

THE CASE FOR DOING NOTHING ABOUT INSTITUTIONAL INVESTORS' COMMON OWNERSHIP OF SMALL STAKES IN COMPETING FIRMS

Thomas A. Lambert & Michael E. Sykuta

ABSTRACT

Recent empirical research purports to demonstrate that institutional investors' "common ownership" of small stakes in competing firms causes those firms to compete less aggressively, injuring consumers. A number of prominent antitrust scholars have cited this research as grounds for limiting the degree to which institutional investors may hold stakes in multiple firms that compete in any concentrated market. This Article contends that the purported competitive problem is overblown and that the proposed solutions would reduce overall social welfare.

With respect to the purported problem, we show that the theory of anticompetitive harm from institutional investors' common ownership is implausible and that the empirical studies supporting the theory are methodologically unsound. The theory fails to account for the fact that intra-industry diversified institutional investors are also *inter*-industry diversified, and it rests upon unrealistic assumptions about managerial decision-making. The empirical studies purporting to demonstrate anticompetitive harm from common ownership are deficient because they inaccurately assess institutional investors' economic interests and employ an endogenous measure that precludes causal inferences.

Even if institutional investors' common ownership of competing firms did soften market competition somewhat, the proposed policy solutions would themselves create welfare losses that would overwhelm any social benefits they secured. The proposed policy solutions would create tremendous new decision costs for business planners and adjudicators and would raise error costs by eliminating welfare-enhancing investment options and/or exacerbating corporate agency costs.

In light of these problems with the purported problem and shortcomings of the proposed solutions, the optimal regulatory approach—at least, on the current empirical record—is to do nothing about institutional investors' common ownership of small stakes in competing firms.

THE CASE FOR DOING NOTHING ABOUT INSTITUTIONAL INVESTORS' COMMON OWNERSHIP OF SMALL STAKES IN COMPETING FIRMS

Thomas A. Lambert & Michael E. Sykuta[†]

In recent months, prominent antitrust scholars have sounded alarm bells about large institutional investors' "common ownership" of competing businesses.¹ Writing in the *Harvard Law Review*, Harvard Law School's Einer Elhauge proclaimed that "[a]n economic blockbuster has recently been exposed"—namely, "[a] small group of institutions has acquired large shareholdings in horizontal competitors throughout our economy, causing them to compete less vigorously with each other."² In the *Antitrust Law Journal*, Eric Posner of the University of Chicago and Fiona Scott Morton and Glen Weyl of Yale University contended that "the concentration of markets through large institutional investors is the major new antitrust challenge of our time."³ Those same authors took to the pages of the *New York Times* to argue that "[t]he great, but mostly unknown, antitrust story of our time is the astonishing rise of the institutional investor ... and the challenge that it poses to market competition."⁴

Not surprisingly, these scholars have gone beyond just identifying a problem; they have also advocated policy solutions. Elhauge has called for allowing government enforcers and private parties to use Section 7 of the Clayton Act,⁵ the provision primarily used to prevent

[†] Thomas A. Lambert holds the Wall Family Chair in Corporate Law and Governance at the University of Missouri Law School. Michael E. Sykuta is Associate Professor of Agricultural Economics and Applied Social Sciences at the University of Missouri. We are indebted to Prof. John Howe, University of Missouri Department of Finance, for helpful insight on this project, and to Brianna S. Hills for exceptional research assistance.

¹ Common ownership occurs when an investor holds significant blocks of the stock of multiple competitors within an industry. It is not necessary that any block comprise a controlling share. Indeed, when a stockholder does own a controlling share of at least one firm within the industry, its holdings of other firms are often referred to as "cross-ownership" rather than common ownership. This article follows this convention, using common ownership to refer to holdings of minority (non-controlling) positions in multiple competing firms.

² Einer Elhauge, *Horizontal Shareholding*, 129 HARV. L. REV. 1267, 1267 (2016).

³ Eric A. Posner, Fiona Scott Morton, & E. Glen Weyl, *A Proposal to Limit the Anticompetitive Power of Institutional Investors*, 81 ANTITRUST J. L. 669, 669-70 (2017).

⁴ Eric Posner, Fiona Scott Morton, & Glen Weyl, *A Monopoly Donald Trump Can Pop*, N.Y. TIMES (Dec. 7, 2016).

⁵ 15 U.S.C. § 18.

anticompetitive mergers, to police institutional investors' ownership of sizable minority positions in competing firms.⁶ Posner et al., concerned "that private litigation or unguided public litigation could cause problems because of the interactive nature of institutional holdings on competition,"⁷ have proposed that federal antitrust enforcers adopt an enforcement policy that would encourage institutional investors either to avoid common ownership of firms in concentrated industries or to limit their influence over such firms by refraining from voting their shares.⁸

Enforcement authorities, it seems, are already on the case. At a March 2016 hearing before a Senate subcommittee, the then-head of the Antitrust Division of the U.S. Department of Justice (DOJ) announced that DOJ was investigating potential antitrust issues arising from the common ownership of significant blocks of stock in concentrated industries.⁹ In a recent speech, European Commissioner of Competition Margrethe Vestager announced that European competition authorities have launched a similar investigation.¹⁰ The view among many of the antitrust elite thus seems to be (1) that common ownership by institutional investors such as Vanguard, BlackRock, and State Street significantly diminish competition in oligopolistic industries,¹¹ and (2) that additional antitrust intervention is appropriate to prevent competitive harm.

⁶ Elhauge, *supra* note 2, at 1032-14.

⁷ Posner et al., *supra* note 3, at 678.

⁸ Id. at 708-10. See also Eric Posner & Glen Weyl, *The Real Villain Behind Our New Gilded Age*, N.Y. TIMES (May 1, 2018) ("[Institutional investors] 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.").

⁹ Barry A. Nigro, Jr., *Cross-Ownership by Institutional Investors*, available at <https://corpgov.law.harvard.edu/2016/03/31/cross-ownership-by-institutional-investors/#1>. Anecdotal evidence suggests that the major institutional investors are concerned about regulatory interventions to police common ownership. BlackRock, Inc., the world's largest asset manager, recently disclosed in a Securities and Exchange Commission filing that its "business operations, reputation or financial condition" could be adversely affected by proposed policies to address anticompetitive harms from institutional investors' common ownership. BLACKROCK, INC., ANNUAL REPORT (FORM 10-K) 26 (Feb. 28, 2018), available at https://www.sec.gov/Archives/edgar/data/1364742/000156459018003744/blk-10k_20171231.htm.

¹⁰ See Margrethe Vestager, *A market that works for consumers*, speech at Studienvereinigung Kartellrecht International EU Competition Law Forum, Brussels, Belgium (March 12, 2018), available at https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/market-works-consumers_en.

¹¹ Asset managers BlackRock, Vanguard, and State Street Global Advisers, sometimes dubbed the "Big Three," are the three largest institutional investors. As of 2016, they had assets under management of \$3.1 trillion, \$2.5 trillion, and \$1.9 trillion, respectively. Lucian A. Bebchuk, Alma Cohen, & Scott Hirst, *The Agency Problems of Institutional Investors*, 31 J. ECON. PERSP. 89, 94 (2017).

We are skeptical of this two-pronged view. With respect to the first part, we believe there are serious problems with both the theory of competitive harm stemming from institutional investors' common ownership and the empirical evidence that has been marshalled in support of that theory. With respect to the second, we believe that even if competition were softened by institutional investors' common ownership of small minority interests in competing firms, the unintended negative consequences of an antitrust fix would outweigh any benefits from such intervention.

The bulk of this Article explains why the purported problem is overblown (Part II) and why additional antitrust intervention to fix it is, at least at current levels of common ownership, unwarranted (Part III).¹² Before we get to all that, Part I sets the stage by describing the theory as to how institutional investors' common ownership may reduce competition in concentrated industries, the empirical evidence purportedly supporting that theory, and the various policy solutions that have been proposed to prevent the alleged harm to competition.

I. The Purported Problem and Proposed Policy Solutions

a. The Theory Underlying the Purported Problem

To understand the theory as to how common ownership by institutional investors could raise prices and reduce market output, it may help to return to basics. Economists have long understood that monopolists maximize their profits by reducing output and increasing prices above competitive levels. In a perfectly competitive market (a market for a commodity like wheat would come close), each producer is a “price taker,” meaning that its output is so small relative to the overall market output that it cannot affect market price by altering its level of output. In such a market, each producer maximizes its profits by producing to the point at which its marginal cost of production—the incremental cost of producing the last unit of output, a cost that rises as more units are produced—equals the market price, which is determined entirely by forces independent of the producer itself. In a monopoly, by contrast, the producer is a “price maker,”

¹² It is important to note here that we are arguing against *additional* antitrust intervention, beyond enforcement of well-established antitrust rules. As Douglas Ginsburg and Keith Klovers have observed, rules against hub-and-spoke conspiracies and restrictions on conspiracy-facilitating information exchanges could prevent many of the potential anticompetitive harms from common ownership. Douglas H. Ginsburg & Keith Klovers, *Common Sense About Common Ownership* 29-30, Geo. Mason Univ. L. & Econ. Res. Paper Series 18-09 (forthcoming 2 CONCURRENCES REV. ___ (2018), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3169847). We are not arguing against enforcement of such garden variety antitrust doctrines.

meaning that its output decision helps determine market price (i.e., increases in output lower market price; reductions raise it). In determining how much to produce, the monopolist equates its marginal revenue—the additional revenue it gets from producing another unit, a figure that declines with increased production—with its (rising) marginal cost of production. Each production increase by the monopolist causes the market price to drop (as reflected in the downward-sloping demand curve), but marginal revenue falls even further since the monopolist must charge the lower price resulting from an output increase on all units sold, not just the additional ones.¹³

Figures A and B illustrate the differences in market output and price in competitive versus monopolized markets. In a competitive market (Figure A), competing producers continue to produce so that total market output rises to Q_C and price is driven down to P_C . The total welfare in such a market is the shaded area between the demand curve (which indicates consumers' subjective valuation of the output produced) and the supply curve (which indicates the cost of producing that output). That welfare is shared between producers and consumers: Consumers receive the (dotted) consumer surplus (the difference between the price they pay, P_C , and their subjective valuation of the output produced); producers receive the (vertically lined) producer surplus (the difference between the cost of production and the price charged). By contrast, in a monopolized market (Figure B), output is artificially reduced from Q_C to Q_M , causing price to rise from P_C to P_M . This redistributes surplus from consumers to producers, as is evident from comparing the dotted and vertically lined areas in Figure B with those in Figure A. In addition, the artificial output restriction results in a reduction in overall social welfare, illustrated by the diagonally shaded triangle in Figure B. That “deadweight loss” triangle represents the social wealth that is squandered when the monopolist fails to produce output that would create more value to society than it would cost to produce (i.e., units Q_M to Q_C).

¹³ Suppose, for example, that if a monopolist were to produce only one unit, consumers would bid up the price of that unit to \$20. If two were produced, the bidding would end at \$18. If three were produced, bidding would top out at \$16; four, \$14; five, \$12; six, \$10, etc. Under these circumstances, market price falls by \$2 for each additional unit produced. The monopolist's marginal revenue, however, falls by \$4 per additional unit: Going from one unit of production to two causes the monopolist's total revenue to rise from \$20 ($1 \times \20) to \$36 ($2 \times \18), for a marginal revenue gain of \$16; going from two to three units raises total revenue to \$48 ($3 \times \16), indicating a marginal revenue gain of \$12; increasing from three to four units increases total revenue to \$56 ($4 \times \14), so the marginal revenue gain is \$8; etc.

Figure A
Competitive Market Equilibrium

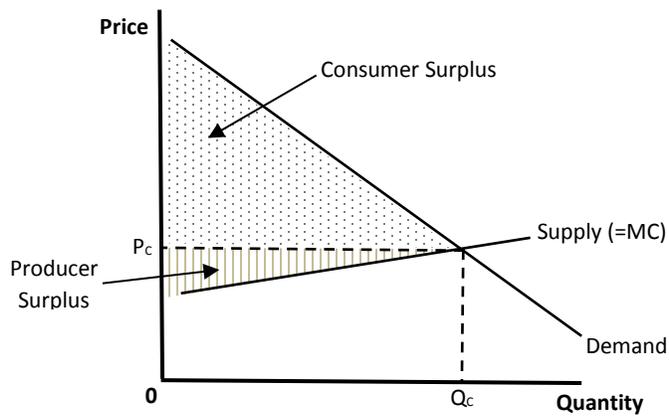
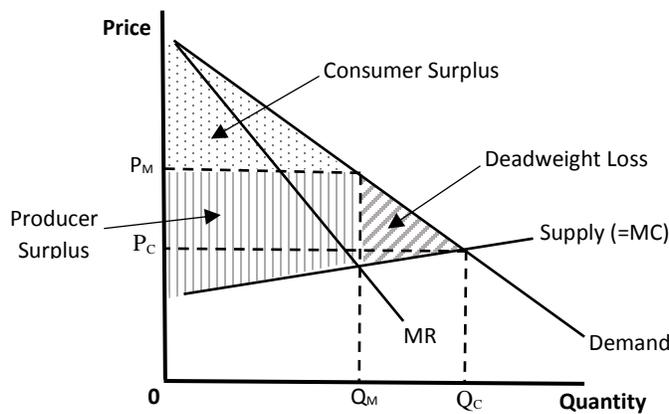


Figure B
Output and Price of Monopolist



Even in a nominally competitive market, the unfortunate state of affairs depicted in Figure B may result if producers coordinate to reduce their aggregate output to the level a single monopolist would produce. Effective coordination would be difficult to achieve in a highly competitive market with lots of producers, but it could occur if the market at issue were concentrated. If there were only four competitors in the market, for example, they could maximize their collective profits by each cutting back on production so that total market output falls from Q_C to Q_M .

So why don't firms in concentrated industries routinely take this tack? Granted, an express agreement to cut back production in a coordinated fashion would subject firms to liability under Section 1 of

the Sherman Act,¹⁴ but why not engage in tacit coordination—i.e., a “gentlemen’s agreement”? As it turns out, such coordination is quite difficult to accomplish because, while all firms stand to benefit from coordination, each individual firm stands to gain *the most* if its rivals coordinate (thereby pushing prices up) while it competes (lowering its own price to win business from the coordinating rivals).¹⁵ That is the best of all possible worlds for a producer in a concentrated industry. When one firm ceases to coordinate, however, two things occur. First, each coordinating firm earns less as the cheating firm’s increased output lowers the market price. Second, the coordinating firms are themselves tempted to cheat as they observe the initial cheater reaping a windfall while their own profits shrink. The upshot is that tacit coordination is difficult to sustain; even in concentrated industries, competition tends to break out.

Now, while a cheater gains when it departs from a coordinated production or pricing strategy, the amount it gains is less than the amount its coordinating rivals collectively lose. That is apparent from Figure B. Coordinating rivals do best by acting, in the aggregate, like a monopolist. If the monopolist in Figure B were to expand its output beyond Q_M —the practical effect of cheating by one of the coordinating firms—the monopolist’s profits would decrease.¹⁶ This implies that departing from coordination within a concentrated industry—i.e., engaging in price competition to win business—enhances the competing firm’s profits but reduces overall industry profits.

In most cases, shareholders of a corporation want managers to pursue policies that maximize the company’s profits (i.e., “own-firm” profits). For that reason, shareholders of firms in concentrated industries typically prefer business-usurping price and quality competition even if it reduces industry profits by disrupting producers’ attempted coordination. Things look different, though, to investors who are fully “intra-industry diversified”—i.e., those holding similarly sized percentages of all the firms within an industry. Those investors

¹⁴ 15 U.S.C. § 1 (prohibiting contracts, combinations, and conspiracies that unreasonably restrain trade).

¹⁵ As Elhauge explains:

In competitive markets where ownership is separate, economic models prove that firms have incentives to undercut each others’ prices because the profits they gain from the additional sales exceed the price reduction caused by their own conduct. Because each firm sets prices based on the same calculus, they keep undercutting each other until they drive down prices toward marginal cost, which is the most efficient level.

