Not even close.[107]

To be sure, an investment advisor has some incentives to raise the value of the securities as to which it acts as an advisor. Most directly, in the case of advised mutual funds, the advisor's annual fee is a percentage of the value of the assets under management.[108] Hence, as the value of the assets under management grows, so does the advisor's fee.

But the applicable percentage is low. For equity index funds, the asset-weighted average fee in 2016 was nine basis points.[109] For actively managed equity funds, it was eighty-two basis points.[110] Even assuming that the advisor expects to earn these fees for multiple years,[111] the advisor has a much smaller interest in increasing the value of the assets than an individual owner would have.

These lower incentives are further diluted because investment advisors are likely to bear some of the costs of anticompetitive conduct through their ownership of suppliers and customers.[112] Even if reducing capacity and raising prices raise industry profits, this is likely to have some adverse effects on suppliers and customers. Large investment advisors—and index fund advisors in particular—

107. Corporate governance scholars have long noted the limited incentives of mutual fund managers. *See, e.g.*, Marcel Kahan & Edward B. Rock, *Hedge Funds in Corporate Governance and Corporate Control*, 155 U. PA. L. REV. 1021, 1050-54 (2007). Others have noted that these reduced incentives apply to the common-ownership context. *See* Bebchuk et al., *supra* note 9, at 108-09.

108. *See* Kahan & Rock, *supra* note 107, at 1051.

109. *2017 Investment Company Fact Book: A Review of Trends and Activities in the Investment Company Industry*, INV. COMPANY INST. 93 (2017), https://www.ici.org/pdf/2017_factbook.pdf [https://perma.cc/7M26-K434].

110. *Id.* at 96.

111. The number of years during which an advisor would earn fees would depend on the remaining period of time mutual fund shareholders and other clients keep their assets with an advisor before they withdraw them.

112. *See, e.g.*, Jonathan B. Baker, *Overlapping Financial Investor Ownership, Market Power, and Antitrust Enforcement: My Qualified Agreement with Professor Elhauge*, 129 HARV. L. REV. F. 212, 225 (2016); AST CPI, *supra* note 48, at 15 (acknowledging this critique); Thomas A. Lambert & Michael E. Sykuta, *The Case for Doing Nothing About Institutional Investors' Common Ownership of Small Stakes in Competing Firms* 20 (Univ. of Mo. Sch. of Law Legal Studies Research Paper No. 2018-21, 2018), https://ssrn.com/abstract=3173787 [https://perma.cc/UN8C-8ASY].

Electronic copy available at: https://ssrn.com/abstract=3210373

are almost certain to own shares in some suppliers and customers. Thus, they bear part of the costs of anticompetitive conduct.

In fact, some actions increasing overall portfolio value may even reduce the advisor's fees. Different funds pay different percentage fees to the advisor.[113] Increasing the value of stock held in low-fee-paying funds at the expense of the value of stock held in high-fee-paying funds can reduce overall fees even if it increases overall portfolio value. This problem is particularly acute for investment advisors, such as BlackRock, with large assets under management in both low-fee index funds and much higher-fee active funds.[114] Active and index funds run by the same advisor are likely to differ not only in fees but also in the stocks they hold. Although an index fund holds similar percentages in all companies in an industry that are in the index, the holdings of active funds are likely to be concentrated in a subset of such companies.

To illustrate these points, consider Primecap, one of the principal CCOs of airline stock. At the end of 2016, Primecap held, among other airline stock, 5.2% of the stock of Alaska Air and 6.3% of the stock of United Continental, with a combined value of $2 billion. Primecap acts as an advisor to the lower-fee Vanguard Primecap Fund[115] and the higher-fee Primecap Odyssey funds, as well as to other clients,[116] with its mutual funds accounting for 67% of the holdings in these two airlines.[117] Because of its joint holdings in Alaska Air and United, Primecap could increase its portfolio value by $5 million if it induced United to pursue a strategy that reduced the value of United by $500 million and increased

113. Lambert & Sykuta, *supra* note 112, at 26-27 (noting that different funds charge different fees). The same is true of different clients of the advisor.

114. According to BlackRock's 10-K for 2017, assets under management include $311 billion in actively managed equity and $3,060 billion in ETFs and non-ETF indexed equity. BlackRock, Inc., Annual Report 32 (Form 10-K) (Feb. 28, 2018), https://www.sec.gov/Archives/edgar/data/1364742/000156459018003744/blk-10k_20171231.htm [https://perma.cc/3XEZ-FUP5]. Fees from actively managed equity (including performance fees) totaled $1.8 billion, while fees from ETFs and non-ETF indexed equity amounted to $3.9 billion. *Id.* at 44. Fees as a percentage of assets under management are thus 0.58% for actively managed equity and 0.13% for ETFs and non-ETF indexed equity.

115. Vanguard Primecap charges annual fees of 0.31% to 0.38%. The following calculations assume that Primecap earns fees of 0.36% on assets in this fund.

116. The Odyssey funds charge fees of 0.64% to 0.66%. The following calculations assume that Primecap earns fees of 0.65% on assets in this fund.

117. Primecap's 13F also includes shares that are in neither of these funds, and we assume its advisory fees on these shares are equal to the fees it earns on the Odyssey funds.

Electronic copy available at: https://ssrn.com/abstract=3210373

Alaska Air's value by $700 million.[118] But because the lower-fee Vanguard Primecap Fund holds most of the Alaska Air stock but only about half of the United stock,[119] Primecap's annual fees adjusted for the fund holdings would actually decline by $10,000.[120] Indeed, if Primecap had the opposite opportunity—to reduce Alaska Air's value by $700 million and to increase United's value by $500 million—it would reduce portfolio value yet increase its fees. And even if Primecap charged the same fee on all its funds, its annual fees (based on its average fund fee) would increase by only $25,000.[121]

Mutual funds also have incentives to improve performance in order to generate net inflows. But empirical evidence has shown that net inflows respond to relative performance, not absolute performance.[122] Thus, attracting net inflows would not generate significant incentives for index funds, which are designed neither to underperform nor to outperform the index benchmark. And for non-index funds, the impetus to improve relative performance is associated with incentives quite distinct from maximizing portfolio values and quite unrelated to MHHIΔ as conventionally measured.

Relative fund performance improves if the share price of a company in which a fund is overweight relative to the benchmark rises or if the share price of a company in which a fund is underweight drops.[123] To illustrate, recall the airline example from Part III. Suppose that there is a route in which American, Delta, and United compete and share the market equally. WhiteRock (as before) owns 10% of American and Delta. Three NCOs each own 10% in one airline. A CCO

118. The increase in Alaska Air's value would increase Primecap's portfolio value by $36.4 million (5.2% of $700 million); the decrease in United's value would decrease Primecap's portfolio value by $31.5 million (6.3% of $500 million).

119. Vanguard Primecap accounted for 86.2% of Primecap's 13F holdings in Alaska Air but only 53.7% of the holdings in United.

120. The change in Vanguard Primecap's value is (86.2%)($36.4 million) + (53.7%)(-$31.5 million) = $14.46 million. The change in the value of the Odyssey funds and other assets is (13.8%)($36.4 million) + (46.3%)(-$31.5 million) = -$9.56 million. The increase in fees from Vanguard Primecap is 0.36% of $14.46 million, or approximately $52,000. The decrease in fees from Odyssey funds and all other assets is 0.65% of $9.56 million, or approximately $62,000. The net effect on fees is therefore approximately -$10,000.

121. This calculation assumes that Primecap earns fees of 0.52% on all its assets. 0.52% of $4.9 million is approximately $25,000.

122. *See, e.g.*, Brad M. Barber, Xing Huang & Terrance Odean, *Which Factors Matter to Investors: Evidence from Mutual Fund Flows*, 29 REV. FIN. STUD. 2600 (2016); *see also* Jonathan Lewellen & Katharina Lewellen, Institutional Investors and Corporate Governance: The Incentive to Be Engaged (2018) (unpublished manuscript) (on file with authors) (finding that, for large institutions, flow incentives are significantly less important than direct incentives generated by an increase in portfolio value).

123. *See, e.g.*, Kahan & Rock, *supra* note 107, at 1052-53.

Electronic copy available at: https://ssrn.com/abstract=3210373

of all three airlines, RedRock, owns 10% of each. The MHHI∆ for this route, calculated in the conventional fashion, is 3,333, signifying a substantial increase in market concentration.[124]

To see the impact of relative performance, we need a benchmark. Suppose that the benchmark would have investors hold, given their size, five percent of each airline. Thus, each NCO is overweight in its airline and underweight in the two others. WhiteRock is overweight in American and Delta, and RedRock is overweight in all three airlines. Table 2 reports the degree to which each investor is overweight or underweight in each airline.