Elhauge, *supra* note 2, at 1269.

¹⁶ Because increased production lowers market price, production of units beyond Q_M results in marginal costs that exceed marginal revenues.

would prefer that managers maximize industry profits by avoiding price competition. For example, whereas a shareholder owning 1% of Southwest Airlines would want for it to compete vigorously to win business from Delta, United, and American Airlines, a shareholder owning 1% of each of those airlines would prefer that none of them try to win business from the others by lowering price from monopoly levels. After all, any gain in market share for one company will come at the expense of the others, and the average price (and profit margin) on units sold will fall.

It is likely, then, that if a single investor owned a controlling share in all the firms in an industry, price and quality competition would soften. But how could common ownership of *small percentages* of firms (say, one to ten percent) reduce competition? Wouldn't firm managers defer to the interests of the bulk of their shareholders, who are not intra-industry diversified? Those shareholders would prefer that the managers maximize own-firm rather than industry profits.

Proponents of restrictions on common ownership by institutional investors have offered two responses to these questions. First, they have observed that in many concentrated industries, the leading firms have several top shareholders that are intra-industry diversified. While each such shareholder may own only a small percentage of each company's stock, the total percentage held by intra-industry diversified shareholders as a group may be substantial. For example, Elhauge observes that "from 2013 to 2015, seven shareholders who controlled 60% of United Airlines also controlled big chunks of United's major rivals, including 27.5% of Delta Airlines, 27.3% of Jet-Blue Airlines, and 23.3% of Southwest Airlines."¹⁷ The implication is that managers of these firms would perceive that shareholders owning roughly a quarter of their companies' shares would prefer maximization of industry, rather than own-firm, profits.

Moreover, proponents of common ownership restrictions observe, institutional investors have outsized power relative to their ownership stakes. Compared to individual shareholders, who tend to be poorly positioned to monitor management and whose stakes in corporate profits are generally too small to warrant extensive efforts to steer corporate affairs,¹⁸ institutional investors are much better able to influence management decision-making. They tend to possess

¹⁷ Elhauge, *supra* note 2, at 1267.

¹⁸ See Frank H. Easterbrook & Daniel R. Fischel, *The Corporate Contract*, 89 COLUM. L. REV. 1416, 1443 (1989) ("Investors are rationally uninterested in votes, not only because no investor's vote will change the outcome of the election but also because the information necessary to cast an informed vote is not readily available.").

more extensive monitoring resources and greater expertise on matters of business strategy and firm policy. They also hold larger stakes (and correlative voting power) in the corporations in which they are invested, and they therefore have greater incentives to become informed before voting.¹⁹ In addition, their votes often attract media attention that amplifies their power over management. Given their greater clout, institutional investors are in a better position to engage corporate managers, and anecdotal evidence suggests they regularly do so.²⁰ For all these reasons, common ownership critics assert, corporate managers often honor the preferences of institutional investors over those of individual stockholders, even when the latter group collectively owns a greater proportion of company stock.²¹

Putting all this together generates the two main premises of the theoretical argument that common ownership by institutional investors softens competition in concentrated industries. The first premise

¹⁹ Posner et al. emphasize these differences between individual and institutional investors:

The separation of ownership and control necessary to grow very large companies leads to managers who are not supervised by a knowledgeable monitor, but only by very small individual shareholders who do not have the time, information, or power to oversee management. Institutional investors, by contrast, could potentially improve on this Berle-Means model of the corporation—featuring widely dispersed ownership by shareholders with tiny stakes—by supplying informed and incentivized oversight.

Posner et al., *supra* note 3, at 674.

²⁰ For example, Posner et al. point to Vanguard’s recent announcement that it had, over the past year, “conducted over 800 engagements with the management or directors at companies of different types and sizes, encompassing nearly \$1 trillion in Vanguard fund assets.” *Id.* at 675 (quoting *Our Engagement Efforts and Proxy Voting: An Update*, VANGUARD, about.vanguard.com/vanguard-proxy-voting/update-on-voting/index.html). The announcement continued,

Our engagement volume represents an increase of 19% over the previous 12-month period and 67% over the past three years. Though we engage with companies for a variety of reasons, we are most likely to engage because we are preparing to vote at the shareholder meeting, an event has occurred at the company that could affect stock value, or our research has uncovered a specific governance issue that is not on the ballot.

Id. See also Matthew J. Mallow & Jasmin Sethi, *Engagement: The Missing Middle Approach in the Bebchuck-Strine Debate*, 12 NYU J. L. & BUS. 385 (2016) (providing examples of engagement by institutional investors).

²¹ According to Posner et al., this conclusion “follows from a very simple logic: someone must determine the firms’ goals. That controller is likely to be one of the largest shareholders. If there are no large concentrated shareholders, then the firm will likely be run in the interests of its institutional investors even if these do not individually own very large stakes.” Posner et al., *supra* note 3, at 10.

is that intra-industry diversified institutional investors have an *interest* in maximizing industry profits and would prefer that corporate managers not engage in business-usurping competition that would enhance own-firm profits but reduce producer surplus within the industry. The second is that institutional investors, possessing better monitoring resources and business expertise, a greater interest in managerial decision-making, and an enhanced ability to attract media attention with their votes, have sufficient *influence* over corporate managers to induce them to refrain from own-firm profit maximization in favor of industry profit maximization.

Later on (in Subsection II.A) we will question each of these premises. First, though, we turn to consider (1) the empirical evidence that has been cited in support of the view that common ownership by institutional investors reduces price competition and (2) the policy proposals such evidence has provoked.

b. The Empirical Evidence

Two recent studies—one involving the U.S. airline industry,²² the other involving commercial banks²³—purport to demonstrate that institutional investors’ common ownership of competing firms has substantially reduced competition and injured consumers in concentrated industries. A third study has suggested that growth in institutional investors’ common ownership has increased the incidence of executive compensation policies that encourage firm managers to pursue industry, rather than own-firm, profits.²⁴

In *Anti-Competitive Effects of Common Ownership* (the airline study), co-authors José Azar, Martin C. Schmalz, and Isabel Tecu tested whether institutional investors’ common ownership of interests in domestic airlines raised airfares higher than they otherwise would be. To assess common ownership and the degree to which it changed over time, the authors used a measurement known as the MHHI delta (MHHI Δ).²⁵ The MHHI Δ is a component of the “modified Herfindahl-Hirschman Index” (MHHI), which, as the name suggests, is an adaptation of the Herfindahl-Hirschman Index (HHI), a well-

²² José Azar, Martin C. Schmalz & Isabel Tecu, *Anti-Competitive Effects of Common Ownership*, __ J. FIN. __ (forthcoming 2018), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2427345.

²³ José Azar, Sahil Raina & Martin Schmalz, *Ultimate Ownership and Bank Competition* (2016) (unpublished manuscript), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2710252.

²⁴ Miguel Antón, Florian Ederer, Mireia Giné & Martin Schmalz, *Common Ownership, Competition, and Top Management Incentives* (Ross Sch. of Bus. Paper No. 1328, 2017), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2802332.

²⁵ Azar et al., *supra* note 22, at 12.

known measure used in evaluating the legality of business mergers. The HHI, which is calculated by summing the squares of the market shares of the firms participating in a market, assesses the degree to which a market is concentrated and thus susceptible to collusion or oligopolistic coordination.²⁶ The MHHI seeks to account for both market concentration (HHI) and the reduced competition incentives occasioned by common ownership of the firms within a market (i.e., the degree to which common ownership is likely to induce firm managers to pull their competitive punches).²⁷ The MHHI Δ is the part of MHHI that accounts for common ownership incentives, so $MHHI = HHI + MHHI\Delta$.

Calculating the MHHI Δ for a particular market is a bit complicated, and we defer detailed discussion of the measure's formula to an appendix.²⁸ For present purposes, it will suffice to understand what the MHHI Δ purports to measure and which variables determine its magnitude. MHHI Δ endeavors to assess the degree to which the managers of firms within an industry, on the assumption that they seek to maximize their shareholders' returns, would cause their firms to eschew vigorous competition in favor of oligopolistic coordination, in an effort to maximize industry (rather than own-firm) profits. The primary variables that determine MHHI Δ are:

- the degree of control intra-industry diversified investors exercise over the managers of their portfolio firms (the greater such control, the higher the MHHI);
- the size of the financial stakes intra-industry diversified investors hold in the firms within the industry, and the degree to which, for each such investor, those stakes are equal across firms (the greater the stakes of intra-industry diversified shareholders and the more equal those stakes across firms, so that the investors have a greater interest in industry than own-firm profits, the higher the MHHI Δ);
- the degree to which the firms within the industry have non-diversified shareholders with control over firm management (the greater the financial stakes and control of investors who are not intra-industry diversified, the lower the MHHI Δ); and

²⁶ See U.S. DEPARTMENT OF JUSTICE AND FEDERAL TRADE COMMISSION, HORIZONTAL MERGER GUIDELINES § 5.3 (2010) (describing HHI).

²⁷ Azar et al., *supra* note 22, at 8.

²⁸ In addition to this article's Appendix A, which offers a non-technical explanation of the MHHI Δ , interested readers may wish to consult the descriptions of the metric provided by Posner et al. and O'Brien and Waehrer. See Posner et al., *supra* note 3, at 682-84; Daniel P. O'Brien & Keith Waehrer, *The Competitive Effects of Common Ownership: We Know Less Than We Think*, 81 ANTITRUST L. J. 729, 738-43 (2017).

- the market shares of firms that share common ownership by investors (the greater the market shares, the greater the market effect of management’s decisions concerning competitive behavior, and the higher the MHHIΔ).

Appendix A to this article sets forth, in non-technical terms, the intuition underlying the MHHIΔ and the steps involved in calculating the metric for a particular market.

In the airline paper, Azar et al. first calculated the MHHIΔ on each domestic airline route from 2001 to 2014.²⁹ The authors then examined, for each route, how changes in the MHHIΔ over time correlated with changes in airfares on that route. This approach offered two significant advantages.³⁰ First, it accounted for determinants of price that were route- or carrier-specific but did not vary over time. If, for example, gate fees were higher on some routes than others, but were constant over time, those differences would not affect the correlation between route-level changes in price and changes in MHHIΔ; the higher gate fees would be incorporated in prices both before and after any changes in MHHIΔ. Second, the approach accounted for industry-wide price-affecting events occurring within the time period studied (and thus causing prices to change over time). For example, if fuel prices shot up during the period studied, one would expect the prices charged by all carriers to rise by roughly the same percentage, and it would be possible to see whether fare changes were greater or less on routes experiencing a change in MHHIΔ.

To supplement the aforementioned advantages, the authors ran regressions to control for route-specific, time-varying factors that might influence both fares and the MHHIΔ. For example, they controlled for market concentration (the traditional HHI), the number of non-stop carriers on a route, the presence of low-cost carriers, the share of connecting passengers, and market demographics.³¹ Controlling for all these factors, they concluded that common ownership of

²⁹ Azar et al., *supra* note 22, at 12. In response to commentators’ concerns, the authors later repeated their analysis using city pairs instead of specific air routes—e.g., Chicago to New York instead of Chicago O’Hare to New York LaGuardia. See Einer Elhauge, *The Growing Problem of Horizontal Shareholding*, COMPETITION POL’Y INT’L, June 2017, at 6 (observing that “a revision of the airline study shows that using city pairs actually makes the harmful price effects *larger*”) (emphasis in original).

³⁰ See José Azar, Martin C. Schmalz & Isabel Tecu, *Why Common Ownership Creates Antitrust Risks*, COMPETITION POL’Y INT’L, June 2017, at 5 (discussing the two methodological advantages described in the text following this note).

³¹ Azar et al., *supra* note 22, at 14.

air carriers resulted in fares being 3 to 7 percent higher than they otherwise would be.³²

The authors understood that the correlations they discovered might not prove that changes in MHHIA caused higher fares; the causal relationship could operate in the opposite direction. For example, it could be that institutional investors correctly predict the routes on which demand will be greater (and prices and profit margins, higher) and invest in the airlines that disproportionately fly those routes. (That would drive up MHHIA.) Or it could be that there are some other factors, not controlled for in the regressions, that influence both airfares and MHHIA.

To address these reverse causation and endogeneity concerns, the authors conducted additional analyses. For one thing, they examined the correlation between MHHIA and passenger volume.³³ They reasoned that if increased passenger demand, leading to higher prices and profits, were attracting investment by institutional investors (i.e., if higher prices caused increased MHHIA rather than vice-versa), changes in MHHIA would be correlated with increased passenger volume. In fact, the authors found the opposite; an increase in MHHIA was negatively correlated with passenger volume.³⁴

The authors also examined BlackRock's 2009 acquisition of Barclay's Global Investors.³⁵ That acquisition, which was certainly not driven by expectations about route-level airfare increases, did have the effect of increasing MHHIA.³⁶ The fact that airfares rose on the relevant routes following the merger, the authors reasoned, supported the conclusion that MHHIA changes were influencing fares.³⁷

In *Ultimate Ownership and Bank Competition* (the banking study), which has provoked less commentary than the airline study, Azar, Sahil Raina, and Schmalz attempted to assess how common ownership has affected service fees and interest rates in local markets for bank deposits.³⁸ The authors correlated account fees, the mini-

³² *Id.* at 38. An instrumental variable analysis by the authors found even greater adverse effects. It suggested that common ownership increased airfares between 10 and 12 percent. *Id.*

³³ *Id.* at 23.

³⁴ *Id.* at 23-24.

³⁵ *Id.* at 19.

³⁶ *Id.* at 20.

³⁷ *Id.* at 23. *See also* Azar et al., *supra* note 30, at 5 ("This acquisition is a helpful 'experiment' because the changes in route-level ownership structures implied by the merger were arguably not caused by expected route-level changes in U.S. airfares. Any measured effect must therefore work from increased common ownership to higher fares, rather than the other way around.")

³⁸ Azar et al., *supra* note 23, at 1-3.

mum account sizes required to avoid fees (fee thresholds), and interest rates paid on deposits with the “generalized HHI” (GHHI), a metric similar to MHHI.³⁹ They concluded that for interest-bearing checking accounts, a one standard deviation increase in GHHI increased fees by about 11 percent and fee thresholds by around 17 percent.⁴⁰ For money market accounts, a similar increase in GHHI resulted in a 3 percent increase in fees and a 17 percent increase in fee thresholds.⁴¹ They also found that increases in GHHI reduced the interest rates paid to depositors.⁴²

A third recent study did not look directly at consumer prices (or price-related terms such as interest rates on deposits) but instead considered whether common ownership leads to managerial compensation mechanisms that could encourage the pursuit of industry, rather than own-firm, profits. In *Common Ownership, Competition, and Top Management Incentives* (the executive compensation study), co-authors Miguel Antón, Florian Ederer, Mireia Giné, and Martin Schmalz found that the higher the MHHI is, the greater the positive sensitivity between managerial compensation and industry profits relative to the positive sensitivity between compensation and own-firm profits.⁴³

c. Proposed Policy Solutions

Legal scholars have proposed policies for reducing the sort of anticompetitive threat the aforementioned studies purport to have revealed. Elhauge has advocated using Section 7 of the Clayton Act to

³⁹ *Id.* at 22-24. The formula for the MHHI, which works when there is either common ownership of competing firms by third-parties or cross-ownership of some firms by others, must be refined if either (1) there is a mixture of common- and cross-ownership, or (2) the cross-ownership involves both cross-owned firms holding stakes in each other (e.g., firm A owns a stake in firm B *and* firm B owns a stake in A). The GHHI incorporates the necessary refinement. *See* Elhauge, *supra* note 2, at 1277 n. 48.

⁴⁰ *Id.* at 24.

⁴¹ *Id.*

⁴² *Id.* at 23.

⁴³ Antón, et al., *supra* note 24, at 3. Notably, another recent paper reached the opposite conclusion, finding that common ownership increases the extent to which managers are rewarded for actions that increase own-firm profits relative to industry profits. *See* Heung Jin Kwon, *Executive Compensation Under Common Ownership*, University of Chicago Department of Economics Working Paper (Nov. 29, 2016), available at <http://fmaconferences.org/Boston/ExecutiveCompensationUnderCommonOwnership.pdf>. A potential explanation for that finding is that common ownership sensitizes corporate executives to their performance relative to rivals.

arrest anticompetitive harms from horizontal shareholding.⁴⁴ Although Section 7 is typically used to police business mergers posing anticompetitive threats, its sweeping language appears broad enough to reach competition-reducing horizontal shareholding by third-party investors. It provides:

No person shall acquire, directly or indirectly, the whole or any part of the stock . . . of one or more persons engaged in commerce or in any activity affecting commerce, where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition . . . or of the use of such stock by the voting or granting of proxies or otherwise, may be substantially to lessen competition⁴⁵

Although Section 7 does include a “passive investor” exception,⁴⁶ Elhauge contends that it would not preclude liability for institutional investors’ horizontal shareholding. He says that the exception applies if two requirements are met: (1) the stock acquisition is solely for investment, and (2) the acquired stock is not actually used to lessen competition substantially or to attempt to do so.⁴⁷ The first requirement is unlikely to be met in the case of horizontal shareholdings by institutional investors, Elhauge says, because it has been interpreted to exclude investments “that give the stock acquirer any influence over the corporation’s business decisions (including by voting) or any access to the corporation’s sensitive business information.”⁴⁸ He adds that the element has been found to be met “only when the investor committed either to not vote its stock or . . . to vote the shares

⁴⁴ Elhauge, *supra* note 2, 1301-16.

⁴⁵ 15 U.S.C. § 18.

⁴⁶ By its terms, Section 7’s prohibition does not reach “persons purchasing such stock solely for investment and not using the same by voting or otherwise to bring about, or in attempting to bring about, the substantial lessening of competition.” *Id.*

⁴⁷ Elhauge, *supra* note 2, at 1305. Douglas Ginsburg and Keith Klovers have taken issue with Elhauge’s characterization of the second requirement of Section 7’s passive investor exception. Carefully parsing the caselaw upon which Elhauge relies, they contend that “it is the acquirer’s intention that matters, not, as Elhauge would have it, whether ‘the acquired stock is *actually* used, by voting or otherwise, to lessen competition substantially.’” Ginsburg & Klovers, *supra* note 12, at 24 (quoting Elhauge, *supra* note 2, at 103). Ginsburg and Klovers further observe that all the cases upon which Elhauge relies involve cross-ownership, not common ownership, Ginsburg & Klovers, *supra* note 12, at 20; that the most direct judicial pronouncement in support of his view was an *obiter dictum*, *id.* at 24; and that he is ultimately left to rely on the sort of purely textualist analysis that is often inappropriate in interpreting the antitrust laws, *id.* at 17.

⁴⁸ Elhauge, *supra* note 2, at 1305-06.

in the same proportion as other shareholders vote, often with the additional requirements that the investor not nominate directors, have any representative on the board, or exert any other form of influence over management.”⁴⁹ The exception’s second requirement would not be satisfied, Elhaug maintains, if the horizontal shareholding, even if purely passive, lessened the incentives of the firms to compete with each other.⁵⁰ Price effects such as those purportedly revealed by the airline study would thus prevent the exception from applying.

Based on the empirical evidence discussed above, Elhaug concludes (somewhat curiously) that the case for liability would be strong whenever a stock purchase by an intra-industry diversified institutional investor resulted in an MHHIΔ of 200 in a market with an MHHI exceeding 2500.⁵¹ In fact, he says, it should be easier to assign liability on the basis of a third-party investment involving this magnitude of MHHIΔ than on the basis of a merger that altered the HHI by a similar degree. Whereas mergers often generate integrative efficiencies that may offset potential anticompetitive effects from increased concentration, third-party stock acquisitions rarely enable

⁴⁹ *Id.* at 1306. Ginsburg & Klovers dispute Elhaug’s construal of the cases cited in support of this proposition. See Ginsburg & Klovers, *supra* note 12, at 22-24 (criticizing Elhaug’s interpretation of *United States v. Tracinda Investment Corp.*, 477 F. Supp. 1093 (C.D. Cal. 1979), and *Anaconda Co. v. Crane Co.*, 411 F. Supp. 1210 (S.D.N.Y. 1975)).

⁵⁰ Elhaug, *supra* note 2, at 1308. *But see* Ginsburg & Klovers, *supra* note 1247, at 22-25.

⁵¹ *Id.* at 1303. We say that Elhaug’s suggested thresholds for potential antitrust liability are curious because they appear to be oblivious to the range of potential MHHI and MHHIΔ values. Elhaug relies on the federal antitrust enforcement agencies’ Horizontal Merger Guidelines, which deem a market with an HHI greater than 2500 to be highly concentrated and state that mergers increasing HHI by at least 200 in such markets “will be presumed to be likely to enhance market power.” See Horizontal Merger Guidelines, *supra* note 26, at § 5.3. The Merger Guidelines’ HHI thresholds make some sense, given that 2500 is the HHI that would result from a duopoly in which two firms split the market equally, and an HHI increase of 200 represents 2% of the maximum value HHI can obtain (10,000). MHHI and MHHIΔ, however, are not subject to the same maximum value as HHI. For example, if there are four firms in a market, five institutional investors that each own 5% of the first three firms and 1% of the fourth, and no other investors holding significant stakes in any of the firms, MHHIΔ will be 15,500 and MHHI 18,000. Indeed, in this four-firm market with five-institutional investors and no other significant shareholders, MHHIΔ could reach astronomical proportions—up to 26,864,516,491 (with an HHI of only 2717)—even if no institutional investor held more than 5% of any firm’s stock. (We derived this figure using Excel’s solver tool to maximize MHHIΔ, subject to the constraints of four firms with market shares totaling 100%, five significant investors, and no investment stake greater than 5%.) There appears to be no theoretical, mathematical, or experiential basis for suggesting that a 200-point change in MHHIΔ has any competitive significance against a potential value of almost 27 billion.

cognizable offsetting efficiencies.⁵² While horizontal shareholding by index funds may create portfolio diversification benefits for fund investors, Elhauge says those benefits could largely be achieved by *inter*-industry diversification (e.g., owning stock in many industries, but of only one firm per industry) so little investor benefit is derived from intra-industry common shareholding.⁵³ Moreover, he observes, judicial precedents and enforcement guidelines from the antitrust agencies typically do not allow efficiencies outside the market in which an acquisition is occurring to offset the anticompetitive risks occasioned by the acquisition.⁵⁴ (This reluctance to credit extra-market efficiencies stems from Section 7's language prohibiting stock acquisitions that may substantially lessen competition "in any line of commerce."⁵⁵)

Elhauge envisions both public and private lawsuits to deter anticompetitive horizontal shareholding. He encourages DOJ and the Federal Trade Commission (FTC) "to investigate any horizontal stock acquisitions that have created, or would create, [an MHHIΔ] of over 200 in a market with an MHHI over 2500, in order to determine whether those horizontal stock acquisitions raised prices or are likely to do so."⁵⁶ In addition, states could sue on behalf of their residents who are injured by horizontal shareholdings.⁵⁷ The enforcement mechanism most likely to induce changes on the part of institutional investors, however, would be private class actions seeking treble damages for overcharges resulting from reduced competition.⁵⁸ For example, "A class of passengers injured by paying higher airline fares because of horizontal shareholdings on a concentrated route could . . . bring suit on the theory that the stock acquisitions by institutional investors that created those horizontal shareholdings harmed the passengers by lessening airline competition."⁵⁹

In light of the crippling liability that could result from private actions for treble damages, institutional investors would likely change

⁵² *Id.* ("A true merger creates integrative efficiencies that might offset any anticompetitive effect from increasing concentration. In contrast, stock acquisitions that create horizontal shareholdings generate no such integrative efficiencies.")

⁵³ *Id.* ("[V]irtually all diversification benefits could be achieved by investing in one corporation in each market.")

⁵⁴ *Id.* at 1304 (observing that "efficiency benefits in one market cannot offset anticompetitive effects in another market").

⁵⁵ 15 U.S.C. § 18.

⁵⁶ Elhauge, *supra* note 2, at 1303.

⁵⁷ *Id.* at 1304 (citing 15 U.S.C. § 15C).

⁵⁸ Section 4 of the Clayton Act authorizes private treble damages actions by persons injured in their business or property by antitrust violations. 15 U.S.C. § 15.

⁵⁹ *Id.*

their business practices. Elhauge suggests two ways they might minimize the risk of antitrust liability from investments in concentrated markets.⁶⁰ First, they could refrain from horizontal shareholding, limiting their investments to only one of the competing firms in a concentrated market.⁶¹ Second, they could refrain from voting their stock (or, what is equivalent, vote their shares in proportion to how the other shareholders vote).⁶²

Posner et al. agree with Elhauge that the anticompetitive potential from current levels of horizontal shareholding is sufficient to warrant a governmental fix. They are not in favor, however, of relying on haphazard antitrust suits to address the problem. They are “concerned that, absent clear guidelines for when such cases would or would not be brought, such litigation could lead to a combination of chaos and stasis.”⁶³ Chaos would result from different jurisdictions’ adopting different liability rules; stasis, from courts’ attempting to avoid industry disruption by adopting broad exemptions that would allow status quo harms to continue.⁶⁴ To avoid those outcomes, Posner et al. propose a more rule-based approach, where the specifics of what is allowed and disallowed are set forth *ex ante*.

Under their proposed rule, any investor holding more than 1% of the aggregate equity in an industry deemed oligopolistic by the FTC and DOJ would be allowed to hold stock in only one firm within that industry.⁶⁵ Investors holding less than 1% of total industry equity could own shares in multiple industry participants, as could free-standing index funds that committed to pure passivity within the industry.⁶⁶ To be “purely passive,” the index fund would have to abstain from communicating with management, to vote its shares in proportion to other shareholders’ votes (negating any voting influence on the part of the investor), and to trade stocks only in accordance with pre-announced, non-discretionary rules (such as following a particular index as closely as possible).⁶⁷

Posner et al. observe that their proposed rule could be adopted multiple ways: as an enforcement policy of the FTC and DOJ, as a regulation promulgated under Section 5 of the FTC Act,⁶⁸ or as a stat-

⁶⁰ *Id.* at 1314.

⁶¹ *Id.*

⁶² *Id.* at 1315.

⁶³ Posner et al., *supra* note 3, at 691-92.

⁶⁴ *Id.* at 692-94.

⁶⁵ *Id.* at 701.

⁶⁶ *Id.* at 708-09.

⁶⁷ *Id.*

⁶⁸ Section 5 authorizes the FTC to promulgate rules preventing “unfair methods of competition.” 15 U.S.C. § 45(a)(2).

ute enacted by Congress. In light of the practical difficulties of moving legislation through Congress and the notice-and-comment requirements (and inevitable judicial review) involved in a regulatory approach, they suggest that the agencies adopt their rule as an enforcement guideline.⁶⁹

* * * *

Having set the stage by describing the theory as to how common ownership by institutional investors could reduce competition, the empirical evidence that it has done so, and the leading proposals for addressing that problem, we turn to analysis. In Part II, we consider whether institutional investors' common ownership of small stakes in competing firms really poses a significant competitive problem. In Part III, we ask whether the proposed solutions to that problem (assuming it exists) are likely to enhance overall social welfare.

II. Problems with the Problem

Proponents of restrictions on common ownership by institutional investors have articulated a theory as to how intra-industry diversification may reduce market competition, and they point to empirical evidence purporting to confirm that theory. There are, however, significant problems with both the theory of anticompetitive harm and the empirical evidence purportedly supporting it.

⁶⁹ Posner et al., *supra* note 3, at 709. In addition to this antitrust-based solution, two of the co-authors of the Posner et al. proposal, Eric Posner and Glen Weyl, advocate a tax solution to the purported problem of common ownership by institutional investors. They propose that Congress enact legislation removing the tax advantages available to employer-sponsored retirement plans unless those plans “offer only mutual funds that do not own a significant number of shares of more than one firm in a specific industry.” Eric Posner & E. Glen Weyl, *Mutual Funds’ Dark Side*, SLATE (Apr. 16, 2015). They say that such an approach, under which “mutual funds would be allowed to own shares of only a single firm in any specific industry, but could invest in as many industries as they wanted,” would allow for the sort of inter-industry diversification that protects investors, while avoiding the intra-industry diversification that may soften competition. *Id.* (“By owning shares in different industries, mutual funds could continue to offer the diversification benefits that investors value them for. But because mutual funds would not be allowed to own shares of firms in the same industry, they would have no incentive to encourage firms not to compete on price.”) Notably, Posner and Weyl would not limit their proposed denial of tax benefits to mutual funds that are intra-industry diversified *in oligopolistic industries*. Even in competitive industries, tax-advantaged mutual funds would be required to avoid intra-industry diversification.

a. Problems with the Theory

The theoretical argument for the claim that intra-industry diversification by institutional investors softens market competition proceeds as follows:

Premise 1: Because institutional investors are intra-industry diversified, they benefit if their portfolio firms in concentrated industries seek to maximize industry, rather than own-firm, profits.

Premise 2: Corporate managers seek to maximize the returns of their corporations' largest shareholders—intra-industry diversified institutional investors—and will thus pursue maximization of industry profits.

Premise 3: Industry profits, unlike own-firm profits, are maximized when producers refrain from underpricing their rivals to win business.

Therefore,

Conclusion: Intra-industry diversification by institutional investors reduces price competition and should be restricted.

While the third premise of this argument is sound, the first two premises are questionable at best.

With respect to Premise 1, it is by no means clear that intra-industry diversified institutional investors benefit from, and thus prefer, maximization of industry rather than own-firm profits. For one thing, maximization of industry profits confers no competitive advantage on an institutional investor's largest index funds, which are the funds of greatest concern to those who would restrict intra-industry diversification. If maximizing industry profits by refraining from price competition enhances the returns of a Vanguard fund that is based on a well-known stock index (e.g., the S&P 500), it will similarly enhance the returns of a State Street, BlackRock, or Fidelity fund that tracks the same index.⁷⁰ Accordingly, competition among passively managed index funds is not based on fund returns but instead occurs along two dimensions: tracking (the extent to which the portfolio accurately reflects the index at issue) and management fees.⁷¹ Given that the returns of portfolio companies matter little in the competition for index fund investors' dollars, managers of index funds

⁷⁰ See Bebchuk, et al., *supra* note 11, at 93.

⁷¹ See, e.g., Shauna Carter, *The Hidden Differences Between Index Funds*, available at <https://www.investopedia.com/articles/mutualfund/03/061103.asp> (retail investor-focused publication identifying management fees and tracking error as the key distinctions between funds tracking the same index).

should care little whether their portfolio companies pursue own-firm or industry profits.

Even when fund returns are significant in attracting retail investors to one institutional investor's offerings over another's, as is the case with institutional investors' actively managed mutual funds, it is unlikely that fund sponsors would prefer maximization of industry versus own-firm profits in the industries in which they are fully diversified. That is because intra-industry diversified mutual funds tend also to be *inter*-industry diversified, and maximizing one industry's profits requires supracompetitive pricing that tends to reduce the profits of firms in complementary industries. A leading Vanguard fund, for example, holds around 2% of each major airline (1.85% of United, 2.07% of American, 2.15% of Southwest, and 1.99% of Delta) but also holds:

- 1.88% of Expedia Inc. (a major retailer of airline tickets),
- 2.20% of Boeing Co. (a manufacturer of commercial jets),
- 2.02% of United Technologies Corp. (a jet engine producer),
- 3.14% of AAR Corp. (the largest domestic provider of commercial aircraft maintenance and repair),
- 1.43% of Hertz Global Holdings Inc. (a major automobile rental company), and
- 2.17% of Accenture (a consulting firm for which air travel is a significant cost component).⁷²

Each of those companies—and many others—perform worse when airlines engage in the sort of supracompetitive pricing (and corresponding reduction in output) that maximizes profits in the airline industry.