TABLE 2.
INVESTOR HOLDINGS RELATIVE TO BENCHMARK

	Holdings and Over-/Underweight		
	American	Delta	United
Benchmark	5%	5%	5%
NCO for American	10% +5%	0% -5%	0% -5%
NCO for Delta	0% -5%	10% +5%	0% -5%
NCO for United	0% -5%	0% -5%	10% +5%
WhiteRock	10% +5%	10% +5%	0% -5%
RedRock	10% +5%	10% +5%	10% +5%

To capture the interaction of relative performance with common ownership, we can calculate an alternative "relative performance" version of MHHI∆, in which the economic stake of each investor is based solely on the relative performance incentives—where being overweight is equivalent to a long position to the extent a fund is overweight, and being underweight is equivalent to holding a short position to the extent a fund is underweight. For example, for American's NCO, the MHHI∆ is calculated assuming that the NCO has an economic stake of 5% in American and 5% short positions in Delta and United, corresponding

124. This calculation is set out in the Appendix.

Electronic copy available at: https://ssrn.com/abstract=3210373

to the extent its ownership stake deviates from the benchmark and results in relative performance incentives. In this example, the relative performance MHHIΔ equals zero, the same as if the three airlines were held entirely by dispersed owners.

Note that the NCO for American now benefits, in relative performance terms, if the value of Delta or United declines. American's NCO thus has an incentive to induce American to increase capacity and lower prices beyond the level that maximizes profits at American. In the example, incentives that NCOs have to induce firms to compete overly aggressively are balanced by the incentives that RedRock (which is overweight in all three firms) has to induce them to compete less aggressively than is optimal, generating a relative performance MHHIΔ equal to zero. But if, for example, RedRock were a large index fund such that its benchmark (given its size) would entail holding 10% of each airline, this ownership structure would produce an MHHIΔ of −4,444.[125] As this example illustrates, any relative performance incentives are not well proxied by MHHIΔ.[126]

B. Costs

The costs to advisors of employing the mechanisms we have discussed above go beyond the costs of generating and implementing a strategy that leads to anticompetitive results. They include, depending on the specific mechanism involved, significant reputational and legal risks if use of the mechanism is detected.

The institutional investors likely to have the largest common-ownership stakes in any industry are some of the best-known investment advisory companies, such as Vanguard, BlackRock, Fidelity, and T. Rowe Price.[127] The assets managed by these companies run to the trillions of dollars; their products are

125. The calculation of relative performance MHHIΔ is set out in more detail in the Appendix.

126. *See* Lewellen & Lewellen, *supra* note 122, at 44 tbl.7 (finding that, in industries with fewer than twenty-five firms, the majority of institutional shares are held by entities for which rival flow incentives are negative; that is, the institution benefits in relative performance terms if its rivals do poorly).

127. Indeed, these are the institutional investors that AST find have the largest common-ownership stakes in the airline industry. *See* AST, *supra* note 2, at 1516 tbl.1.

Electronic copy available at: https://ssrn.com/abstract=3210373

marketed to retail and institutional investors including defined-benefit and defined-contribution pension plans, charities, endowments, and central banks;[128] and their business operations are highly regulated.[129]

From a strategic perspective, these companies do not want to generate controversy. Controversy and scandals are bound to attract attention from regulators and to generate withdrawals from investors. Even a small difference in the growth rate of assets under management, say 4% compared to 5%, would mean $56 billion fewer assets under management for Vanguard and $24 billion fewer for Fidelity.[130] In fact, mutual fund companies have largely succeeded in staying on everybody's good side. The largest players, in particular, enjoy a squeaky-clean image.

Any suggestion that an investment advisor as a whole—not just an obscure analyst or a portfolio manager of an individual fund—had a policy of encouraging firms to pursue an anticompetitive strategy would be damaging. An article in the *Wall Street Journal* detailing internal deliberations within an investment advisor on how best to get firms to adopt such a strategy would be highly detrimental. And a criminal investigation, let alone an indictment, could be devastating.

Reputation is especially important for the largest investment advisors—entities like BlackRock, Vanguard, and Fidelity. These are also the advisors most likely to be CCOs. As large and highly regulated institutional investors, these

128. *See, e.g.*, BlackRock, Inc. (Form 10-K), *supra* note 114, at Item 1.

129. *Id.* at 10 ("[V]irtually all aspects of [its] business operations are subject to various laws and regulations around the world . . . ."). These include the Investment Company Act, the Securities Exchange Act of 1934, ERISA, and a multitude of other regulations. *See id.* at 15-27 (containing a three-and-a-half-page "Legal and Regulatory Risks" disclosure, which is as long as the four risk sections on "Market and Competition Risks," "Risks Related to Investment Performance," "Risks Related to Human Capital," and "Risks Related to Key Third-Party Relationships" combined).

130. *See* James Comtois, *Fidelity Sees Record Revenue, Operating Income Despite Dip in AUM*, PENSIONS & INVS. (Feb. 21, 2019), https://www.pionline.com/article/20190221/ONLINE/190229952/fidelity-sees-record-revenue-operating-income-despite-dip-in-aum [https://perma.cc/ADQ6-ZKM6] (reporting $2.4 trillion in assets under management at Fidelity); *Fast Facts About Vanguard*, VANGUARD GROUP, https://about.vanguard.com/who-we-are/fast-facts [https://perma.cc/E36V-KNZP] (reporting $5.6 trillion in assets under management at Vanguard as of August 31, 2019).

Electronic copy available at: https://ssrn.com/abstract=3210373

companies face substantial political risks.[131] Evidence that these companies actively promote anticompetitive outcomes could lead to substantially increased regulation or even breakup.[132]

Legal risks to advisors arise from several sources: the possibility that the mechanism engenders a violation of the antitrust laws for the portfolio company or, worse, implicates the advisor itself in a violation; the possibility that the mechanism involves a breach of fiduciary duty by the advisor to the advised funds and clients; and the possibility that the mechanism entails a violation of the federal securities laws.

A CCO pursuing a targeted active strategy—for example, pressing several airlines to avoid competition with one another—might well face antitrust liability. The interactions between the CCO and each portfolio firm could be regarded as vertical agreements in restraint of trade or as facilitation of a cartel among the firms, with the CCO serving as the cartel's ringmaster. Even if the firms do not communicate among themselves, the CCO's involvement could expose them to liability on a "hub-and-spoke-and-rim" theory of liability, in which an agreement among the firms ("along the rim") is inferred from the interactions between the CCO ("the hub") and each firm.[133] The exact circumstances supporting such an inference are not well settled, but a common formulation is that

131. *See* Kahan & Rock, *supra* note 70, at 30-31 (arguing that good reputation is important to avoid regulation and as a nonprice dimension of competition); *see also* MARK J. ROE, STRONG MANAGERS, WEAK OWNERS: THE POLITICAL ROOTS OF AMERICAN CORPORATE FINANCE, at xiii-xv (1994) (describing how historical suspicion of concentrated economic power has shaped corporate governance).

132. Consistent with this assessment, BlackRock has disputed both the empirical findings and the theory underlying the literature on anticompetitive effects of common ownership. *Common Ownership Data Is Incorrect*, BLACKROCK 1 (Jan. 2019), https://www.blackrock.com/corporate/literature/whitepaper/policy-spotlight-common-ownership-data-is-incorrect-january-2019.pdf [https://perma.cc/6VL7-56D5]; *Index Investing and Common Ownership Theories*, BLACKROCK 1 (Mar. 2017), https://www.blackrock.com/corporate/literature/whitepaper/viewpoint-index-investing-and-common-ownership-theories-eng-march.pdf [https://perma.cc/T25P-KMKT]; Barbara Novick, *Remarks at OECD Discussion on Common Ownership by Institutional Investors*, BLACKROCK 7 (Dec. 6, 2017), https://www.blackrock.com/corporate/literature/publication/barbara-novick-remarks-oecd-common-ownership-120617.pdf [https://perma.cc/4AVY-SL33]; *Re: Competition and Consumer Protection in the 21st Century—Hearing #8*, BLACKROCK 2 (Jan. 15, 2019), https://www.blackrock.com/corporate/literature/publication/ftc-hearing-8-competition-consumer-protection-21st-century-011419.pdf [https://perma.cc/CRK8-BUW8]. The Investment Company Institute has also provided funding for studies on the topic. *See, e.g.*, O'Brien & Waehrer, *supra* note 14, at 729 (noting partial funding).

133. *See, e.g.*, Toys "R" Us v. FTC, 221 F.3d 928, 932-36 (7th Cir. 2000); *see also* Interstate Circuit, Inc. v. United States, 306 U.S. 208, 226-27 (1939) (stating, in dicta, that "[a]cceptance by

Electronic copy available at: https://ssrn.com/abstract=3210373

liability attaches when the hub makes an offer to each firm, which is accepted with the knowledge that (and perhaps in reliance on the fact that) the other firms have accepted as well. Moreover, the hub is regarded as an integral (and jointly and severally liable) part of the resulting conspiracy, despite its vertical relationship to the other conspirators.[134]

Furthermore, investment advisors face potential legal risks for breach of fiduciary duty.[135] Investment advisors provide services to mutual funds and other clients that own the shares of portfolio companies. The advisor owes an independent fiduciary duty to each of these entities.[136] If an advisor votes a client's shares in a manner that increases the advisor's overall portfolio value but reduces the client's portfolio value—or if the advisor otherwise uses the leverage of being in control of a client's shares to induce a firm to adopt a strategy that is not in the client's best interest—the advisor violates its fiduciary duties.

Different mutual funds in the same family with the same advisor will own different stakes in competing firms, as will the advisor's other clients. Any strategy that leads to a reduction in the value of one portfolio company for the benefit of other companies in the advisor's portfolio is liable to undermine the interests of some of the advisor's clients.[137] To return to our example from Section IV.A, if Primecap induced United to pursue a strategy that reduced the value of United by $500 million and increased Alaska Air's value by $700 million, its overall portfolio value would increase by about $5 million and the portfolio value of the Vanguard Primecap Fund would increase by $14.5 million, but the value of the

competitors, without previous agreement, of an invitation to participate in a plan, the necessary consequence of which, if carried out, is restraint of interstate commerce, is sufficient to establish an unlawful conspiracy under the Sherman Act").

134. *See, e.g.*, United States v. Apple, Inc., 791 F.3d 290, 321-25 (2d Cir. 2015).

135. Other commentators have examined the distinct question of a manager's fiduciary duty to their firm. *See, e.g.*, O'Brien & Waehrer, *supra* note 14, at 734, 765-66.

136. *See, e.g.*, John D. Morley, *Too Big to Be Activist*, 92 S. CAL. L. REV. 1407, 1417 (2019) (explaining that "each client is a separate locus of fiduciary duty").

137. To be sure, a client with shares in many oligopolistic industries and a long-term horizon may, across stocks and over time, come out ahead if the advisor uses its control to maximize overall portfolio, rather than client portfolio, value. Such a client may thus consent to such use. Without a client's consent, however, an advisor could not on its own decide to act for the benefit of some client portfolios and against the interest of others in the hope that, in the end, everyone will come out ahead. *See Proxy Voting Guidelines for U.S. Portfolio Companies*, VANGUARD GROUP 2 (Apr. 1, 2019), https://about.vanguard.com/investment-stewardship/portfolio-company-resources/proxy_voting_guidelines.pdf [https://perma.cc/37UR-XMJ5] (stating that Vanguard's Investment Stewardship team seeks to vote each fund's shares in the best interest of that fund's shareholders).

Electronic copy available at: https://ssrn.com/abstract=3210373

assets held in the Primecap Odyssey Funds and of other assets held outside Vanguard Primecap would decline by $9.6 million.[138]

From the perspective of the advisor's potential liability under its fiduciary duties, the safest solution is for the voting group to base its recommendations on what vote maximizes the value of a portfolio company. In the event that an individual fund manager believes that a different vote is in the interest of her fund, the fund could depart from the recommendations. Indeed, mutual funds in the same family sometimes vote differently.[139] As long as an advisor does not affirmatively act in a manner that reduces the value of a portfolio company, it faces no serious risk of liability for breach of fiduciary duties. Thus, across-the-board passive mechanisms and selective omission, which merely involve a failure to take actions that would increase the value of a portfolio company, do not create material fiduciary-duty risks.

Finally, investment advisors would face some legal risks under the securities laws. The principal risk arises under Rule 10b-5, which forms the basis for the prohibition of insider trading.[140] If an advisor obtains material nonpublic information from a firm manager about her company and that manager breaches her fiduciary duties in conveying that information, the advisor must abstain from trading stock in that company until the information is disclosed.

Targeted active mechanisms create the most significant 10b-5 concerns. At first blush, there might seem to be no issue. The CCO is trying to direct the firm, as opposed to gleaning material nonpublic information from it. However, matters are not so simple. Targeted active mechanisms would likely be implemented through private meetings. Thus, any information learned would often be nonpublic. In such private meetings, firm managers may indicate that they will follow the strategy pushed by a CCO. If that strategy relates to a significant segment of the firm's operations, this information could be material. And since the firm manager would agree to a strategy that lowers firm value, and would presumably do so to avoid the adverse ramifications from refusing to agree, the manager would breach her fiduciary duties to the company and its shareholders. By con-

138. As calculated *supra* note 120, the value of Vanguard Primecap would increase by $14.46 million, while the value of assets in the Primecap Odyssey funds and other assets would decline by $9.56 million.

139. Fund families differ in the extent to which funds in the family vote alike, but fund voting is often highly centralized at the family level. *See* Stephen Choi, Jill Fisch & Marcel Kahan, *Who Calls the Shots? How Mutual Funds Vote on Director Elections*, 3 HARV. BUS. L. REV. 35, 48 (2013); *see also* Jan Fichtner, Eelke M. Heemskerk & Javier Garcia-Bernardo, *Hidden Power of the Big Three? Passive Index Funds, Re-Concentration of Corporate Ownership, and New Financial Risk*, 19 BUS. & POL. 298, 316-17 (2017) (presenting empirical data).

140. 17 C.F.R. § 240.10b-5 (2019); *see* Chiarella v. United States, 445 U.S. 222, 231-35 (1980) (basing the prohibition of insider trading on violations of Rule 10b-5).

Electronic copy available at: https://ssrn.com/abstract=3210373

trast, mechanisms that involve no communications with firm managers, communications that take place only in public settings, or communications where firm managers do not pursue an action that involves a breach of duty would not generate equivalent concerns.

To be sure, even if a breach of fiduciary duty or a violation of Rule 10b-5 were established, the monetary liability may be small. However, the reputational penalty may be much larger. Assume, for example, that, in the context of a governmental investigation or a civil lawsuit, an internal memo by WhiteRock is discovered. The memo shows calculations of how a certain strategy by American would lower the firm's profits while raising profits for Delta and then concludes that WhiteRock would benefit if American pursued that strategy because its holdings in Delta would rise by more than its holdings in American would decline. If clients holding only stock in American were to sue for breach, WhiteRock may be able to settle for a small amount. But the reputational damage—from reduced growth or increased regulation—could be much higher.

Notably, any monetary liability or reputational penalty would be borne by the investment advisor, not by the advised mutual fund shareholders or by another client that received the lion's share of the benefit from an increase in portfolio value. Mutual fund shareholders and client beneficiaries would generally not be involved in the wrongdoing and have no particular reputational stake. The investment advisor would thus bear the full legal and reputational costs but would benefit only fractionally from an increase in portfolio value. As a result, the advisor should be reluctant to employ a mechanism that carries a significant risk of detection and significant costs if detected.

The possibility that a mechanism, if detected, could result in legal liability or reputational harm affects not only the cost-benefit calculus. It also bears on the leverage that a CCO has over firm management to induce it to pursue a firm-value-reducing strategy. To the extent that firm management (or, for that matter, an NCO) is aware of the mechanism, they could threaten to publicly disclose use of the mechanism if the CCO retaliates against management for not acting in accordance with the CCO-favored strategy. The CCO, as a result, would have more to lose than firm management. The only plausible mechanisms, therefore, are ones whose use the firm management is not aware of, where detection would result in no legal liability or reputational harm, or where firm management has no incentive to disclose the use of the mechanism.

From a cost-benefit perspective, it is therefore unlikely that an advisor would want to employ targeted active mechanisms. Targeted active mechanisms generate the highest risks of material legal and reputational sanctions if detected and, as discussed in Part III, the highest risks of detection. In comparison, across-the-

Electronic copy available at: https://ssrn.com/abstract=3210373

board mechanisms and selective omission pose a lower risk of detection[141] — their implementation requires no illicit communications or arrangements with the targeted firm — and a lower risk of sanction.

V. IMPLICATIONS

In this Part, we draw several implications from our analysis. First, we summarize the results of our evaluation of potential mechanisms, discussing their support — or lack thereof — in the available theory and evidence. Next, we explain how owner type is crucially important to the analysis of CCOs. Then, we identify a persistent gap in our empirical understanding of common ownership, namely direct evidence about the "who, where, when, and how" that CCOs employ. Finally, we set out the basis for our conclusion that the case for radical reform has not been proven.

A. Assessing Mechanisms

In Parts I through IV, we identified and then assessed a wide range of potential mechanisms linking CCOs to anticompetitive outcomes. Our assessment evaluated each mechanism according to four criteria: whether the mechanism is actually tested by the empirical evidence; whether it is effective; whether it is feasible; and whether the expected benefits to an institutional CCO from employing the mechanism are likely to exceed the expected costs.