Whether a fund will experience a net benefit from reduced price competition in the industries in which it is intra-industry diversified ultimately depends, of course, on the composition of its particular portfolio. For widely diversified funds, however, it is unlikely that fund returns will be maximized by rampant competition-softening. As Figure B depicts, every instance of supracompetitive pricing entails a deadweight loss—i.e., an allocative inefficiency stemming from the failure to produce units that create greater value than they cost to produce.⁷³ To the extent a mutual fund is designed to reflect gains in the economy generally, it will perform best if such allocative inefficiencies are minimized. It seems, then, that Premise 1—the claim

⁷² Vanguard Index Funds, *Vanguard Value Index Fund (Form N-Q)*, File #811-02652 (May 31, 2017) (holdings percentages calculated based on total shares outstanding as of date of Form N-Q filing).

⁷³ This allocative inefficiency is represented by the diagonally shaded triangle in Figure B, presented in Part I.a, *supra*.

that intra-industry diversified institutional investors prefer competition-softening so as to maximize industry profits—is dubious.

Premise 2—the claim that corporate managers will pursue industry rather than own-firm profits when their largest shareholders prefer that outcome—is even less plausible. For nearly all companies in which intra-industry diversified institutional investors collectively hold a significant proportion of outstanding shares, a majority of the stock is still held by shareholders who are not fully intra-industry diversified. Those shareholders would prefer that the company try to win business from its rivals. Proponents of the theory that institutional investors’ common ownership softens competition maintain that corporate managers disregard the interests of those shareholders in favor of institutional investors, whose stock ownership is more concentrated.⁷⁴ The underlying reasoning seems to be that non-intra-industry diversified shareholders, despite their greater aggregate voting power, exercise little influence over management because (1) they are rationally ignorant of management’s decisions (given that each individual shareholder’s interest is too small to warrant costly monitoring efforts), and (2) they cannot easily coordinate their widely dispersed voting power. Institutional investors, by contrast, have an incentive to invest in managerial monitoring, the resources and sophistication needed to monitor effectively, and command over a great many shares (so that voting coordination is not necessary to wield influence over management). Even if these things are true,⁷⁵ however, it is doubtful that corporate managers would routinely disregard the interests of shareholders owning the bulk of the company’s stock and pursue industry rather than own-firm profits.

⁷⁴ As Posner et al. put it, “[S]omeone must determine the firm’s goals. That controller is likely to be one of the largest shareholders. If there are no large concentrated shareholders, then the firm will likely be run in the interests of its institutional investors even if these do not individually own very large stakes.” Posner et al., *supra* note 3, at 684-85.

⁷⁵ Lucian Bebchuk, Alma Cohen, and Scott Hirst have argued that it is implausible that the managers of index funds would use their funds’ voting power to induce an anticompetitive strategy of industry profit-maximization. They observe that the relationship between a fund’s managers and investors is subject to agency costs, and that managers often underinvest in governance efforts of behalf of their funds’ investors, especially when (as with index funds) the corporate management decisions that would benefit fund investors would not confer a competitive advantage on the individual fund. See Bebchuk, et al., *supra* note 11, at 108-09 (“Our analysis indicates that index fund managers might well have different incentives [than to maximize the collective wealth of their beneficial investors], which would lead them to limit intervention with their portfolio companies. Thus, our analysis suggests that it is implausible to expect that index fund managers would seek to facilitate significant anticompetitive behavior.”).

There are several reasons for this doubt. For one thing, favoring intra-industry diversified investors holding a minority interest could subject managers to legal liability. The fiduciary duties of corporate managers require that they attempt to maximize firm profits for the benefit of shareholders as a whole; favoring even a controlling shareholder (much less a minority shareholder) at the expense of other shareholders can result in liability.⁷⁶ More importantly, managers' personal interests usually align with those of the majority when it comes to the question of whether to maximize own-firm or industry profits. As sellers in the market for managerial talent, corporate managers benefit from reputations for business success, and they can best establish such reputations by beating (usurping business from) their industry rivals. In addition, many corporate managers are compensated in stock of the companies they manage.⁷⁷ They maximize the value of that stock by maximizing own-firm, not industry, profits.⁷⁸ It thus seems unlikely that corporate managers would ignore

⁷⁶ See, e.g., *Sinclair Oil Corp. v. Levien*, 280 A.2d 717 (Del. 1971).

⁷⁷ See Lucian Bebchuk & Yaniv Grinstein, *The Growth of Executive Pay* 11, NBER Working Paper #11443 (June 2005), available at <http://www.nber.org/papers/w11443.pdf> (reporting “equity-based compensation as a percentage of total compensation” for executives of firms included in S&P 500, Mid-Cap 400, and Small-Cap 600 indices).

⁷⁸ Proponents of restrictions on intra-industry diversification point to evidence that common ownership is positively correlated with executive compensation packages that tie pay to absolute performance rather than to performance relative to industry rivals. See, e.g., Elhauge, *supra* note 29, at 3. Such evidence, they say, shows that intra-industry diversification encourages maximization of industry rather than own-firm profits. The empirical evidence on this matter, however, is mixed, see *supra* note 43 and accompanying text, and the largest institutional investors support compensating managers for performance relative to industry rivals. See VANGUARD, *Our Governance and Executive Compensation Principles*, available at <https://about.vanguard.com/investment-stewardship/corporate-governance/> (“[I]ncentives should be structured to reward relative outperformance, as opposed to a general rise in stock prices or other market-wide trends, over the course of a business or product cycle that is relevant to the company.”); BLACKROCK, *Proxy Voting Guidelines for U.S. Securities* (Feb. 2018), available at <https://www.blackrock.com/corporate/literature/fact-sheet/blk-responsible-investment-guidelines-us.pdf> (“Our evaluation of equity compensation plans is based on a company’s executive pay and performance relative to peers and whether the plan plays a significant role in a pay-for-performance disconnect.”); FIDELITY, *Fidelity Funds’ Proxy Voting Guidelines* (Jan. 2018), available at https://www.fidelity.com/bin-public/060_www_fidelity_com/documents/Full-Proxy-Voting-Guidelines-for-Fidelity-Funds-Advised-by-FMRCo-and-SelectCo.pdf (“Fidelity will generally vote for proposals to ratify executive compensation unless such compensation appears misaligned with shareholder interests or otherwise problematic, taking into account ... [t]he alignment of executive compensation and company performance relative to peers...”); *id.* (observing that in voting on matters concerning executive stock options, Fidelity will take into account “[t]he company’s relative per-

the interests of stockholders owning a majority of shares and cause their corporations to refrain from business-usurping competition.

In the end, then, two key premises of common ownership critics' theoretical argument are suspect. And if either is false, the argument is unsound.

b. Problems with the Evidence

When confronted with criticisms of their theory of anticompetitive harm, proponents of common ownership restrictions generally point to the empirical evidence described above.⁷⁹ For example, the authors of the airline study (two of whom were also co-authors of the banking study) offered the following retort to critics who noted the absence of any mechanism by which intra-industry diversified institutional investors induce firm managers to pull their competitive punches: “This argument falls short of explaining why, empirically, taking into account shareholders’ economic interests does help to explain firms’ product market behavior.”⁸⁰

Of course, to demonstrate “empirically” that institutional investors’ “economic interests” influence their portfolio companies’ “product market behavior” (i.e., cause the companies to charge higher prices, etc.), researchers would need to (1) correctly identify institutional investors’ economic interests with respect to their portfolio firms’ product market behavior, and (2) establish that those interests cause firms to act as they do. On those crucial tasks, the empirical studies purporting to show anticompetitive harm from institutional investors’ common ownership of competing firms fall short.

1. Failure to Account Properly for Institutional Investors’ Economic Interests

To assess institutional investors’ preferences for industry versus own-firm profit maximization, the common ownership studies have

formance compared to other companies within the relevant industry or industries...”). It is also worth noting that the largest institutional investors consistently back equity-based compensation for firm managers, which encourages maximization of own-firm profits. *See, e.g.*, VANGUARD, *Vanguard’s Proxy Voting Guidelines*, available at: <https://about.vanguard.com/investment-stewardship/voting-guidelines/> (“Appropriately designed stock-based compensation plans ... can be an effective way to align the interests of long-term shareholders with the interests of management.”); BLACKROCK, *Proxy Voting Guidelines for U.S. Securities* (Feb. 2018) (“We believe director compensation packages that are based on the company’s long-term value creation and include some form of long-term equity compensation are more likely to meet this goal” of aligning shareholder and management incentives).

⁷⁹ *See supra* notes 22-43 and accompanying text (discussing airline, banking, and executive compensation studies).

⁸⁰ Azar et al., *supra* note 30, at 6.

examined the degree of institutional investors' horizontal shareholding as revealed by their filings under Section 13(f) of the Securities Exchange Act.⁸¹ Section 13(f) requires institutional investors with more than \$100 million of assets under management to report their stock holdings.⁸² The common ownership studies have assumed that an institutional investor reporting ownership of a similar percentage of all the firms in an industry would prefer that no firm try to win business from its rivals but that they all, instead, reduce competition so as to maximize industry profits.

That assumption is unwarranted. To see why, consider how Section 13(f) reports are compiled. They report an institutional investor's *aggregate* holdings—i.e., the sum of all the holdings of all the funds associated with that institutional investor.⁸³ For example, when Vanguard reports that it owns 36 million shares of, say, Southwest Airlines, it means that the various Vanguard mutual funds, in the aggregate, hold that many Southwest shares.

This sort of aggregate, or “threshold,” reporting exaggerates the degree to which institutional investors appear to benefit from maximization of industry versus own-firm profits. Suppose, for example, that Vanguard reports a 6% ownership of each of American, Delta, Southwest, and United Airlines (and suppose further that those are the only airlines in the market). From that fact alone, it might appear that Vanguard's investors, and thus Vanguard itself, must prefer maximization of industry rather than own-firm profits. Vanguard's actual preference, however, is not so clear.

Vanguard's total ownership of each airline is divided among its many funds. Investors in those individual funds would have divergent preferences as to whether the airlines should maximize industry or own-firm profits and, if the latter, which airlines' profits should be maximized. Some Vanguard funds, such as its 500 Index Fund (VFIAX) and its Total Stock Market Fund (VTSMX), hold relatively equal stakes in American, Delta, Southwest, and United.⁸⁴ They may

⁸¹ See Azar et al., *supra* note 22, at 10; Azar et al., *supra* note 23, at 7.

⁸² 15 U.S.C. § 78m(f); 17 C.F.R. § 240.13f-1(a)(1) (West 2018).

⁸³ See SECURITIES EXCHANGE COMMISSION, *Frequently Asked Questions About Form 13F* (Mar. 15, 2017), available at <https://www.sec.gov/divisions/investment/13ffaq.htm>.

⁸⁴ Vanguard Index Funds, *Vanguard 500 Index Fund Admiral Shares (Form N-Q)*, File #811-02652 (May 31, 2017) (reporting ownership of 1.577% of American, 1.516% of Delta, 1.552% of Southwest, and 1.432% of United, with percentages based on number of shares outstanding as of May 31, 2017); Vanguard Index Funds, *Vanguard Total Stock Market Fund (Form N-Q)*, File #811-02652 (May 31, 2017) (reporting ownership of 2.072% of American, 1.990% of Delta, 2.153% of Southwest, and 1.853% of United, with percentages based on number of shares outstanding as of May 31, 2017).

do best when the firms soften their competition so as to maximize industry rather than own-firm profits. Different competitive outcomes, however, would be better for other Vanguard funds. For example:

- Vanguard's Value Index Fund (VIVAX) holds significant stakes in American, Delta, and United (0.46%, 0.45%, and 0.42%, respectively) but holds no Southwest stock.⁸⁵ VIVAX does best if United, American, and Delta usurp business from Southwest.
- Vanguard's Growth Index Fund (VIGRX) holds a significant stake in Southwest (0.59%) but holds no stake in American, Delta, or United.⁸⁶ Investors in VIGRX would prefer that Southwest win business from American, Delta, and United.
- Vanguard's Mid-Cap Index Fund (VIMSX) and Mid-Cap Value Index Fund (VMVIX) hold significant stakes in United (1.00% and 0.321%, respectively) but hold no stock in American, Delta, or Southwest.⁸⁷ Investors in VIMSX and VMVIX would prefer that United win business from American, Delta, and Southwest.
- Vanguard's PRIMECAP Core Fund (VPCCX) holds stakes in all four major airlines, but its share of Southwest (1.49%) is twice its share of American (0.72%), nearly four times its share of United (0.38%), and seven-and-a-half times its share of Delta (0.198%).⁸⁸ Investors in VPCCX would prefer that Southwest grow at the expense of American, United, and Delta. They would also prefer that American win business from United and Delta, and that United win business from Delta.
- Vanguard's Morgan Growth Fund (VMRGX) holds stock in only two airlines, United and Delta, and its stake in the former is nearly four times its stake in the latter (0.79% versus 0.21%).⁸⁹ VMRGX investors want United and Delta to beat American and Southwest, and where United and Delta compete head-to-head, the investors would prefer that United win business from Delta.

⁸⁵ Vanguard Index Funds, *Vanguard Value Index Fund (Form N-Q)*, File #811-02652 (May 31, 2017).

⁸⁶ Vanguard Index Funds, *Vanguard Growth Index Fund (Form N-Q)*, File #811-02652 (May 31, 2017).

⁸⁷ Vanguard Index Funds, *Vanguard Mid-Cap Index Fund (Form N-Q)*, File #811-02652 (May 31, 2017); Vanguard Index Funds, *Vanguard Mid-Cap Value Index Fund (Form N-Q)*, File #811-02652 (May 31, 2017).

⁸⁸ Vanguard Fenway Funds, *Vanguard PRIMECAP Core Fund (Form N-Q)*, File #811-05445 (Aug. 28, 2017).

⁸⁹ Vanguard Morgan Growth Fund, *Vanguard Morgan Growth Fund (Form N-Q)*, File #811-01685 (Aug. 28, 2017).

- Vanguard’s Mega Cap Growth Index Fund (VMGAX) holds only Southwest stock,⁹⁰ so VMGAX investors want Southwest to steal business from all its rivals. By contrast, investors in Vanguard’s Mega Cap Value Index Fund (VMVLX) want Southwest to lose business to the other major carriers; VMVLX holds American, Delta, and United stock, but no Southwest stock.⁹¹

In short, returns to retail investors in the funds of Vanguard and similar institutions turn on fund performance, and the competitive outcome that maximizes retail investors’ profits will differ among funds.

Proponents of restrictions on common ownership might respond that even if an institutional investor’s individual funds have conflicting preferences, the institutional investor as an entity must have *some* preference about whether to maximize industry profits or the profits of a particular company. Because it cannot honor all its individual funds’ conflicting preferences with respect to competitive outcomes, the institutional investor will settle on the compromise strategy that maximizes its individual funds’ *aggregate* returns: industry profit maximization. Such a strategy would be the first choice of the institution’s funds holding relatively equal shares of all firms within a market. And, while the first choice of the institution’s funds that are disproportionately invested in one firm would be to maximize that firm’s profits, those funds would do better with industry profit maximization than with the first-choice strategy of other of the institution’s funds, i.e., those that are disproportionately invested in different firms. Maximization of industry profits, then, would be each fund’s first or second choice and would constitute the strategy that provides most value to the institutional investor’s funds on the whole.

But even if maximization of industry profits leads to the greatest aggregate returns for an institutional investor’s funds (an unlikely outcome, given that supracompetitive pricing in one industry depresses returns in complementary industries in which the funds are also invested),⁹² such a strategy may not be the best outcome for the institutional investor itself. An institutional investor typically wants to maximize its profits, which will grow as it attracts retail investors into its funds versus those of its competitors and steers those investors toward its highest margin funds—i.e., those that earn it the

⁹⁰ Vanguard World Fund, *Vanguard Mega Cap Growth Index Fund (Form N-Q)*, File #811-01027 (July 28, 2017).