We conclude that, for most mechanisms, there is either no strong theoretical basis for believing that institutional CCOs would want to employ them or no

141. The likelihood that use of an across-the-board mechanism is detected also depends on whether a CCO has established voting guidelines that presumptively determine its votes on certain recurring issues and has conflict-of-interest policies that subject votes that deviate from these guidelines to special scrutiny. For example, at T. Rowe Price, certain index funds are not permitted to cast votes inconsistent with its guidelines (and must abstain on matters not governed by guidelines). At its other funds, votes inconsistent with voting guidelines must be approved by its proxy committee. *See Proxy Voting Guidelines*, T. ROWE PRICE, https://www3.troweprice.com/usis/content/trowecorp/en/utility/policies/_jcr_content/maincontent/polices_row_1/para-mid/thiscontent/pdf_link/pdffile [https://perma.cc/6RGY-QAXG]. At State Street, the Asset Stewardship team has the sole discretion to decide on votes, may not disclose any voting decision to individuals not affiliated with the voting process prior to the meeting dates, and must report any votes in deviation from the guidelines to the Proxy Review Committee on a quarterly basis. *See 2019 State Street Global Advisors Conflict Mitigation Guidelines*, ST. ST. GLOBAL ADVISORS (Mar. 18, 2019), https://www.ssga.com/our-insights/viewpoints/2019-ssga-conflict-mitigation-guidelines.html [https://perma.cc/5EST-NG9C]. Such guidelines and policies make it harder for an investment advisor to execute any across-the-board mechanism involving voting unless a larger number of advisor officials are aware of and actively participate in its execution.

Electronic copy available at: https://ssrn.com/abstract=3210373

significant evidence suggesting that they do employ them. For example, the empirical evidence for use of across-the-board mechanisms is scant, and most of these mechanisms are of doubtful effectiveness. Targeted active mechanisms are difficult to execute and, given the risk of detection, entail substantial legal and reputational risks.

The risk of detection has a further implication for any assessment of the likelihood that the mechanism is actually used. From a Bayesian perspective, if one starts with some prior probability based (among other things) on theoretical arguments that CCOs have an interest in increasing their portfolio values, then empirical work such as the AST airline study prompts an updating of this prior probability. To the extent that certain mechanisms, as well as other factors, could lead to the results that AST found, the posterior probability conditional on the empirical result found is higher than the prior probability.

But a lack of direct evidence indicating the mechanism's use spurs further updating. To the extent that one would have expected such evidence to have emerged, the posterior probability conditional on evidence of its use not having emerged is lower than the prior one. As discussed above, targeted active strategies leave visible traces, not least because they involve a large number of participants, some of whom will have incentives to disclose the use of these strategies.[142] The absence of any direct evidence of the use of targeted active strategies—where the direct evidence should be plentiful—casts significant doubt on whether these strategies are actually used.

However, our assessment is not uniformly negative. Selective omission is effective, feasible, and consistent with the empirical evidence; it may not be easily detected; and it could conceivably generate benefits for institutional investors that exceed the legal and reputational risks. Although substantial empirical support is currently lacking, some specific across-the-board mechanisms are also theoretically feasible and, at least for certain CCOs, likely to be effective. Table 3 summarizes our assessment of the various mechanisms.

142. *See supra* Section III.A.

Electronic copy available at: https://ssrn.com/abstract=3210373

TABLE 3.
ASSESSMENT OF MECHANISMS

			Tested	Effective	Feasible	Risk
Consensus			No			
Conflict	Across-the-Board	Passive	No	No (mostly)	Yes	Very low
		Active	No	No (mostly)	Mixed	Low
	Targeted	Active	Yes	Maybe	Very difficult	High
		Passive	Yes	Maybe	Yes (difficult)	Low

B. The Importance of Owner Type

Our analysis reveals a pervasive shortcoming in the current analysis of CCOs: the failure to distinguish among different types of owners. This shows the need to think more carefully about how incentives differ by owner type and how investment advisors that mostly advise index funds differ from other institutional CCOs.

1. Systematic Differences

Owner types differ systematically in both the benefits and costs of employing the mechanisms we have discussed. Given the typical fee structure, investment advisors that manage predominantly index funds—Vanguard, State Street, and BlackRock—have lower incentives (relative to size) to increase firm profits by any of these mechanisms than do investment advisors that manage predominantly active funds. As large institutions subject to extensive regulation, mutual fund advisors in general, and Vanguard, State Street, and BlackRock in particular, may also face high costs if they are implicated in antitrust violations or other actions that generate adverse publicity. Actively managed funds have stronger incentives to employ these mechanisms, since they charge higher fees and can strategically allocate a greater portion of their assets to industries where pursuit of anticompetitive strategies may be profitable.

Electronic copy available at: https://ssrn.com/abstract=3210373

Other investors have even stronger incentives. For example, hedge funds charge much higher asset-based fees than even actively managed mutual funds, as well as steep performance-based fees. Individual investors receive the full benefit of any value increase and may have less to lose from adverse publicity. As a result, even if we had conclusive evidence that individual-investor or hedge fund CCOs employ a given mechanism, that would shed little light on whether investment advisors for mutual funds do so as well.

Systematic differences in incentives between different types of owners also complicate any assessment of passive mechanisms. Mutual fund advisors are more likely to be CCOs than individual investors and hedge funds. Among mutual fund advisors, index fund advisors are more likely to be industry-wide CCOs than active fund advisors. As a result, changes in MHHIΔ may be correlated with changes in the average incentives of shareholders to raise firm value.

Consider, for example, two industries, both duopolies, with mutual fund CCOs holding significant stakes in the duopolists in the first industry and hedge fund NCOs holding significant stakes in the duopolists in the second. Let us suppose that empirical evidence shows that pay-for-performance incentives are lower in the first industry than in the second.[143] The difference could be due to the mutual fund CCOs failing to push for performance incentives for each firm because the other firm in the duopoly would be harmed if managers competed more vigorously—that is, due to the mutual funds being CCOs. But the difference in managerial incentives could instead be due to the *mutual fund* CCOs in the first industry having lower incentives to encourage firm-value-increasing strategies, such as enhanced performance incentives, than the *hedge fund* NCOs in the second industry. In other words, the mutual fund CCOs might be passive not because passivity benefits their portfolio as CCOs but because mutual funds have lower incentives to become engaged than hedge funds. To distinguish among these explanations, one would need to compare two industries, one with mutual fund CCOs and another with *mutual fund* NCOs. That is, one would have to control for owner type. Such an examination has not yet been pursued.

2. *The Special Case of Index Fund Advisors*

Two of the largest investment advisors predominantly manage index funds. State Street has virtually no active domestic equity fund business. Vanguard has a quantitative equity group that manages or comanages some active domestic

143. This is roughly the result reported in Antón et al., *Innovation*, *supra* note 44.

Electronic copy available at: https://ssrn.com/abstract=3210373

equity funds, but these funds' assets constitute a very small portion of Vanguard's total domestic equity assets under management.[144]

On one hand, index funds are paradigmatic CCOs. They own, in equal proportions, all firms represented in the index. To the extent that the index includes most of the relevant competitors, they benefit when industry profits rise. In the airline industry, for example, American, Delta, United, Alaska, and Southwest are all in the S&P 500 index, and JetBlue is in the S&P Midcap index. Whereas increased ownership by an advisor of active funds may or may not raise MHHIΔ, as the active fund may hold stock in only one or only a few firms in an industry,[145] increased ownership by index funds is much more likely to have such an effect. Index fund growth would thus appear to be a major contributor to the observed increase in MHHIΔ.

Moreover, absent a change in the index, index funds do not change their relative portfolio composition. In theory, that leaves index funds better positioned to benefit from mechanisms that require longer time horizons, such as voting and across-the-board passive mechanisms.[146]

But advisors that predominantly manage index funds face particularly difficult challenges in employing targeted mechanisms. The task of portfolio managers in index funds is to generate returns that match that index. Even more so than portfolio managers for active funds, managers for index funds lack the incentives and the expertise to design targeted strategies.[147] Additionally, investment analysts focusing on particular firms or industries are not needed at index funds. This dearth of in-house analysts makes the generation of a targeted strategy harder.

Transmitting a targeted strategy may also be harder in this context. When interacting with firm executives, analysts or their equivalents at Vanguard and State Street—who advise only the small actively managed business segment—would not be viewed as representing the views of Vanguard or State Street as a whole. Top-level managers at State Street and Vanguard subscribe to an indexing culture, in which it would be exceedingly odd to hold meetings with voting officials or senior firm executives to discuss issues such as route-level pricing and

144. In addition, some funds bearing the Vanguard name, such as the Vanguard Primecap Fund, are advised by different investment advisors (e.g., Primecap Management). *See supra* Part IV.

145. *See infra* Appendix.

146. *See supra* Part II.

147. *Cf.* Frank Partnoy, *Are Index Funds Evil?*, ATLANTIC (Sept. 2017), https://www.theatlantic.com/magazine/archive/2017/09/are-index-funds-evil/534183 [https://perma.cc/265X-QJGU] ("[Vanguard's] index-fund managers don't engage with companies about their businesses.").

Electronic copy available at: https://ssrn.com/abstract=3210373

capacity. Indeed, based on published information, it seems that index fund advisors, in their dealings with portfolio companies, focus on broad governance issues and stay out of business strategy.[148]

On the whole, therefore, the set of potentially effective and feasible mechanisms available to Vanguard and State Street differs from the set available to investment advisors that largely manage active funds (or that, like BlackRock, have an active fund business that is large in absolute size). In particular, index fund advisors such as Vanguard or State Street may have difficulty developing and executing a targeted strategy. On the other hand, because of their longer investment horizon, they may be better equipped to execute across-the-board strategies, such as disfavoring relative performance incentives and supporting management against activists who advocate more aggressive competition. Whether Vanguard and State Street pursue any of these across-the-board strategies and whether, if so, these strategies have a material anticompetitive impact merits further inquiry.[149]

C. Beneficial Effects of Common Owners

To the extent that CCOs have the ability and the incentives to affect company behavior, there is no reason to believe that they limit themselves to reducing competition. They can also be expected to induce economically efficient actions by firms, where such actions increase firm value and do not unduly threaten the CCO's other portfolio holdings.[150]

To illustrate these points, let us return once again to our airline example. As before, American and Delta compete on Route 1, while American and United compete on Route 2. We focus on the best-supported mechanism, a strategy of selective omission. Consider three types of profitable action that American might take, not all of which are available at a given moment: (1) lower the price on Route 1 or Route 2, if the route price is too high; (2) reduce marginal costs, thereby improving efficiency; or (3) raise the price on a third route—call it Route 3—if it is too low. Some of these profitable strategies raise social welfare, and

148. Vanguard, for example, held 954 engagement meetings worldwide during the 2017 proxy season. According to Vanguard, the most frequent topics discussed during these meetings are governance (58%), executive compensation (55%), board of directors (including gender diversity) (52%), activism and contentious transactions (16%), and risk oversight (14%). *See Investment Stewardship: 2017 Annual Report*, *supra* note 100, at 7.

149. *See also* Brav et al., *supra* note 44, app. A1 at 7 (documenting that passive funds are in general less likely to support activists than active funds are, but failing to find evidence that passive funds are less likely to support activists when MHHIΔ is high).

150. In addition, concentrated ownership can have positive social welfare effects more generally. *See* Antón et al., *Innovation*, *supra* note 44, at 17.

Electronic copy available at: https://ssrn.com/abstract=3210373

others lower it. The price reductions on Routes 1 and 2 and improved efficiency generally increase social welfare (and consumer welfare), while the price increase on Route 3 generally has the opposite effect. These strategies are summarized in Table 4.

TABLE 4.
ACTIONS THAT INCREASE PROFITS

	Social Welfare	**Advocate**	
		NCO (American)	WhiteRock (American, Delta)
Improve efficiency	+	Yes	Yes
Reduce price on Route 1	+	Yes	
Reduce price on Route 2	+	Yes	Yes
Increase price on Route 3	–	Yes	Yes

Consider how an NCO and WhiteRock (a CCO), each of which has a 10% stake in American, would each try to use their influence over the airline. The NCO would favor any action that raises American's profits. WhiteRock would favor some, but not all, profitable actions. It would favor efficiency enhancements, profitable price increases on Route 3, and profitable price reductions on Route 2. However, it would tend not to favor a profitable price reduction on Route 1, which would come at the expense of its holdings in Delta, and therefore would tend to stay passive as to that price reduction, rather than advocating such a strategy.[151] These preferences are specified in Table 4.[152]

151. The price drop increases American's profits (which is good for WhiteRock) but at the expense of Delta's profits (which is bad for WhiteRock), and it is unclear a priori which effect is larger.

152. The same is true for a CCO invested in all three airlines. RedRock, like WhiteRock, would favor profitable price increases and efficiency enhancements. Compared to WhiteRock, RedRock would be more likely to stay passive as to price reductions on a wider range of routes (for example, Route 2), given its wider set of holdings.

Electronic copy available at: https://ssrn.com/abstract=3210373

The net welfare effect of WhiteRock's ownership is ambiguous. WhiteRock's ownership would induce more profit-increasing price increases—a welfare loss—but would also support efficiency improvements and some (albeit not all) profitable price reductions, resulting in welfare gains.[153]

D. The Need for More—and Different—Evidence

The available evidence deserves the significant attention it has received. Yet the evidence also needs to be placed in perspective. As of December 2019, only one published article—the AST airline study—has found a statistically significant relationship between common ownership and prices.[154] AST has been subjected to various methodological criticisms and is the subject of ongoing disputes.[155] While this is to be expected for a complex empirical study claiming a striking result, such criticisms serve as a reminder of the limitations of empirical studies in social sciences. Moreover, the results of AST establish neither which specific causal mechanism, if any, links common concentrated ownership to anticompetitive outcomes, nor which investors employ such mechanisms. But confirming that such a link exists, and understanding its form and scope, is crucial

---

153. Our point of comparison here is dispersed ownership. As we explain, *infra* Section V.E, it is likely that reform proposals designed to address anticompetitive effects of common concentrated ownership would result in more dispersed ownership, rather than noncommon concentrated ownership.

154. It is sometimes asserted that more than twenty studies provide empirical evidence that common ownership alters corporate behavior. *See, e.g.*, Einer Elhauge, *Horizontal Shareholding's Anticompetitive Effects and the Mechanisms that Produce It*, PROMARKET (June 24, 2019), https://promarket.org/horizontal-shareholding-anticompetitive-effects-and-the-mechanisms [https://perma.cc/8D67-DV3X] ("Over two dozen empirical studies have now confirmed the economic reality that common shareholding alters corporate behavior."). However, many of these studies do not concern anticompetitive conduct. As we have argued, the fact that the mechanisms that common owners might pursue to generate anticompetitive outcomes generally either reduce firm value or are potentially unlawful makes it much harder to employ these mechanisms. Studies showing that common ownership alters corporate behavior in other respects therefore do not indicate that common ownership also generates anticompetitive outcomes. The studies that do concern anticompetitive conduct are subject to the same criticisms as AST's airline study, or they have other more severe methodological flaws, as we discuss at length elsewhere in this Article. *See supra* notes 13, 14, 30, 44 and accompanying text (discussing studies that share key features with AST); *supra* notes 58-68 and accompanying text (discussing cross-industry studies and their distinctive limitations). Moreover, there are several studies covering similar ground that find no evidence that common ownership alters corporate behavior. *See, e.g.*, sources cited *supra* note 14. In our assessment, AST remains by far the single most important piece of evidence for the link between common ownership and anticompetitive conduct.

155. *See supra* note 14.

Electronic copy available at: https://ssrn.com/abstract=3210373

both to assess the criticisms leveled against AST and to determine whether a policy response is appropriate and, if so, what form such a response should take.[156]

The obvious next step, then, is to gather more evidence. There is an ongoing effort to do just that, in the form of studies assessing whether there is a statistical link between certain ownership structures and anticompetitive outcomes. This work is valuable, and the first four Parts of this Article provide guidance as to what kinds of additional statistical studies researchers should undertake.

Beyond the statistical work, we urge a further focus. The goal should be to obtain *direct* evidence—the who, where, when, and how—for the steps taken by CCOs that produce anticompetitive results, as well as for the responsive steps firms take to implement them. Because the existence and nature of such evidence varies depending on the mechanism, we have also provided guidance about where to look for direct evidence for a specific causal mechanism. Notably, while we believe that all of the mechanisms that investment advisors might pursue would leave detectable traces,[157] some of the mechanisms involve conduct that is illegal or unsavory, such that publication of their use would harm the investment advisors involved. Discovering direct evidence of the use of such mechanisms may therefore be more challenging. It may require a governmental investigation into internal communications among officials of an investment advisor, external communications between officials of an investment advisor and officials of portfolio companies, and internal communications among officials of a portfolio company.

Either type of study should be informed by a deeper understanding of the "who" question—that is, the structure and function of large investment advisors. This point is obvious but bears emphasis because the empirical literature has failed to highlight important differences among these advisors.

AST is illustrative. It provides a table listing the top holders of nine large publicly traded U.S. airlines in 2016.[158] Confining our attention to the top five holders, there are forty-five positions across nine airlines. The entities most frequently listed, and hence the most logical candidates for the "who" responsible for results found by AST, are BlackRock (holding all nine), Vanguard (nine), Primecap (five), Fidelity (four), and Berkshire Hathaway (four). Together, these

156. *Cf.* Baker, *supra* note 112, at 231 (making this point in the context of a potential judicial remedy).

157. The only mechanism that (1) does not require extensive coordination within an investment advisor and (2) would not be likely to leave any traces, arises when managers have been socialized to further the interest of their shareholders and (aware that the shareholders are CCOs) compete less hard of their own accord. For further discussion of this proposed mechanism, see *supra* notes 74-75 and accompanying text.

158. AST, *supra* note 2, at 1515-16.

Electronic copy available at: https://ssrn.com/abstract=3210373

five entities account for thirty-one of the forty-five positions; no other entity appears more than twice.