⁹¹ Vanguard World Fund, *Vanguard Mega Cap Value Index Fund (Form N-Q)*, File #811-01027 (July 28, 2017).

⁹² See *supra* notes 72-73 and accompanying text.

greatest profits (fees less costs).⁹³ To assess an institutional investor's preferences with regard to the returns of its different funds, then, one must know (1) the degree to which each fund's attractiveness vis-à-vis rivals' similar funds turns on portfolio returns, and (2) the profit margin each fund delivers to the institutional investor. The less important a fund's returns are to its retail attractiveness, the lower the weight the institutional investor will attach to that fund's returns in determining what competitive outcome the institutional investor prefers. And the higher a fund's profit margin for the institutional investor, the greater the weight the institutional investor will attach to that fund's returns.

For funds tracking popular stock indices, portfolio returns play little role in winning business from rival fund sponsors. (For example, higher returns on the stocks in the S&P 500 are unlikely to attract investors to BlackRock's S&P 500 index fund over Fidelity's or Vanguard's.) Moreover, the fees charged on such funds, and thus the institutional investor's potential profit margins, are extraordinarily low.⁹⁴ For actively managed funds, portfolio returns are far more significant in attracting investors, and management fees are higher. The upshot is that an institutional investor, in determining what competitive outcome it prefers, will attach little weight to the competitive preferences of passive index funds and more weight to the preferences of actively managed funds, with that weight growing as the funds provide the institutional investor with higher profit margins.

It is quite possible, then, for an intra-industry diversified institutional investor to prefer a competitive outcome other than the maximization of industry profits, even in the (unlikely) event that industry

⁹³ This may not be true for Vanguard. It is structured as a "mutual" mutual fund, meaning that the company is owned by its funds, which are owned by retail investors. See VANGUARD, WHY OWNERSHIP MATTERS, available at <https://about.vanguard.com/what-sets-vanguard-apart/why-ownership-matters/>.

⁹⁴ In 2016, the average expense ratio—i.e., annual fees divided by total fund amount—for an equity mutual fund was 0.63%. INVESTMENT COMPANY INSTITUTE, 2017 INVESTMENT COMPANY FACT BOOK, chapter 5 ("Fund Expenses and Fees"), available at http://www.icifactbook.org/ch5/17_fb_ch5. The expense ratios of the major index funds are much lower. See, e.g., FIDELITY INVESTMENTS, *Fidelity 500 Index Fund Fees and Distributions*, available at <https://fundresearch.fidelity.com/mutual-funds/fees-and-prices/315911206> (expense ratio of 0.09%); THE VANGUARD GROUP, *Vanguard 500 Index Fund Admiral Shares Fees & Minimums*, available at https://personal.vanguard.com/us/funds/snapshot?FundIntExt=INT&FundId=0540&funds_disable_redirect=true#tab=3 (expense ratio of 0.04%); BLACKROCK, *BlackRock iShares S&P 500 Index Fund Fees*, available at <https://www.blackrock.com/investing/products/251378/blackrock-s-p-500-stock-fundinstl-class-fund> (expense ratio of 0.11%); STATE STREET GLOBAL ADVISORS, *State Street Equity 500 Index Fund*, available at <https://www.ssgafunds.com/product/fund.seam?ticker=sssyx> (expense ratio of 0.06%).

profit maximization would maximize the aggregate returns of its individual funds.⁹⁵ Consider, for example, an institutional investor that offers funds similar to the following Vanguard funds:

- Vanguard's 500 Index Fund (VFIAX) holds near equivalent interests in American, Delta, Southwest, and United⁹⁶ and would thus do best with a strategy of industry profit maximization. Its expense ratio (annual fees divided by total fund amount) is 0.04 percent.⁹⁷
- Vanguard's Value Index Fund (VIVAX) holds similar stakes in American, Delta, and United but does not hold Southwest stock.⁹⁸ Its expense ratio is 0.18 percent.⁹⁹
- Vanguard's PRIMECAP Core Fund (VPCCX) fund holds a much higher stake in Southwest than in the other airlines¹⁰⁰ and has an expense ratio of 0.46 percent, 2.5 times as great as the no-Southwest VIVAX fund and 11.5 times as high as the fully diversified VFIAX fund.¹⁰¹
- Vanguard's Capital Opportunity Fund (VHCAX) holds significantly higher shares of Southwest and United (1.74% and 1.55%, respectively) than of Delta and American (0.65% and 1.16%, respectively).¹⁰² Its expense ratio is 0.38, more than twice as great as the no-Southwest VIVAX fund and 9.5 times the fully diversified VFIAX fund.¹⁰³

This institutional investor's Southwest-heavy funds (those resembling Vanguard's VPCCX and VHCAX funds) charge much higher fees than its fully diversified index fund (the one resembling VFIAX, for which fund returns are unimportant) and significantly higher fees

⁹⁵ Again, maximization of industry profits is unlikely to maximize the returns of a fund that is inter-industry diversified, as supracompetitive pricing in one industry tends to depress returns in vertically related industries. *See supra* notes 72-73 and accompanying text.

⁹⁶ *See supra* note 84 and accompanying text.

⁹⁷ THE VANGUARD GROUP, *Vanguard 500 Index Fund Admiral Shares Fees & Minimums*, available at https://personal.vanguard.com/us/funds/snapshot?FundIntExt=INT&FundId=0540&funds_disable_redirect=true#tab=3.

⁹⁸ *See supra* note 85 and accompanying text.

⁹⁹ THE VANGUARD GROUP, *Vanguard Value Index Fund Admiral Shares Fees & Minimums*, available at https://personal.vanguard.com/us/funds/snapshot?FundIntExt=INT&FundId=0506&funds_disable_redirect=true#tab=3.

¹⁰⁰ *See supra* note 88 and accompanying text.

¹⁰¹ THE VANGUARD GROUP, *Vanguard PRIMECAP Core Fund Fees & Minimums*, available at https://personal.vanguard.com/us/funds/snapshot?FundIntExt=INT&FundId=1220&funds_disable_redirect=true#tab=3.

¹⁰² Vanguard Horizon Funds, *Vanguard Capital Opportunity Fund (Form N-Q)*, File #811-07239 (Aug. 28, 2017).

¹⁰³ THE VANGUARD GROUP, *Vanguard Capital Opportunity Fund Fees & Minimums*, available at https://personal.vanguard.com/us/funds/snapshot?FundIntExt=INT&FundId=5111&funds_disable_redirect=true#tab=3.

than its funds that are more heavily invested in airlines besides Southwest (those resembling VIVAX). Thus, despite being intra-industry diversified at the institutional level, this institutional investor may do best if Southwest maximizes own-firm profits.

This is not to suggest, of course, that intra-industry diversified institutional investors will never do better with industry rather than own-firm profit maximization. But it does show the impropriety of just assuming, as the common ownership studies do, that an institutional investor that is intra-industry diversified according to Section 13(f) filings has an “economic interest” in the maximization of industry versus own-firm profits. Discerning the institutional investor’s actual economic interest requires drilling down to the level of the individual funds, which the common ownership studies have not done. Thus, contrary to the assertion of the airline study’s authors, the common ownership studies have not shown “empirically” that “taking into account shareholders’ economic interests does help to explain firms’ product market behavior.”¹⁰⁴ Indeed, they have never established what those economic interests are.

2. Failure to Establish a Causal Relationship Between Institutional Investors’ Purported Economic Interests and Market Outcomes

Even if institutional investors’ aggregated holdings accurately revealed their economic interests with respect to competitive outcomes, the common ownership studies would still be deficient because they fail to show that those economic interests *caused* portfolio firms’ “product market behavior.” As explained above, the common ownership studies employ MHHIΔ (or a similar measure)¹⁰⁵ to assess institutional investors’ interest in competition-softening. They then correlate changes in that metric with changes in portfolio firms’ pricing behavior (or similar conduct).¹⁰⁶ The problem is that MHHIΔ is itself affected by factors that independently influence market prices. It is thus improper to infer that changes in MHHIΔ caused changes in portfolio firms’ pricing practices; the pricing changes could have resulted from the very factors that changed MHHIΔ. In other words, MHHIΔ is an endogenous measure.

¹⁰⁴ Azar et al., *supra* note 30, at 6.

¹⁰⁵ The banking study utilizes GHHI, an analog to MHHIΔ. See *supra* note 39 and accompanying text.

¹⁰⁶ See *supra* notes 25-32, 38-42 and accompanying text. The banking study, which has been less influential than the airline study, correlates GHHI itself (not changes in the metric) with various pricing practices. Despite this difference, the endogeneity criticism discussed in the text following this note still applies.

To see why this is so, consider how MHHI Δ is calculated. As Appendix A explains, determining the MHHI Δ for a market essentially involves a three-step process. The first step is to assess, for every coupling of competing firms in the market (e.g., Southwest/Delta, United/American, Southwest/United, etc.), the degree to which the controlling investors in each of the firms would prefer that it avoid competing with the other. The second step considers the market shares of the two firms in the coupling to determine the competitive significance of their incentives not to compete with each other. (The idea is that reduced head-to-head competition by bit players matters less for overall market competition than does reduced competition by major players.) The final step is to aggregate the effect of common ownership-induced competition-softening throughout the overall market by summing the softened competition metrics for each coupling of competitors within the market.

Given this process for calculating MHHI Δ , there are at least two sources of endogeneity in the metric. One arises because of the second step. To assess the significance to market competition of any two firms' incentives to reduce competition between themselves, the market shares of those two firms must be incorporated into the metric. But factors that influence market shares may also influence market prices apart from any common ownership effect.

Suppose, for example, that five institutional investors hold significant and equal stakes (say, 3%) in each of the four airlines servicing a particular air route and that none of the airlines has another significant shareholder. The air route at issue is subject to seasonal demand fluctuations. In the low season, the market is divided among the four airlines so that one has 40% of the business and the other three have 20% each. The MHHI Δ for this market would be 7200. When the high season rolls around, demand for flights along the route increases, but the leading airline is capacity constrained, so additional ticket sales go to the other airlines. The market shares of the airlines in the high season are equal: 25% each.

On these facts, the increase in demand causes MHHI Δ to rise from 7200 to 7500. But the increase in demand is also likely to raise ticket prices. We thus see an increase in MHHI Δ that correlates with an increase in ticket prices, but the price change is not caused by the change in MHHI Δ . Instead, the two changes have a common, independent cause.

Endogeneity also creeps in during the third step in calculating MHHI Δ . In that step, the "cross MHHI Δ s" of all the couplings in the market—the metrics assessing for each coupling the extent to which common ownership will cause the two firms to compete less vigorously—are summed. Thus, as the number of firms participating in

the market (and thus the number of couplings) increases, the MHHI Δ will tend to rise. While HHI (the market concentration measure) will decrease as the number of competing firms rises,¹⁰⁷ MHHI Δ (the measure of common ownership pricing incentives) will increase.

For example, suppose again that five institutional investors hold equal stakes (say, 3%) of each airline servicing a market and that the airlines have no other significant shareholders. If there are two airlines servicing the market and their market shares are equivalent, HHI will be 5000, MHHI Δ will be 5000, and MHHI (HHI + MHHI Δ) will be 10000. If a third airline enters and grows so that the three airlines have equal market shares, HHI will drop to 3333, MHHI Δ will rise to 6667, and MHHI will remain constant at 10000. If a fourth airline enters and the airlines split the market evenly, HHI will fall to 2500, MHHI Δ will rise further to 7500, and MHHI will again total 10000.

This is problematic, because the number of participants in the market is affected by consumer demand, which independently influences market prices. In the market described above, for example, the third or fourth airline might enter the market in response to an increase in demand, and that increase might simultaneously cause market price to rise. We would see, then, a price increase that is correlated with, but not caused by, an increase in MHHI Δ ; increased demand would be the cause of both the higher prices and the increase in MHHI Δ .

As explained above, the authors of the airline study attempted to address these endogeneity concerns by considering how MHHI Δ correlated with passenger volume.¹⁰⁸ They reasoned that if changes in demand, rather than common ownership, were driving ticket prices, there would be a positive correlation between MHHI Δ and passenger volume. In fact, they found the opposite: higher MHHI Δ correlated with lower passenger volume.¹⁰⁹ From that finding, they inferred that higher prices accompanying increased MHHI Δ must be caused by common ownership-induced competition-softening rather than by increased demand.

This analysis of passenger volume, however, does not eliminate the endogeneity concerns. MHHI Δ is determined in part by market shares; it rises as commonly owned firms command greater shares of

¹⁰⁷ Recall that HHI is the sum of the squares of the market shares of firms participating in the market. *See supra* note 26 and accompanying text. With two equal-size firms (50% market share), HHI is 5000. With three equal-sized firms (33.3% market share), HHI is 3333.

¹⁰⁸ *See supra* notes 33-34 and accompanying text.

¹⁰⁹ Azar et al., *supra* note 22, at 23-24.

the market. Because smaller airline markets—those with lower passenger volume—tend to attract fewer carriers, the carriers servicing those routes will tend to have higher market shares. Thus, one would expect MHHIA to be higher in markets with lower passenger volume. That is not because common ownership results in a reduction in quantity supplied, as the authors of the airline study assume. Rather, it is because of the way MHHIA is constructed.¹¹⁰

Subsequent studies that have attempted to correct the endogeneity deficiencies in the airline study have found no statistically significant price increase resulting from common ownership by institutional investors. One such study, by Pauline Kennedy, Daniel O'Brien, Minjae Song, and Keith Waehrer, first replicated the original airline study using its empirical methodology and obtained similar results.¹¹¹ The authors then analyzed the same data using a different empirical approach: They correlated fares not with the endogenous MHHIA measure but with “common ownership incentive terms,” metrics designed to assess the weight that firm managers place on the profits of rival firms when making management decisions.¹¹² After running further tests to eliminate any remaining endogeneity, the authors found “either no relationship or a negative relationship between price and each common ownership index.”¹¹³ At a

¹¹⁰ The authors' attempt to alleviate endogeneity concerns via their analysis of BlackRock's acquisition of Barclay's Global Investors (BGI) similarly falls short. The authors calculate an “implied change” in MHHIA by comparing the actual MHHIA in 2009Q1, the quarter immediately prior to the announcement of the acquisition, to what the MHHIA would have been in 2009Q1 if the holdings of BlackRock and BGI were combined into a single holding. Azar et al., *supra* note 22, at 20. The authors fail to recognize that the implied change in MHHIA reflected not only the change in ownership across airlines, but also the market shares of airlines in each market. In smaller markets with few airlines (i.e., few potential couplings), the likelihood of a large implied change is lower because there are fewer potential couplings through which the incentive to soften competition would take place. In larger markets, with more potential couplings, the increase in the implied MHHIA would be larger. Consequently, the implied change in MHHIA reflects not only implied differences in ownership, but differences in markets themselves. Since larger markets served by multiple airlines are also more likely than small markets to experience increased demand and increased prices, the authors' finding of a positive correlation between implied change in MHHIA and price increases is, once again, spuriously determined.

¹¹¹ Pauline Kennedy, Daniel P. O'Brien, Minjae Song & Keith Waehrer, *The Competitive Effects of Common Ownership: Economic Foundations and Empirical Evidence* 14 (2017) (unpublished manuscript), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3008331.

¹¹² *Id.* at 4.

¹¹³ *Id.* at 5.

minimum, this finding calls into question the robustness of the original airline study, whose results appear to turn on a particular—and questionable—empirical methodology.¹¹⁴

Patrick Dennis, Kristopher Gerardi, and Carola Schenone similarly found no anticompetitive effect from common ownership when they replicated the original airline study using a different metric for common ownership incentives.¹¹⁵ The authors used an econometric instrument that is specific to the airline industry and is designed to account for the fact that “concentration causes price, but price also causes concentration.”¹¹⁶ Their instrumental variable analysis found “no correlation between common ownership concentration and average prices.”¹¹⁷

Dennis, Gerardi, and Schenone also conducted a number of other analyses that call into question the robustness of the original airline study. First, they eliminated “regression weighing” (weighing regressions by passenger counts) on grounds that it is unjustified in this context.¹¹⁸ That change alone either eliminated or drastically reduced the effect of MHHIA on average fares.¹¹⁹ The authors then made four changes to the dataset to prevent potential distortions: (1) they omitted “code-shared” and “interline” tickets, both of which involve multiple carriers on an itinerary, to eliminate uncertainty about which carrier set the fare;¹²⁰ (2) they eliminated first and business class tickets (which are more desirable than non-stop coach tickets) as well as tickets with a stopover (which are less desirable than

¹¹⁴ Kennedy et al. do not purport to have “proven” that common ownership has no, or a negative, effect on airfares. They “view [their] price regressions as a robustness analysis of the results of [the original airline study] rather than a robust analysis of common ownership effects.” *Id.* at 14.