Yet, there are reasons to doubt both that these entities accounted for the statistical results found by AST and that they actually employ mechanisms that produce anticompetitive results. One reason relates to an aspect of MHHIΔ that we did not emphasize in Part I. Share ownership enters the MHHIΔ formula twice—as the ownership fraction and as the so-called "control fraction." High levels of MHHIΔ are generated as a CCO has a high control fraction in one competitor *and* a high ownership fraction in another competitor.[159] To calculate the MHHIΔ, AST counts as the control fraction only those shares over which an investor has sole or shared voting power.[160] But Vanguard, in its Form 13F, disclaims voting power over more than ninety percent of its holdings.[161] Therefore, its holdings would only have a minimal effect on AST's MHHIΔ calculations. Likewise, Fidelity and Primecap disclaimed voting power over the bulk of their airline shares.[162] Measured by voting power, all of these holdings would drop out of the list of top-five airline holders reported by AST, and most would drop out of the top ten. And Berkshire Hathaway, although a large owner as of year-end 2016 (the year used for AST's table), does not seem to have been an owner of airline stock in the period studied empirically by AST (2001 to 2014).[163] As measured by AST, therefore, none of these four entities was an important CCO in the 2001-to-2014 period, and changes in ownership by these entities probably made no material contribution to the regressions run by AST.

---

159. As explained in the Appendix, MHHIΔ includes this term in the numerator: $\sum_i \gamma_{ij}\beta_{ik}$, where γ is the control fraction and β is the ownership fraction. This term increases in γ_{ij} (the control fraction of owner i in firm j) and β_{ik} (the ownership fraction of owner i in firm k).

160. AST, *supra* note 2, at 1525 ("[W]e calculate the control share . . . as the percentage of the sole and shared voting shares . . . held by shareholder *i*. Similarly, we calculate the ownership share . . . as the percentage of all shares (voting and nonvoting) . . . held by shareholder *i*.").

161. For example, at the end of 2013 (toward the end of AST's 2001-2014 time period), Vanguard claimed investment authority over 49.7 million shares in Delta Airlines but sole or shared voting authority over only 1.2 million of these shares. *See* Vanguard Group Inc., Quarterly Report Filed by Institutional Managers, Holdings (Form 13F) (Feb. 12, 2014).

162. *See* FMR LLC, Quarterly Report Filed by Institutional Managers, Holdings (Form 13F) (Feb. 13, 2014) (claiming investment authority over 33.9 million shares in Delta Airlines, but sole or shared voting authority over only 1.6 million of these shares); Primecap Mgmt. Co., Quarterly Report Filed by Institutional Managers, Holdings (Form 13F) (Feb. 13, 2014) (claiming investment authority over, respectively, 16.2 million shares in Delta Airlines and 79.7 million shares in Southwest Airlines, but sole or shared voting authority over only 7.5 million and 21.9 million of these shares respectively).

163. A review of Forms 13F for Berkshire Hathaway between 2001 and 2014 makes no mention of airline ownership. *See, e.g.*, Berkshire Hathaway, Quarterly Report Filed by Institutional Managers, Holdings (Form 13F) (Feb. 12, 2011).

Electronic copy available at: https://ssrn.com/abstract=3210373

BlackRock thus looms large. It is a significant holder in all nine airlines and claims voting power over most of its shares. But BlackRock's incentives are most misspecified by AST. Because BlackRock has a majority of its assets in low-fee indexed portfolios but a significant minority in much higher-fee, actively managed portfolios, portfolio-value maximization for BlackRock as a whole is *not* approximately the same as fee-revenue maximization. As a result, if CCOs try to induce anticompetitive actions in order to maximize their own profits, BlackRock's objective function would make it a poor candidate to generate the results AST found. The "who" of the who, where, when, and how remains as murky as ever.

E. The Unproven Case for Broad Reform

As already noted, the literature thus far does not establish which specific causal mechanism, if any, links CCOs to higher prices, nor which investors employ such mechanisms. Given the absence of a clear mechanism and the limited extent of the empirical literature, we consider the case for broad reform unproven. Moreover, we do not think that mechanism identification can or ought to be simply dispensed with, or that reform efforts or enforcement actions against institutional investors should charge ahead in the meantime.

Our analysis furnishes three bases for disagreement. First, as explained above, the welfare effects of CCOs are ambiguous. Second, investment advisors differ on multiple fronts that bear on their likelihood of using one of the strategies we discussed: they differ in the benefits they would obtain from raising portfolio value, the costs from exposure if they induce anticompetitive actions, their ability to generate targeted mechanisms, their dependence on access to managers, and their portfolio turnover. Skepticism about reforms that fail to attend to these differences is warranted. The proposals for reform also go well beyond the results obtained by AST, which, for example, notes that the statistical link between MHHIΔ and higher prices is confined to common owners with low portfolio turnover.[164]

Third, ambitious reform is beset by several perverse consequences. For example, a paper by Eric Posner, Fiona Scott Morton, and Glen Weyl (PSW) proposes that investors be limited to holding either no more than one percent of the

164. AST, *supra* note 2, at 1547.

Electronic copy available at: https://ssrn.com/abstract=3210373

stock in any specified oligopolistic industry or to holding the stock of only a single company in any such industry.[165]

Consider the implications of such a proposal for large investment advisors, whose holdings would exceed the one-percent limit. For advisors to active funds, being confined to a single stock in an industry would be extremely problematic. Large advisors manage assets in different funds and for a large number of clients, and neither funds nor clients would be able to agree as to what stock to pick. Fund investment choices are affected by the fund objectives—growth or value, large-cap or small-cap—and the views of the fund portfolio manager. Since active funds are marketed based on these objectives and on the track records of fund portfolio managers, limiting all funds managed by the same advisor to a single stock in an industry would place it at a severe competitive disadvantage, compared to funds managed by smaller advisors that would not be constrained by the one-percent limit.

Moreover, even if all portfolio managers within an investment-advisory complex could agree about what company to invest in, that choice would change over time. Switching from one stock to another (say from Delta to United) as firm fortunes and investor views change would be a logistical nightmare. To obtain exposure to the airline industry while investing only in Delta, a large advisor like Fidelity or BlackRock would have to take substantial positions in that company. The investment advisor would then have to divest itself from most of its Delta stock before it could buy a single share of United.[166] By the time the advisor was permitted to buy United stock, United's stock price might no longer present an attractive investment opportunity. To avoid these problems, clients would probably move assets from larger constrained investment advisors to smaller unconstrained advisors.

---

165. PSW, *supra* note 7, at 708; *see also* Scott Morton & Hovenkamp, *supra* note 7, at 2033 (arguing that existing antitrust law prohibits certain acquisitions of stock in competitors by institutional investors). As PSW notes, institutional investors that manage only index funds could also opt for pure passivity—not casting any votes and abstaining from any meetings with executives.

166. For example, according to AST, BlackRock held between 5.6% and 7.3% of the stock in each of the six largest U.S. airlines, suggesting holdings of about 6% of the industry. *See* AST, *supra* note 2, at 1516. Assuming BlackRock wanted to maintain its overall exposure to airlines and held only Delta stock in an amount equal to 6% of the industry, it would have to hold about 23% of Delta's outstanding stock. If BlackRock then decided that that United would be a better investment than Delta, it would be forced to sell 19% of Delta stock to bring its industry holdings to less than 1% before it could acquire any shares of United. During the transition period, BlackRock's investments would be substantially underweight in airline stock overall, making it more difficult for investors to obtain the benefits of diversification.

Electronic copy available at: https://ssrn.com/abstract=3210373

Given these disadvantages, the PSW proposal would increase fragmentation among advisors.[167] Fragmentation would have several effects. For companies in the oligopolistic industries that raise competition concerns, fragmentation could lead to fewer anticompetitive results. However, this benefit does not arise if CCOs employ a passive across-the-board mechanism or if managers, of their own accord, decide to compete less aggressively to further the interests of their shareholders.[168] As we have explained, combining two CCOs into a larger one, or splitting a CCO in two, has no impact on anticompetitive effects achieved through pure passivity.[169] On the other hand, fragmentation would reduce the procompetitive benefits of concentrated ownership, such as efficient management, with ambiguous net effects. Meanwhile, in nonoligopolistic industries, increased fragmentation is likely to have purely adverse effects, by reducing the power and incentives of institutional holders to induce managers to increase company value.[170] A final effect would be on the fees paid by investors to advisors, which would likely increase due to the multiplication of fixed costs amidst the subdivision of advisors.

Even putting reform aside, investigating whether and how CCOs generate anticompetitive outcomes is valuable. Sunlight, after all, is an effective disinfectant. As we have shown, to the extent that a mechanism creates the risk of legal liability or reputational harm to an investment advisor, the advisor would want to use it only as long as the risk of detection is sufficiently low. The attention that

167. The fragmentation would affect both index funds and active funds. As to index funds, the most likely effect is to split off such funds from actively managed funds. This, albeit for different reasons, is how Fidelity handles its index funds: they are advised by Geode, the voting of their shares is determined by a different group than the one that determines the vote of shares in other Fidelity funds, and their assets are not included in Fidelity's 13F, 13D, and 13G filings. For some advisors, stand-alone index funds may already fall below the one-percent limit; if not, they could either be broken apart further or opt for pure passivity.

168. *See supra* note 74 and accompanying text. To the extent that managers indeed seek to further the interests of their shareholders of their own accord, as opposed to being induced as a matter of self-interest, it is unclear if anything can be done to reduce the anticompetitive effects of common ownership. As long as managers believe that their ultimate beneficial owners hold broadly diversified portfolios, they will understand that these owners benefit from less aggressive competition and act to confer that benefit. On this view, it does not matter whether common ownership is concentrated. Small, highly dispersed common owners would have this effect as well. Nor does it matter whether the common owner is a financial intermediary. An ultimate beneficial owner invested in multiple mutual funds—with each mutual fund holding, for example, a different airline—would have the same adverse effect on managerial decision-making.

169. *See supra* Part II.

170. If CCOs increase portfolio value by inducing firms to adopt firm-value-decreasing measures, *see supra* Section I.B, and do so by means that may violate antitrust laws and the CCOs' fiduciary obligations, they presumably also do so by inducing firms to increase firm value by enhancing the efficiency of their operations.

Electronic copy available at: https://ssrn.com/abstract=3210373

AST and other papers have drawn to a possible link has raised the risk of detection, which may on its own eliminate the use of such a mechanism.

CONCLUSION

In this Article, we have identified and examined a wide range of mechanisms by which CCOs might cause anticompetitive outcomes. Some of them—notably, consensus mechanisms and passive across-the-board mechanisms—remain largely untested by the empirical literature. Others, including most targeted active mechanisms, require actions that are implausible for an institutional-investor CCO to take. Selective omission is the only mechanism that is both supported by the extant empirical literature and plausibly consistent with institutional CCO capacities and incentives. If CCOs actually employ selective omission or other mechanisms, there should be visible traces in CCOs' actions and firms' responses. Uncovering such evidence, if it exists, should be a focus of future work and governmental investigations.

Even though it remains unclear whether CCOs might cause anticompetitive outcomes—and if so, which CCOs and how—it may be tempting to follow the principle of "better safe than sorry." On this view, even a small probability that CCOs have anticompetitive effects supports a strong prophylactic response. An NCO might appear to be a safe pair of hands, fostering competition while preserving incentives to maximize firm value. And indeed, a leading figure in the literature on CCOs has extolled the ownership structure of Virgin America, in which Virgin's founder holds a large stake.[171] Such an NCO has "incentives to encourage the firm to innovate, invest in increased capacity, reduce costs, and thus increase market share at the expense of the firm's rivals."[172]

This temptation should be resisted. As we have explained, eliminating CCOs also means a significant loss of procompetitive benefits, particularly for investors that own some but not all of the firms in a market. Moreover, NCOs—particularly individual owners with large stakes—come with downsides of their own. Such owners have stakes that may enable them to dominate the board and insulate them from being ousted by their fellow shareholders, rendering them virtually unaccountable. They may use their power not, or not just, to encourage firms to innovate or compete, but to take part in varied forms of self-interested

171. Schmalz, *supra* note 45, at 3-4 (describing Richard Branson's thirty-one percent stake in Virgin Atlantic).

172. *Id.*

Electronic copy available at: https://ssrn.com/abstract=3210373

actions that have long been the scourge of corporate law scholarship.[173] It is against just such conduct that institutional investors such as Vanguard, State Street, and BlackRock can provide a useful bulwark. Analyzing ownership structure purely through the lens of antitrust law—and embracing reforms that hobble CCOs to obtain hoped-for antitrust benefits—thus misses an important part of the story.

173. Such "private control benefits" include transactions that benefit the owner, hiring the owner or family members to corporate positions, timing corporate distributions to fit the owner's personal tax and liquidity needs, or refusing to sell the company at a price attractive to other shareholders. For an introduction to this large literature, see Alexander Dyck & Luigi Zingales, *Private Benefits of Control: An International Comparison*, 59 J. FIN. 537 (2004); Ronald J. Gilson & Jeffery N. Gordon, *Controlling Controlling Shareholders*, 152 U. PA. L. REV. 785 (2003); and Zohar Goshen & Assaf Hamdani, *Corporate Control and Idiosyncratic Vision*, 125 YALE L.J. 560 (2016).

Electronic copy available at: https://ssrn.com/abstract=3210373

APPENDIX

A. Calculating MHHI

Section I.B offers as an illustrative example two airlines that share the market equally. To calculate MHHI, we begin with the following general formula:

$$\underbrace{\sum_j \sum_k s_j s_k \frac{\sum_i \gamma_{ij}\beta_{ik}}{\sum_i \gamma_{ij}\beta_{ij}}}_{MHHI} = \underbrace{\sum_j s_j^2}_{HHI} + \underbrace{\sum_j \sum_{k \neq j} s_j s_k \frac{\sum_i \gamma_{ij}\beta_{ik}}{\sum_i \gamma_{ij}\beta_{ij}}}_{MHHI\Delta},$$

where i indexes owners, and j indexes firms. s_j is the market share of firm j, γ_{ij} is the control fraction of owner i in firm j, and β_{ij} is the ownership fraction of owner i in firm j.[174] For two firms with market shares of 50% apiece, HHI equals 5,000. MHHIΔ is calculated as follows:

$$MHHI\Delta = \underbrace{(50)(50)\frac{\sum_i \gamma_{iA}\beta_{iB}}{\sum_i \gamma_{iA}\beta_{iA}}}_{\substack{Firm\ A\ takes\ Firm\ B \\ into\ account}} + \underbrace{(50)(50)\frac{\sum_i \gamma_{iB}\beta_{iA}}{\sum_i \gamma_{iB}\beta_{iB}}}_{\substack{Firm\ B\ takes\ Firm\ A \\ into\ account}}$$

The first term represents the extent to which Firm A takes Firm B's profits into account due to common ownership. The core of the calculation is in the numerator: $\gamma_{iA}\beta_{iB}$ is nonzero when owner i has partial control of Firm A combined with partial ownership of Firm B. CCOs fit the bill; NCOs do not.

Let us further assume, following the literature, that control is proportional to ownership. Then, for a CCO with a 10% stake in both airlines, $\gamma_{iA}\beta_{iB}$ = (10%)(10%) = 1%. For each NCO with a 10% stake in Firm A, $\gamma_{iA}\beta_{iB}$ = (10%)(10%) = 0. As for the denominator, $\gamma_{iA}\beta_{iA}$ = (10%)(10%) = 1% for each CCO or NCO. The second term, which represents the extent to which Firm B takes Firm A's profits into account, is symmetric. Thus, if there is one CCO and nine NCOs for each firm:

$$MHHI\Delta = (50)(50)\frac{1\%}{(10)(1\%)} + (50)(50)\frac{1\%}{(10)(1\%)} = 500.$$

Table A1 calculates MHHI and MHHIΔ for a wide range of levels of CCO and NCO ownership. For example, one of the scenarios described is a duopoly with four 10% CCOs and six 10% NCOs (panel 1, column 3). The MHHIΔ is 2,000. But if, instead of NCOs, the noncommon shares are held by a very large

---

174. For comparison, in AST's formal model, firm j maximizes its own profits plus this expression:

$$\sum_{k \neq j} \frac{\sum_i \gamma_{ij}\beta_{ik}}{\sum_i \gamma_{ij}\beta_{ij}} \pi_k.$$

See AST Appendix, *supra* note 39, at 2.

Electronic copy available at: https://ssrn.com/abstract=3210373

number of dispersed owners (DOs),[175] the MHHIΔ is 5,000 and the MHHI rises to 10,000 (panel 2, columns 3 and 4). If, on the other hand, the remaining shares are held by NCOs in a more concentrated fashion, the MHHI falls. For example, if the remaining shares are held by a single 60% NCO, MHHIΔ falls to 500 (panel 2, column 1).[176]

TABLE A1.
COMMON CONCENTRATED OWNERS AND MHHI

Firms (No.)	HHI	MHHI and *MHHIΔ*[177]				
		[0] 0 10% CCOs 10 10% NCOs	[1] 1 10% CCO 9 10% NCOs	[2] 2 10% CCOs 8 10% NCOs	[3] 4 10% CCOs 6 10% NCOs	[4] 10 10% CCOs 0 10% NCOs
2	5,000	5,000 *0*	5,500 *500*	6,000 *1,000*	7,000 *2,000*	10,000 *5,000*
10	1,000	1,000 *0*	1,900 *900*	2,800 *1,800*	4,600 *3,600*	10,000 *9,000*
100	100	100 *0*	1,090 *990*	2,080 *1,980*	4,060 *3,960*	10,000 *9,900*

Firms (No.)	HHI	MHHI and *MHHIΔ*[178]			
		[1] 4 10% CCOs 1 60% NCO	[2] 4 10% CCOs 3 20% NCOs	[3] 4 10% CCOs 6 10% NCOs	[4] 4 10% CCOs 60% DOs
2	5,000	5,500 *500*	6,250 *1,250*	7,000 *2,000*	10,000 *5,000*
10	1,000	1,900 *900*	3,250 *2,250*	4,600 *3,600*	10,000 *9,000*
100	100	1,090 *990*	2,575 *2,475*	4,060 *3,960*	10,000 *9,900*

175. The terms involving DOs can be ignored, provided that the ownership and control fractions are small; the latter is plausibly zero.