¹¹⁵ See Patrick Dennis, Kristopher Gerardi & Carola Schenone, *Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry* (Feb. 2018) (unpublished manuscript), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3063465. The authors of the original airline study maintain that Dennis et al. did not accurately replicate the original study’s dataset, rendering the second study “of limited usefulness in showing the effect of deviations from [the original study’s] empirical specifications.” José Azar, Martin C. Schmalz, & Isabel Tecu, *Reply to: “Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry”* (May 2018) (unpublished manuscript), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3168095. Even if the replication by Dennis et al. was deficient, the divergent findings of the second study would seem to undermine the robustness of the original airline study’s results.

¹¹⁶ Dennis et al., *supra* note 115, at 5 (quoting William N. Evans, Luke M. Froeb, and Gregory J. Werden, *Endogeneity in The Concentration-Price relationship: Causes, Consequences, and Cures*, 41 J. INDUS. ECON. 431, 431–38 (1993)).

¹¹⁷ *Id.* at 4 (emphasis omitted).

¹¹⁸ *Id.* at 12-14.

¹¹⁹ *Id.*

¹²⁰ *Id.* at 2-3.

non-stop coach tickets) so as to assure apples-to-apples comparisons;¹²¹ (3) they set shareholders' control rights to zero during periods of airline bankruptcy, when managers' fiduciary duties run to creditors rather than to equity holders;¹²² and (4) they assessed institutional investors' control based only on shares over which they possessed "sole," not "shared," voting rights.¹²³ When these sensible adjustments were made, the anticompetitive effect observed in the original airline study disappeared.¹²⁴

It thus seems that the airline and banking studies suffer from intractable endogeneity problems and that the airline study, the more influential of the two, is subject to a number of other methodological difficulties that render its results far from robust. Empirical evidence is not, then, the trump card that proponents of common ownership restrictions believe it to be.

II. Problems with the Solutions

Even if common ownership by institutional investors did cause some degree of competition-softening in oligopolistic industries, the solutions scholars have proposed for addressing that problem would not be justified. The existence of a welfare-reducing defect in private ordering—e.g., a market failure—is a necessary *but insufficient* condition for a regulatory fix. Because regulatory intervention inevitably entails costs, policymakers should always ask whether those costs would exceed the social losses the proposed intervention would avert. They should intervene in private ordering only if confident that their intervention would enhance social welfare. And, in choosing among possible regulatory approaches (including the possibility of doing nothing) they should select the one that is cost-minimizing.¹²⁵

Such analysis requires consideration of three potential costs. First, there are the losses that result from wrongly condemning or discouraging welfare-enhancing behavior. Such "Type I" errors result

¹²¹ *Id.*

¹²² *Id.* at 15-16.

¹²³ *Id.* at 17. In their Section 13(f) filings, institutional investors must list the number of shares they hold in a company and classify their voting rights with respect to those shares as either "none" (e.g., the institution holds the shares but has no right to vote them), "sole" (e.g., the institution holds the shares and has exclusive discretion over how they are voted), or "shared" (e.g., the institution holds the stock and shares with another the discretion about how it is voted). Azar et al. adopted the questionable assumption that an institutional investor controls the shares over which it possesses only shared voting control. *See id.* at 4.

¹²⁴ *Id.* at 18.

¹²⁵ *See generally* THOMAS A. LAMBERT, HOW TO REGULATE: A GUIDE FOR POLICYMAKERS 10-15 (2017).

when a ban reaches too far. Losses also stem from the failure to condemn welfare-reducing instances of the conduct at issue. Prohibitions that are under-inclusive generate such “Type II” errors. Taken together, the welfare losses resulting from a regulatory approach’s false convictions and false acquittals comprise the approach’s error costs.¹²⁶ The third set of costs are those entailed in administering the rule: Planners for regulatees incur costs in determining what conduct is forbidden and what permitted, and adjudicators incur costs in deciding whether challenged behavior was or was not allowed. These costs to planners and adjudicators collectively comprise a regulatory approach’s decision costs.¹²⁷

The three sets of costs—Type I error costs, Type II error costs, and decision costs—are intertwined. As one of us has elsewhere explained,

Shrinking the scope of a rule’s prohibition to avoid false convictions enhances the risk of false acquittals. Conversely, expanding the prohibition to avoid false acquittals threatens an increase in false convictions. Attempting to minimize both false convictions and false acquittals simultaneously by adding in exceptions and other nuances raises decision costs. . . . As in a game of whack-a-mole, pushing down costs in one spot just causes them to rise somewhere else.¹²⁸

In light of this inexorable tension, policymakers should not try to achieve perfection along any single dimension. Rather than seeking to deter all bad behavior, encourage all good behavior, or lower decision costs as much as possible, they ought to optimize—that is, they should implement the regulatory approach most likely to minimize the sum of error and decision costs.¹²⁹

With respect to common ownership by institutional investors, the optimal approach is almost certainly not one of those proposed by the scholars who have called for enhanced antitrust intervention. To see why this is so, consider the decision and error costs that would result from their proposals.¹³⁰

¹²⁶ *Id.* at 10.

¹²⁷ *Id.* at 11.

¹²⁸ *Id.* at 11-12.

¹²⁹ *Id.* at 12-13.

¹³⁰ Some may quibble with our characterization of an antitrust solution as a “regulatory” approach. While antitrust does not consist of *ex ante* regulation, we deem it to be regulatory in the sense that it consists of legal directives that extend beyond the common law and are aimed at addressing a welfare-reducing defect in private ordering (i.e., market power). See generally Lambert, *supra* note 125, at 2-4 (defining regulation).

a. Decision Costs

i. Elhaug's Section 7 Approach

The leading proposal for addressing competition concerns arising from common ownership is to use Section 7 of the Clayton Act to police horizontal shareholding in oligopolistic industries.¹³¹ While the terms of Section 7 make it illegal to “acquire” stock when doing so would substantially lessen competition in a market,¹³² Elhaug and other proponents of a Section 7 approach would assign liability not on the basis of investors’ discrete acquisitions of stock but on the basis of their *aggregate ownership* of stakes in competing firms.¹³³ Aggregating acquisitions appears consistent with Supreme Court precedents on Section 7 and would be necessary to prevent institutional investors

¹³¹ See Elhaug, *supra* note 2, at 1302-04. Elhaug has also argued that such common ownership could be a combination in restraint of trade, creating liability under Sherman Act Section 1, 15 U.S.C. §1. Einer Elhaug, *New Evidence, Proofs, and Legal Theories on Horizontal Shareholding* 29-33, January 4, 2018 Working Paper, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3096812 (hereinafter, “Elhaug, *New Evidence*”); see also Fiona Scott Morton & Herbert Hovenkamp, *Horizontal Shareholding and Antitrust Policy* 10, __ YALE L. J. __ (forthcoming 2018), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3046203 (discussing possibility that horizontal shareholding could give rise to Section 1 violation). A Section 1 theory would likely be less attractive to plaintiffs than a Section 7 theory. Section 1 prohibits only “unreasonable” restraints of trade, see *Chicago Board of Trade v. United States*, 246 U.S. 231, 238 (1918), and under a Rule of Reason analysis, intra-industry diversified institutional investors could argue that the complained of horizontal “combination” (ownership of minority stakes in competing firms) was reasonable because it facilitated the creation of a valuable product: a highly diversified mutual fund with extremely low costs because of the lack of any need to exercise investment discretion. See *Broadcast Music, Inc. v. CBS, Inc.*, 441 U.S. 1, 21-23 (1979) (restraint of trade was reasonable where it facilitated creation of a new product). Because Section 7 has been interpreted to forbid crediting extra-market efficiencies in determining whether an acquisition lessens competition in a particular market, see *United States v. Philadelphia National Bank*, 374 U.S. 321, 370 (1963) (rejecting argument that reduced competition in market for smaller loans could be offset by efficiencies in a different market for larger loans); see also 4A PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶972 (4th ed. 2015), defendants would have less success with a reasonableness defense in a Section 7 action.

¹³² 15 U.S.C. § 18 (“No person shall acquire ... any part of the stock ... of one or more persons engaged in commerce ..., where in any line of commerce ... the effect of such acquisition ... may be substantially to lessen competition...”).

¹³³ Elhaug, *New Evidence*, *supra* note 131, at 8; Scott Morton & Hovenkamp, *supra* note 131, at 21 (“Section 7 enables the agency to reach back in time and accumulate small purchases, which is critical in enforcement against institutional investors.”).

from evading liability by amassing significant common ownership in a piecemeal fashion.¹³⁴

The touchstone for liability, then, would be any pattern of horizontal shareholding that could substantially lessen competition within some market. The most likely means of identifying such an illicit pattern of ownership would be through the use of MHHI Δ or a similar metric. Indeed, Elhauge has proposed MHHI-based thresholds for public enforcement, suggesting that the federal antitrust agencies “should investigate any horizontal stock acquisitions that have created, or would create, a Δ MHHI of over 200 in a market with an MHHI over 2500, in order to determine whether those horizontal stock acquisitions raised prices or are likely to do so.”¹³⁵ Liability would presumably result where (1) common ownership has led to a market in which MHHI and MHHI Δ exceed 2500 and 200, respectively (or some similar thresholds); and (2) there are indications that common ownership has had, or threatens, an adverse price effect in that market.¹³⁶

The decision costs of this approach—the costs of planning and adjudication—would be quite significant. With respect to adjudication, a court or other tribunal would have to accomplish at least five tasks, each of which is difficult:

1. The court would first have to define the relevant product and geographic market. Market definition is of course required in much antitrust adjudication, but it is never an easy task. In the airline study, for example, there have been questions about whether the product market should include only economy tickets or first class as well¹³⁷ and whether the geographic market should be defined according to airport pairings (Dulles to O’Hare) or city pairings (Washington, D.C. to Chicago).¹³⁸
2. Having defined a product market of appropriate geographic scope, the court would have to determine MHHI and MHHI Δ for that market. This is a routine, but hardly simple, calculation, as Appendix A reveals. Moreover, because MHHI and MHHI Δ depend in part on institutional investors’ control

¹³⁴ *United States v. ITT Continental Baking Co.*, 420 U.S. 223, 241 (1975) (observing that “‘acquisition’ can mean, and in the context of 7 of the Clayton Act does mean, both the purchase of rights in another company and the retention of those rights”).

¹³⁵ Elhauge, *supra* note 2, at 1303. Elhauge has also called for enforcement by state attorneys general through *parens patriae* actions and for private class action lawsuits by aggrieved consumers. *Id.* at 1304.

¹³⁶ As explained above, the MHHI and MHHI Δ thresholds that would give rise to potential antitrust liability (2500 and 200, respectively) are both arbitrary and, in light of the upper limit of MHHI Δ , quite low. *See supra* note 51.

¹³⁷ *See supra* note 121 and accompanying text.

¹³⁸ *See supra* note 29 and accompanying text.

rights,¹³⁹ disputes are sure to ensue over how to assess an institutional investor's control where, for example, a period of bankruptcy has shifted managers' fiduciary duties in favor of debtholders,¹⁴⁰ or where the institutional investor shares voting rights with beneficial owners,¹⁴¹ or where the issuing firm has multiple classes of stock possessing different control rights. Adjudicators would have to resolve these thorny disputes in order to calculate MHHI and MHHIA.

3. Once they determined that the relevant MHHI and MHHIA thresholds were met, adjudicators would have to decide whether the evidence showed that common ownership in the relevant market had caused, or threatened to cause, an anti-competitive effect. In markets in which an econometric study had been performed, the adjudicator would have to assess the study's empirical methodology and any criticisms thereof. If the plaintiff sought to show threatened harm by citing empirical evidence from another market, the adjudicator would have to assess the robustness of that evidence for the market studied *and* determine whether that comparator market was similar enough to support inferences about likely competitive effects in the market at issue. The complicated disputes over the methodologies employed in the airline and banking studies suggest that these sorts of questions would exceed the competence of most judges and virtually all juries.
4. Having concluded that common ownership caused an anti-competitive effect in a market, the adjudicator would have to determine the magnitude of that effect. Quantifying the damage (e.g., overcharge) occasioned by common ownership would be nigh unto impossible. Indeed, in the airline study, the range of overcharge purportedly resulting from common ownership was from three to twelve percent.¹⁴² An adjudicator deciding an actual case would have to settle on something more precise than that.
5. Finally, the adjudicator would have to answer a nearly intractable question: How should the economic harm from common ownership be allocated among the investors holding stakes in multiple firms in the industry? As Posner et al. have observed, "MHHIA is a collective responsibility of the holding pattern" in markets in which there are multiple intra-industry diversified

¹³⁹ See O'Brien & Waehrer, *supra* note 28, at 737-38; Posner et al., *supra* note 3, at 682-83.

¹⁴⁰ See *supra* note 122 and accompanying text.

¹⁴¹ See *supra* note 116 and accompanying text.

¹⁴² See *supra* note 32 and accompanying text.

investors.¹⁴³ It would not work to assign liability only to those diversified investors who could substantially reduce MHHI Δ by divesting, for oftentimes the unilateral divestment of each institutional investor from the market would occasion only a small reduction in MHHI Δ .¹⁴⁴ An aggressive court might impose joint liability on all intra-industry diversified investors, but the investor(s) from whom plaintiffs collected would likely seek contribution from the other intra-industry diversified investors. Denying contribution seems intolerably inequitable, but how would a court apportion damages?

As great as the decision costs for adjudicators would be under a Section 7 approach, the decision costs facing business planners would likely swamp them. Like adjudicators, planners for institutional investors would first have to define relevant antitrust markets (product markets of appropriate geographic scope). But whereas an adjudicator would have to define the contours of only the market in which anticompetitive harm is alleged, planners seeking to avoid liability would have to define every market in which their portfolio companies from the same industry competed, either as output sellers or as input buyers.¹⁴⁵

For each such market, then, business planners would have to calculate MHHI and MHHI Δ to ensure that at least one of those metrics remained below the threshold of concern (e.g., 2500 for MHHI, 200 for MHHI Δ). Institutional investors could not avoid liability simply by refraining from any activity that would encourage their portfolio companies to hold back on market competition, for the underlying theory of anticompetitive harm assumes that competition-softening will occur without any action from institutional investors.¹⁴⁶ This means

¹⁴³ Posner et al., *supra* note 3, at 693.

¹⁴⁴ *Id.* at 692-93 (offering example to illustrate that unilateral divestment may have little effect on MHHI Δ).

¹⁴⁵ This is because Section 7 forbids stock acquisitions that substantially lessen competition “in any line of commerce.” 15 U.S.C. § 18.

¹⁴⁶ According to Elhauge:

The problem is structural. Horizontal shareholders clearly benefit less from competition among the firms in which they are invested. Corporate rights and markets are designed to make sure managers primarily operate corporations in the interests of their shareholders. Thus, increased horizontal shareholdings will structurally lead businesses to compete less vigorously against each other. This anticompetitive effect does not require any communication between the managements of different corporations, because each corporation’s management has its own incentives to compete less in order to please its own shareholders. Nor does the anticompetitive effect require any communication between shareholders and managers, because managers know whether their leading shareholders are

that the only way to avoid liability would be to abstain from common ownership in markets in which MHHI and MHHI Δ exceed the relevant thresholds.