176. For the first term, the numerator is $\sum_i \gamma_{iA}\beta_{iB} = 4\%$. The denominator is $\sum_i \gamma_{iA}\beta_{iA} = (4)(1\%) + (1)(60\%)(60\%) = 40\%$. The second term is symmetric. Thus, $MHHI\Delta = (50)(50)(4\%/40\%) + (50)(50)(4\%/40\%) = 500$.

177. Assumptions: firms have equal shares; each firm has ten 10% owners.

178. Assumptions: firms have equal shares; each firm has four 10% CCOs.

Electronic copy available at: https://ssrn.com/abstract=3210373

Comparing the two panels illuminates the similar effect on MHHI from subtracting NCOs and adding CCOs. Column 3, with four 10% CCOs and six 10% NCOs, is identical in both tables. Eliminating NCOs entirely (panel 2, column 4) has the same effect as moving up to complete common ownership (panel 1, column 4), resulting in an MHHI of 10,000. In the other direction, combining three 20% NCOs into a single 60% NCO (panel 2, column 1) reduces MHHI to the same extent as cutting the number of CCOs down from four to one (panel 1, column 1).

B. CCOs and Firm Profits: The Case of Cournot Duopoly

Consider a duopoly of American and Delta competing in Cournot quantities, with linear demand and no costs of production. The equilibrium price is given by $P = 1 - q_A - q_D$. Table A2 shows quantity, price, and profits for different ownership structures, characterized by one NCO for each firm and either one or no CCO. MHHIΔ is calculated using the assumptions employed by O'Brien and Salop and by AST.[179]

TABLE A2.
QUANTITY, PRICES, AND PROFITS UNDER COURNOT DUOPOLY

	CCO	NCO		Quantity			Price	Profit			MHHIΔ
		AA	DL	AA	DL	Total		AA	DL	Total	
[1]	0%	10%	10%	0.33	0.33	0.67	0.33	0.11	0.11	0.222	0
	0%	10%	20%	0.33	0.33	0.67	0.33	0.11	0.11	0.222	0
	0%	5%	10%	0.33	0.33	0.67	0.33	0.11	0.11	0.222	0
[2]	10%	10%	10%	0.29	0.29	0.57	0.43	0.12	0.12	0.245	2,500
[3]	10%	10%	5%	0.38	0.15	0.54	0.46	0.18	0.07	0.249	2,653
[4]	10%	20%	10%	0.36	0.23	0.59	0.41	0.15	0.09	0.242	1,657
[5]	10%	90%	10%	0.40	0.20	0.60	0.40	0.16	0.08	0.240	1,143

Where NCOs hold similar shares in American and Delta, the addition of a CCO will increase the profits of both firms (compare profits in case 2, with a 10% CCO and a 10% NCO at each airline, to lower profits in case 1, with no CCO).

179. AST, *supra* note 2, at 1522; O'Brien & Salop, *supra* note 1, at 597.

Electronic copy available at: https://ssrn.com/abstract=3210373

However, where NCO stakes are sufficiently dissimilar, the addition of a CCO reduces the value of the firm where the NCO exerts less influence (compare Delta profits in case 1 to its lower profits in cases 3, 4, and 5).

C. MHHI∆ with Three Airlines

Suppose that American, Delta, and United have equal shares on a route. If each airline has a 10% NCO and RedRock owns 10% of all three, MHHI∆ is the sum of six terms. The first of these ("term A-D") is the product of market shares times this expression:

$$\frac{\gamma_{[NCOA]A}\beta_{[NCOA]D} + \gamma_{[R]A}\beta_{[R]D}}{\gamma_{[NCOA]A}\beta_{[NCOA]A} + \gamma_{[R]A}\beta_{[R]A}} = \frac{10\%(0\%) + 10\%(10\%)}{10\%(10\%) + 10\%(10\%)} = \frac{1}{2}$$

Term A-D reflects the weight American places on the profits of Delta in relation to its own profits. Terms D-A, A-U, U-A, D-U, and U-D proceed in the same way. Thus, MHHI∆ equals $(100/3)(100/3)(6)(1/2) \approx 3{,}333$.

Now suppose that WhiteRock acquires 10% of American and Delta from dispersed owners. Once again, MHHI∆ is the sum of six terms. Term A-D is the product of market shares times this expression (term D-A is symmetric):

$$\frac{\gamma_{[NCOA]A}\beta_{[NCOA]D}+\gamma_{[R]A}\beta_{[R]D}+\gamma_{[W]A}\beta_{[W]D}}{\gamma_{[NCOA]A}\beta_{[NCOA]A}+\gamma_{[R]A}\beta_{[R]A}+\gamma_{[W]A}\beta_{[W]A}} = \frac{10\%(0\%)+10\%(10\%)+10\%(10\%)}{10\%(10\%)+10\%(10\%)+10\%(10\%)} = \frac{2}{3}$$

Term A-U (and likewise term D-U):

$$\frac{\gamma_{[NCOA]A}\beta_{[NCOA]U}+\gamma_{[R]A}\beta_{[R]U}+\gamma_{[W]A}\beta_{[W]U}}{\gamma_{[NCOA]A}\beta_{[NCOA]A}+\gamma_{[R]A}\beta_{[R]A}+\gamma_{[W]A}\beta_{[W]A}} = \frac{10\%(0\%)+10\%(10\%)+10\%(0\%)}{10\%(10\%)+10\%(10\%)+10\%(10\%)} = \frac{1}{3}$$

Term U-D (and likewise term U-A):

$$\frac{\gamma_{[NCOU]U}\beta_{[NCOU]D}+\gamma_{[R]U}\beta_{[R]D}+\gamma_{[W]U}\beta_{[W]D}}{\gamma_{[NCOU]U}\beta_{[NCOU]U}+\gamma_{[R]U}\beta_{[R]U}+\gamma_{[W]U}\beta_{[W]U}} = \frac{10\%(0\%)+10\%(10\%)+0\%(10\%)}{10\%(10\%)+10\%(10\%)+0\%(0\%)} = \frac{1}{2}$$

Thus, MHHI∆ equals

$$\left(\frac{100}{3}\right)\left(\frac{100}{3}\right)\left(\frac{1}{3}+\frac{1}{3}+\frac{2}{3}+\frac{2}{3}+\frac{1}{2}+\frac{1}{2}\right) \approx 3{,}333$$

Note that under these circumstances, MHHI∆ is unchanged by the addition of WhiteRock, compared to a market with a 10% NCO at each airline and RedRock alone.

D. Relative Performance MHHI∆

This calculation, discussed in Section IV.A, assigns control weights based on absolute ownership, just as with conventional MHHI∆. The ownership fraction

Electronic copy available at: https://ssrn.com/abstract=3210373

β_{ij} is not absolute ownership but ownership relative to the benchmark—that is, the degree to which investor i is overweight or underweight in firm j. To illustrate (building on the assumptions in the previous section), for American and Delta, term A-D is the product of market shares times this expression:

$$\frac{\gamma_{[NCOA]A}\beta_{[NCOA]D} + \gamma_{[R]A}\beta_{[R]D} + \gamma_{[W]A}\beta_{[W]D}}{\gamma_{[NCOA]A}\beta_{[NCOA]A} + \gamma_{[R]A}\beta_{[R]A} + \gamma_{[W]A}\beta_{[W]A}}$$
$$= \frac{10\%(-5\%) + 10\%(5\%) + 10\%(5\%)}{10\%(5\%) + 10\%(5\%) + 10\%(5\%)} = \frac{1}{3}.$$

MHHIΔ is calculated by performing equivalent calculations for each of the six airline pairs, multiplying the results by the product of market shares (33.3%*33.3%) and summing the products.

Electronic copy available at: https://ssrn.com/abstract=3210373

european corporate governance institute

about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities.*

The ECGI will produce and disseminate high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It will draw on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

www.ecgi.global

european corporate governance institute

ECGI Working Paper Series in Law

Editorial Board

Editor	Amir Licht, Professor of Law, Radzyner Law School, Interdisciplinary Center Herzliya
Consulting Editors	Horst Eidenmüller, Freshfields Professor of Commercial Law, University of Oxford
	Martin Gelter, Professor of Law, Fordham University School of Law
	Geneviève Helleringer, Professor of Law, ESSEC Business School and Oxford Law Faculty
	Curtis Milhaupt, Professor of Law, Stanford Law School
	Niamh Moloney, Professor of Law, Department of Law, London School of Economics and Political Science
Editorial Assistant	Úna Daly, ECGI Working Paper Series Manager

https://ecgi.global/content/working-papers