But it would not be enough just to ensure that MHHI or MHHI Δ was sufficiently low at the time the institutional investor acquired stakes in competing firms. To ensure against antitrust liability, planners for institutional investors would have to engage in perpetual monitoring of the markets in which their portfolio companies compete to see if MHHI and MHHI Δ had changed. Because a market's MHHI and MHHI Δ are influenced by the market shares of participating firms, the ownership percentages of intra-industry diversified investors, and the ownership percentages of non-diversified shareholders,¹⁴⁷ an institutional investor holding stakes in competing firms could find itself at risk of antitrust liability if the market shares of its portfolio firms rose, if other intra-industry diversified investors altered their holdings of firms within the industry, or if major non-diversified shareholders reduced their stakes.¹⁴⁸ Planners for an institutional investor holding stakes in competing firms would have to recalculate MHHI and MHHI Δ on a near daily basis to ensure that the investor's stockholding—the one thing the investor can control—could not be deemed to have contributed to a softening of competition.

Of course, there are two ways planners for institutional investors could avoid these enormous decision costs. They could refrain from performing the analysis set forth above, continue their current investment strategies, and just “roll the dice” on potential antitrust liability, hoping that adverse price effects would not occur in the markets in which their portfolio companies compete. Alternatively, they could abandon their current investment strategies and refrain from holding stakes in multiple firms that compete in any markets that might be deemed oligopolistic.¹⁴⁹ If they took the former tack, a Section 7 approach would create no benefit in terms of deterring anticompetitive

horizontal and know that lessening competition benefits those shareholders.

Elhauge, *supra* note 29, at 2. *See also* Posner et al., *supra* note 3, at 685-86 (discussing how competition-softening could occur without investor action).

¹⁴⁷ *See supra* notes 28-29 and accompanying text. *See also* Appendix A (describing process for calculating MHHI Δ).

¹⁴⁸ *See* Posner et al., *supra* note 3, at 692-94.

¹⁴⁹ Elhauge has suggested that institutional investors could reduce the risk of antitrust liability, while holding stakes in competing firms, if they committed not to vote their shares or to engage in “mirror voting” (i.e., voting their shares in proportion to how all other shares were voted). Elhauge, *supra* note 2, at 1315. He concedes, though, that such a strategy could not guarantee that antitrust liability would not ensue. *Id.* (“This alternative of avoiding any voting influence lowers the risk of antitrust liability, but it may not eliminate that risk because such nonvoting stock might still influence management in anticompetitive ways.”). Because the

harm and would amount to no more than a costly redistribution scheme. If they pursued the latter strategy, the savings in decision costs would come at the expense of a significant increase in error costs. We describe those error costs in Section III.b below.¹⁵⁰

First, though, we consider whether the enforcement policy proposed by Eric Posner, Fiona Scott Morton, and Glen Weyl could reduce the decision costs that would result from using Section 7 to police investors' intra-industry diversification.

ii. Posner et al.'s Enforcement Policy

Posner et al. agree that Section 7 should be used to restrict common ownership by institutional investors. They are concerned, though, that Section 7 litigation could create "chaos" in the absence of "clear guidelines for when such cases would or would not be brought."¹⁵¹ Accordingly, they advocate "an enforcement policy issued by the DOJ and the FTC analogous to the [Horizontal Merger] Guidelines."¹⁵²

Under the proposed policy, the enforcement agencies would compile annual lists of industries deemed oligopolistic.¹⁵³ The agencies would then direct their enforcement resources against institutional investors that (1) owned at least 1% of the outstanding equity in one of those industries, (2) held shares of multiple firms within the industry, and (3) did not commit to being fully passive, which entails (a)

precise mechanism by which common ownership has its purported effect on competition has not been identified, *see* Hovenkamp & Scott Morton, *supra* note 131 at 5 ("The theory literature to date does not identify what mechanism funds may use to soften competition."), institutional investors that committed to refrain from voting or to engage in mirror voting would run the risk that an adjudicator would decide that firm managers defer to the interests of even passive investors. For example, a court might decide that managers are influenced by the threat that institutional investors will sell their shares, causing an adverse effect on the company's stock price. *See* Posner et al., *supra* note 3, at 712 (explaining that pure passivity requires more than just abstention from voting, given that institutional investors may exercise influence via threats of exit).

¹⁵⁰ *See infra* notes 167-199 and accompanying text.

¹⁵¹ Posner et al., *supra* note 3, at 691.

¹⁵² *Id.* at 709.

¹⁵³ The proposed enforcement policy contemplates that

[p]rior to the start of each calendar year, the DOJ and FTC would make a list of industries constituting *oligopolies*.... There would be some mechanism to solicit comments from any interested parties. The DOJ and FTC would then finalize the list with at least a month before the beginning of the new year to allow the institutional investors time to rearrange their holdings to comply with the policy.

Id. at 708-09 (emphasis in original).

refraining from communication with portfolio firms within the industry, (b) engaging only in “mirror voting” (i.e., voting one’s shares in proportion to the overall shareholder vote), and (c) following a clear, verifiable investment strategy that eliminates investment discretion and thereby precludes divestments that could punish the managers of portfolio firms.¹⁵⁴ Under such a policy, an institutional investor could avoid liability by either (1) holding less than 1% of the equity in an oligopolistic industry, (2) owning stock in only one firm within such an industry, or (3) committing to full passivity, as defined.

On first glance, this enforcement policy might appear to reduce decision costs: Business planners would have to do less investigation to avoid liability if they could rely on trustworthy, easily identifiable safe harbors; adjudicators’ decision costs would fall if the enforcement policy made it easier to identify illicit investment patterns. Upon further reflection, however, the proposed enforcement policy appears unlikely to reduce the decision costs of business planners and adjudicators. Moreover, it would impose tremendous new decision costs on the public enforcement agencies.

To see why the enforcement policy is unlikely to reduce the decision costs of planners and adjudicators, consider the possible effects it could have in private antitrust lawsuits:

1. ***No Effect (Neither Sword nor Shield)***. The enforcement policy might operate as no more than a genuine enforcement policy—i.e., an ex ante statement of the circumstances under which the public enforcement agencies may take action against an institutional investor.¹⁵⁵ If the influence of the policy were so limited, it would have no effect in private lawsuits against intra-industry diversified investors.
2. ***Sword but not Shield***. Courts could venture beyond the stated effect of the enforcement policy and view it as setting forth a sufficient, but not necessary, condition for antitrust liability. In other words, they might conclude that investment behavior

¹⁵⁴ *Id.* at 712.

¹⁵⁵ That is, of course, the official effect of enforcement policies. As experience with the Horizontal Merger Guidelines has shown, however, adjudicators often do not afford antitrust enforcement policies such limited effect. *See, e.g.*, *Chicago Bridge & Iron Co. v. FTC*, 534 F.3d 410, 431 n.11 (5th Cir. 2008) (“Merger Guidelines are often used as persuasive authority when deciding if a particular acquisition violates anti-trust laws.”); *United States v. Kinder*, 64 F.3d 757, 771 & n.22 (2d Cir. 1995) (“Although it is widely acknowledged that the Merger Guidelines do not bind the judiciary in determining whether to sanction a corporate merger or acquisition for anticompetitive effect . . . courts commonly cite them as a benchmark of legality.”); *Cal. v. Sutter Health Sys.*, 130 F. Supp. 2d 1109, 1120, 1128–32 (N.D. Cal. 2001) (“Although the Merger Guidelines are not binding, courts have often adopted the standards set forth in the Merger Guidelines in analyzing antitrust issues.”).

that could give rise to enforcement under the policy would subject an investor to private antitrust liability, but an investor would not be automatically exonerated by investing in a manner that would not invite public enforcement action. This would allow private plaintiffs to use the policy offensively, but it would provide no defense to defendants.

3. ***Shield but not Sword.*** Conversely, courts might treat the enforcement policy as stating a necessary, but insufficient, condition for antitrust liability. Were courts to follow this approach, investors could ensure against liability by investing in a way that would not draw public enforcement. But, if investors did not remain within the safe harbor, plaintiffs would have an opportunity to prove Section 7 liability by establishing that the defendant's common ownership contributed to MHHI and MHHI Δ above certain thresholds in some market, causing actual or threatened anticompetitive effects in that market.
4. ***Both Sword and Shield.*** Finally, courts might maximally simplify their task by allowing the enforcement policy to define fully the contours of Section 7 liability, stating both a sufficient and a necessary condition for such liability. In other words, they might reason that investors whose pattern of holdings would invite public enforcement had violated Section 7, but that those whose investments would not attract public enforcement were immune from liability.

Whether and to what extent Posner et al.'s enforcement policy would reduce decision costs would depend on which of these treatments courts afforded the policy. If courts viewed the policy as having no effect in private lawsuits (public enforcement policy only) or as setting forth sufficient but not necessary conditions for antitrust liability (sword but not shield), the policy would have little or no effect on decision costs. Because private lawsuits could proceed against even investors whose holdings would not invite public enforcement action, institutional investors would still have to assess their liability risk by determining MHHI and MHHI Δ in all markets in which they were intra-industry diversified. And, if such private lawsuits were filed, adjudicators would have to engage in all of the analysis described above.

The proposed enforcement policy might reduce some decision costs if courts treated the policy as creating a safe harbor in private lawsuits, a result of the third and fourth approaches discussed above. If courts viewed the enforcement policy as fully defining the contours of Section 7 liability (both sword and shield), then neither business planners nor adjudicators would have to define markets, measure MHHI and MHHI Δ , or determine whether common ownership had caused or

threatened an anticompetitive effect; all planners and adjudicators would have to decide is whether the investor (1) held more than 1% of the equity in an industry declared oligopolistic, (2) owned stock in multiple competitors in that industry, and (3) was not fully passive, as defined, within the industry. If courts treated the policy as stating necessary but not sufficient conditions for liability (shield but not sword), business planners and adjudicators could avoid the decision costs discussed above if, but only if, each investor held stock in a pattern that would not invite public enforcement.¹⁵⁶

It is highly unlikely, though, that courts would view the proposed enforcement policy as creating a safe harbor in private antitrust litigation. In what is surely an understatement, Posner et al. acknowledge that “[t]he creation of [the oligopolies] list may be a substantial effort if the agencies attempt to exhaustively analyze every industry in the United States at one time.”¹⁵⁷ They say that “the agencies should begin the list with industries where there is empirical evidence of competition problems due to common ownership or other clear empirical evidence of concentration” and add to it annually “[a]s different types of evidence accumulate over time.”¹⁵⁸ The proposed policy thus contemplates that the list of oligopolistic industries, at least at the outset, will not be exhaustive. Moreover, because industry structures change all the time, there could be no assurance that the list of oligopolies was complete at any particular moment. A court could not very well conclude that failure to attract public enforcement *under an admittedly under-inclusive screening mechanism* should imply legality. Accordingly, the proposed enforcement policy would not create a reliable safe harbor and therefore would not reduce decision costs substantially.

Instead, the proposed enforcement policy would cause decision costs to skyrocket by saddling the enforcement agencies with the herculean task of compiling annual lists of oligopolies. For at least four reasons, the decision costs associated with that undertaking would far outweigh those the agencies incur in performing their most closely analogous task, defining antitrust markets in merger cases:¹⁵⁹

¹⁵⁶ If an investor chose to exit the safe harbor, its business planners would need to engage in the aforementioned analysis to assess antitrust risk, and, if it were sued, adjudicators would have to incur the costs of determining whether the Section 7 liability test was satisfied.

¹⁵⁷ Posner et al., *supra* note 3, at 698.

¹⁵⁸ *Id.*

¹⁵⁹ Even the relatively “simple” task of defining markets in merger cases has often proven difficult for the agencies. In recent years, for example, antitrust enforcers have had to resolve such thorny disputes as whether there is a separate market consisting of “premium natural and organic supermarkets” that is separate from the market consisting of conventional supermarkets, *see Fed. Tr. Comm’n v. Whole*

- **A Greater Volume of Decisions.** In recent years, around 50 merger reviews per year have proceeded to the point at which precise market definition is required.¹⁶⁰ The proposed enforcement policy, by contrast, would require the agencies to evaluate thousands of industries to determine if they might be oligopolistic.
- **More Difficult Questions.** In merger review, antitrust “market” has come to mean something fairly precise: a grouping of products or services, within a particular geographic area, where the cross-elasticity of demand for the products within the geographic boundaries is sufficiently high that a hypothetical single seller could not profitably impose a small but significant, non-transitory increase in price (SSNIP).¹⁶¹ The term “industry,” by contrast, has no such economically informed, tractable definition.¹⁶² Absent some sort of metric like the SSNIP test, defining the boundaries of an industry in any non-arbitrary fashion will be quite difficult. Moreover, once an industry is defined, there will have to be criteria for declaring it to be oligopolistic. How many competitors must there be, and of what scale, for a market not to be oligopolistic? And what percentage of markets within an industry must be oligopolies before the industry itself is oligopolistic? These are difficult questions for which answers do not currently exist.

Foods Mkt., 548 F.3d 1028 (D.C. Cir. 2008); whether top-loading washers and dryers are in the same product market as front-loading units, *see* DIANA MOSS, ANTI-TRUST ANALYSIS OF WHIRLPOOL’S PROPOSED ACQUISITION OF MAYTAG 5-10 (Am. Antitrust Inst. 2006), available at <http://www.antitrustinstitute.org/files/477.pdf>; and whether there is a separate market, which would not include Amazon and Walmart, for retail provision of consumable office supplies to large business-to-business consumers, *see* MICHAEL B. BERNSTEIN, JUSTIN P. HEDGE, & FRANCESCA M. PISANO, FTC’S SUCCESS IN STAPLES/OFFICE DEPOT SHOWCASES TRENDS IN AGENCY MERGER ENFORCEMENT STRATEGY (Arnold & Porter Advisory Alert, June 8, 2016), available at <https://www.arnoldporter.com/en/perspectives/publications/2016/06/ftcs-success-in-staples-office-depot>.

¹⁶⁰ In fiscal year 2016, for example, 238 mergers were cleared to one of the enforcement agencies for review, meaning that there was enough concern about a potential competitive problem to justify careful consideration of whether to make a “second request” for information from the merging parties. In only 54 of those cases did an agency actually issue a second request. Merger challenges were initiated in 47 cases, and only nine of those resulted in the filing of a complaint in court. U.S. FED. TR. COMM’N, HART-SCOTT-RODINO ANN. REP. (FY 2016).

¹⁶¹ *See* Horizontal Merger Guidelines, *supra* note 26, at §§ 4.1, 4.2.

¹⁶² Unlike the market definition used in the Horizontal Merger Guidelines, the federal government’s Standard Industrial Classification system is in no way designed to illuminate potential market power.

- **Constant Updating Required.** Both the contours and the competitiveness of many product markets, especially those involving high-technology products or services, can change quickly. Whereas enforcement authorities must define the market only once in a merger case, it would not be enough for them to make a one-time judgment that an industry is oligopolistic; they would have to engage in constant monitoring to see whether entry, product development, or changes in consumer tastes had altered a designated industry so as to render it no longer oligopolistic.
- **Enhanced Public Choice Concerns.** While the parties to a challenged merger will spend great sums to secure a favorable market definition, non-parties rarely expend significant resources to influence how antitrust markets are defined in merger cases. If the agencies were to designate entire industries as oligopolistic, however, interest groups would almost certainly join the fray. Having their industry designated oligopolistic would raise the antitrust risk firms face from all sorts of practices.¹⁶³ For example, every intra-industry joint venture would be viewed with greater suspicion; parallel conduct among industry participants would more likely be characterized as an agreement; vertical restraints such as exclusive dealing, tie-ins, vertical territorial limitations, and resale price maintenance would be at greater risk of being deemed unreasonable; unilateral actions that make it harder for new entrants and fringe competitors to gain a foothold (structured discounts, etc.) would receive additional scrutiny; consummating mergers would be more difficult. In light of this enhanced antitrust risk (not to mention the risk that official designation as an oligopoly could spark direct regulation), industry participants could be expected to mount a vigorous opposition to any attempt to designate their industry as oligopolistic. At the same time, groups with an interest in heightened antitrust scrutiny within an industry—e.g., consumer groups, vertically related firms that could benefit from greater restriction on industry participants—would invest resources to secure the industry’s inclusion on the list of oligopolies. Indeed, the proposal by Posner

¹⁶³ Posner et al. “recommend that the agencies state that the oligopoly list is solely for enforcing investor ownership of competitors and has no legal force in other settings such as merger analysis.” Posner et al., *supra* note 3, at 698. But nothing would stop an antitrust plaintiff from seeking to bolster its case by pointing out that the defendant is a member of an “officially designated oligopoly,” and it is hard to imagine factfinders just ignoring such designation. The authors’ claim that “there is no cost to industry participants ... from classifying an industry as an oligopoly,” *id.*, therefore seems implausible.

et al. *invites* interest group involvement (and the social costs associated therewith) by specifying that “[t]here would be some mechanism to solicit comments from any interested parties.”¹⁶⁴

In the end, then, Posner et al.’s enforcement policy would likely increase the decision costs of using Section 7 to police institutional investors’ common ownership of competing firms.

There is, of course, a scenario in which many of the decision costs of a Section 7 approach could be avoided. If institutional investors were to respond to the threat of Section 7 liability by ceasing to invest in multiple firms that compete in any concentrated markets or by remaining fully passive at such firms,¹⁶⁵ then their business planners would not need to make costly assessments of antitrust risk, and adjudicators could avoid the difficult inquiries detailed above.¹⁶⁶ But this outcome, which appears to be the intended result of the proposals by Elhauge and Posner et al., would create substantial error costs.

b. Error Costs

Relative to the regulatory status quo—doing nothing about institutional investors’ common ownership of small stakes in competing firms—a regulatory approach that drove institutional investors in concentrated industries either to forego intra-industry diversification or to remain fully passive would probably reduce Type II error costs.¹⁶⁷ If horizontal shareholding has *any* adverse competitive effect in *any* concentrated industry, and if that effect stems from the fact that the intra-industry diversified investors are not wholly passive and thus have some influence on the behavior of their portfolio firms, then a regulatory approach that achieved the aforementioned result would reduce some anticompetitive harms. For reasons set forth above, we doubt that such harms are significant, if they exist at all.¹⁶⁸ We must, however, give credit where credit is due: The regulatory approaches promoted by Elhauge and Posner et al. may reduce some

¹⁶⁴ *Id.* at 709.

¹⁶⁵ As noted, full passivity would require institutional investors to engage in mirror voting only, to avoid any communication with the management of portfolio companies, and to commit to an investment strategy with no investment discretion. *See supra* note 154 and accompanying text.

¹⁶⁶ This outcome would not eliminate the decision costs resulting from the enforcement agencies’ having to designate oligopolistic industries under the enforcement policy proposed by Posner et al.

¹⁶⁷ Recall that the error costs of a regulatory approach are the welfare losses from precluding welfare-enhancing behavior (Type I error) and from failing to prevent welfare-reducing behavior (Type II errors). *See supra* notes 125-127 and accompanying text.

¹⁶⁸ *See supra* notes 72-124 and accompanying text.

welfare losses that stem from institutional investors' common ownership of firms that compete in concentrated markets.

Any reduction in Type II error costs, however, would be far outweighed by an increase in Type I error costs. Indeed, each of the two possible results of stepped-up antitrust intervention—preclusion of intra-industry diversification in concentrated markets or inducement of full passivity by intra-industry diversified investors—would generate significant losses. The former would do so by eliminating welfare-enhancing product offerings; the latter, by preventing cost-reducing conduct.

i. Error Costs from Precluding Intra-Industry Diversification

Driving institutional investors to refrain from intra-industry diversification would eliminate a multitude of investment products that many retail investors prefer. Most index funds would disappear, as nearly all significant stock indices include multiple competitors from concentrated industries. It is no answer to say that index funds could be offered as long as fund managers invested in only one of the indexed competitors from each concentrated industry, for any fund that was so managed would not be a true *index* fund, the defining characteristic of which is a lack of investment discretion on the part of fund managers. One reason index funds have such low costs, and thus charge lower fees to retail investors, is that fund managers never have to make decisions about which companies to invest in.

Inducing each institutional investor to select only one competitor per concentrated industry would also reduce the number of actively managed mutual funds available to retail investors. Because critics of common ownership maintain that intra-industry diversification *at the institutional investor level* is sufficient to induce competition-softening in concentrated markets,¹⁶⁹ it would not be enough for institutional investors to ensure that each of their funds was invested in only one firm within an oligopolistic industry. Rather, each institutional investor would have to settle on one firm per concentrated industry *for all its funds*. This requirement would impede institutional investors' ability to offer a variety of actively managed funds organized around distinct investment strategies—e.g., growth, value, income etc. If, for example, Southwest Airlines were a growth stock and

¹⁶⁹ See *supra* text between notes 91 and 92. The idea is that because institutional investors with multiple funds cannot honor the first-choice competitive preference of each fund (as funds invested in different competitors will prefer different outcomes), they will settle on the outcome that provides each fund its first *or second* choice and thereby maximizes the aggregate returns of the institutional investors' funds. That outcome is maximization of industry profits.

United Airlines a value stock, an institutional investor could not offer both a growth fund including Southwest and a value fund including United. Although it is possible that new fund families would emerge to offer the investment products eliminated by a “one-oligopoly-stock-per-institutional-investor” policy, such entrants’ reduced scale would result in higher costs and fees, and those disadvantages could very well prevent their emergence altogether.

Finally, institutional investors’ eschewal of intra-industry diversification would prevent them from designing funds that bet on an industry as a whole while limiting exposure to company-specific risks within that industry. Suppose, for example, that a financial crisis led to a precipitous drop in the stock prices of all commercial banks. A retail investor might reasonably conclude that the market had overreacted with respect to the industry as a whole, that the industry would likely rebound, but that some commercial banks would probably fail. Such an investor would wish to invest in the commercial banking sector but to hold a diversified portfolio within that sector. A legal regime that drove fund families to avoid intra-industry diversification would prevent them from offering the sort of fund this investor would prefer. Posner et al. retort that “nearly all the gains from diversification . . . can be secured by diversifying *across* industries” and that “[t]he gains from within-industry diversification turn out to be very small.”¹⁷⁰ But even small gains are gains, and it is not at all difficult to envision situations in which retail investors would benefit from the sort of intra-industry diversified funds that the proposals by Elhauge and Posner et al. would eliminate.

ii. Error Costs from Inducing Full Passivity

If institutional investors were to respond to potential antitrust liability not by avoiding intra-industry diversification but by remaining fully passive in any concentrated industries in which they were diversified, the aforementioned error costs could be avoided. In that case, however, another set of significant error costs would emerge: increased agency costs.

As Adolf Berle and Gardiner Means famously observed, large public corporations are characterized by a separation of ownership and control; the residual claimants of such corporations, the shareholders, have little control over the managers of the businesses, the directors

¹⁷⁰ Posner et al., *supra* note 3, at 679 (emphasis in original). *See also* Elhauge, *supra* note 2, at 1314 (observing that “investing in only one of the competing firms” in a concentrated market “would produce only a minimal loss of diversification benefits because institutional investors can remain invested in one firm in each concentrated market and thus remain diversified across all industries in the economy”).

and officers.¹⁷¹ This separation of ownership and control may lead managers to direct firm resources not to their highest and best ends, as the owners would prefer and efficiency demands, but to ends that create personal benefits for the managers.¹⁷² Owner-principals may respond to this temptation by monitoring the controller-agents (e.g., through auditing, imposition of internal controls, etc.), and controllers may seek to guarantee their fidelity by engaging in costly bonding (e.g., by procuring certifications or licenses or by agreeing to limit their future activities).¹⁷³ Taken together, principals' monitoring costs, agents' bonding costs, and the residual inefficiency that results when agents still misallocate resources constitute agency costs, which are social welfare losses.¹⁷⁴ If a regulatory effort aimed at reducing welfare losses from reduced competition somehow increases agency costs, that increase is an error cost of the regulatory effort. Because both economic theory and empirical evidence suggest that institutional investors, *if non-passive*, significantly reduce agency costs at their portfolio firms, a regulatory approach that induced passivity on the part of institutional investors would generate substantial error costs.

A straightforward theory predicts that non-passive institutional investors will be more effective than individual shareholders at monitoring managerial decision-making and oversight.¹⁷⁵ The theory posits that individual shareholders tend to be rationally ignorant of the information needed to engage in effective monitoring of manager-agents because such information is costly to obtain, and each individual shareholder's stake in the company and corresponding control right is usually too small to justify the significant resource expenditures required to get up to speed.¹⁷⁶ Large institutional investors, by contrast, typically have better access to relevant information (e.g., contacts with firm insiders), a superior ability to process it effectively (e.g., more business expertise, access to shareholder advisory ser-

¹⁷¹ ADOLF A. BERLE, JR. & GARDINER C. MEANS, *THE MODERN CORPORATION AND PRIVATE PROPERTY* (Routledge, 2d ed. 1991) (first edition published 1932).

¹⁷² See generally Lambert, *supra* note 125, at 94-96.

¹⁷³ *Id.* at 95.

¹⁷⁴ See Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305, 308 (1976).

¹⁷⁵ See, e.g., Bernard S. Black, *Agents Watching Agents: The Promise of Institutional Investor Voice*, 39 UCLA L. REV. 811 (1992); Mark J. Roe, *A Political Theory of American Corporate Finance*, 91 COLUM. L. REV. 10 (1991).

¹⁷⁶ See Easterbrook & Fischel, *supra* note 18, at 1443 (observing that "[i]nvestors are rationally uninterested in votes, not only because no investor's vote will change the outcome of the election but also because the information necessary to cast an informed vote is not readily available").

vices), and, given their larger stakes in the corporation, a greater motivation to become adequately informed. They will therefore tend to be more effective, lower-cost monitors of managerial conduct.¹⁷⁷

Institutional investors with index funds are especially likely to reduce agency costs. If a company is included in an index that is tracked by a fund offered by an institutional investor, that investor cannot divest from the company and is thus a *long-term* investor. Empirical evidence suggests that institutional investors with long-term investment horizons significantly improve corporate management.

Consider, for example, a recent study by Jarrad Harford, Ambrus Kecskés, and Sattar Mansi Harford.¹⁷⁸ Examining a large panel of firm-years comprising around 3,000 firms annually over a near 30-year period, the authors studied how stockholding by long-term institutional investors influenced corporate decision-making and performance.¹⁷⁹ They used portfolio turnover (i.e., the percentage of an investor's portfolio that is no longer held at the end of a three-year period) to capture institutional investors' investment horizons.¹⁸⁰ They then categorized the investors as long-term or short-term,¹⁸¹ assessed the investor horizons of firms according to the ownership percentage of their long-term investors,¹⁸² and correlated those horizons with firm performance along a number of dimensions.¹⁸³ To address con-

¹⁷⁷ Posner et al. acknowledge that institutional investors are better positioned to provide the sort of managerial accountability that reduces agency costs. See Posner et al., *supra* note 3, at 674 (“Institutional investors by contrast, could potentially improve on this Berle-Means model of the corporation—featuring widely dispersed ownership by shareholders with tiny stakes—by supplying informed and incentivized oversight.”).

¹⁷⁸ Jarrad Harford, Ambrus Kecskés, & Sattar Mansi, *Do Long-Term Investors Improve Corporate Decision Making?*, Nov. 2017 Working Paper, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2505261 (forthcoming J. CORP. FIN. 2018).

¹⁷⁹ *Id.* at 3.

¹⁸⁰ *Id.* at 12-13.

¹⁸¹ *Id.* at 13. Long-term investors were those with turnover of 35% or less and included investors that were in approximately the bottom quartile of investor turnover. *Id.*

¹⁸² *Id.* at 3 (“We measure investment horizons of firms based on the ownership of their long-term investors.”).

¹⁸³ Recognizing the monitoring role played by institutional investors generally, the authors controlled for the total ownership of all institutional investors (both long- and short-term). *Id.* (“We also control for the total ownership of institutional investors because their monitoring role is well-recognized in the literature. Controlling for total institutional ownership means that long-term institutional ownership captures the effect of longer institutional investor horizons, which is the effect of interest in our paper.”) (citations omitted). The authors also controlled for blockholder ownership, which may affect corporate governance. *Id.*

cerns that corporate decision-making and performance could be driving investment by long-term investors, rather than vice-versa, the authors examined long-term investment in general and separately assessed the effects of long-term investments by index funds, which have no discretion over the firms in which they invest.¹⁸⁴ Where long-term investment as a whole and long-term investment by index funds were associated with similar outcomes, the authors inferred that long-term investment must be causing those outcomes and not vice-versa.

Harford et al.'s "overarching conclusion [was] that long-term investors are an important force of good corporate governance."¹⁸⁵ They based that assessment on the following specific findings:

- ***Corporate Governance***—Ownership by long-term institutional investors increased board independence and experience,¹⁸⁶ led to higher levels of executive turnover (which suggests greater discipline of managers),¹⁸⁷ weakened takeover defenses (which have the effect of entrenching managers),¹⁸⁸ and reduced such managerial misbehaviors as earnings management, accounting misconduct, financial fraud, and option backdating.¹⁸⁹

¹⁸⁴ The authors explained,

Most investors can choose their portfolio firms and managers can attempt to influence the ownership structure of their firms. Therefore, we design our analysis to demonstrate that long-term investors have a causal effect on corporate decision making. To this end, we perform all of our tests using not only long-term investor ownership as a whole but also its plausibly exogenous part (while controlling for its possibly endogenous part). Specifically, we establish causality based on the ownership of long-term investors that index their portfolios.

Id. at 3-4.

¹⁸⁵ Id. at 35.

¹⁸⁶ Id. at 20 ("[L]ong-term investor ownership improves the quality of the board of directors. Independence increases by 1.63 percentage points, or about 2.4% relative to its mean. Experience increases by 2%.").

¹⁸⁷ Id. ("[L]ong-term investor ownership increases the rate of executive turnover by 0.73 [percentage points], or roughly 6% compared to its mean. ").

¹⁸⁸ Id. at 21 (reporting a weakening of takeover defenses for three separate indices of antitakeover provisions).

¹⁸⁹ Id. at 21-22. The authors "measure[d] earnings management using discretionary accruals, accounting misconduct using enforcement actions by the SEC, financial fraud using shareholder lawsuits, and option backdating using suspiciously well-timed option grants." Id. at 22. They found that:

long-term investor ownership significantly reduces managerial misbehaviors. In particular, earnings management decreases by 0.18% of total assets, or about 2.1% relative to its mean. The rates of accounting misconduct and financial fraud decrease by 0.27 and 1.34,

- ***Investment and Innovation***—Long-term investor ownership had salutary effects on “innovation efficiency.” While ownership by long-term investors tended to reduce overall corporate investments,¹⁹⁰ it tended to boost innovation (as measured by patent counts, citations, originality and generality).¹⁹¹ These results suggest that long-term investors discourage wasteful “empire-building,” a classic source of agency costs.
- ***Financing and Payouts***—Consistent with reducing overall corporate investments, long-term investor ownership tended to reduce corporations’ total financing.¹⁹² It also tended to decrease debt maturity,¹⁹³ causing firms to “become more exposed to financial market discipline.”¹⁹⁴ At the same time, long-term in-

respectively, or roughly 23% and 27% compared to their means. Finally, the incidence of option backdating decreases by 1.44, or about 10% relative to its mean.

Id.

¹⁹⁰ *Id.* at 23 (“[L]ong-term investor ownership reduces capital, research and development, and acquisitions expenditures by 0.36%, 0.41%, and 0.23% of total assets, respectively. Trade credit and inventories decrease by 0.49% and 0.29% of total assets, respectively. In other words, investment in capital decreases by about 1.8 percentage points in total.”).

¹⁹¹ *Id.* at 23-24. Patent counts and citations are well-known measures of innovation. The authors explain the other two innovation measures as follows:

Patent originality is the extent to which a given patent cites other patents that belong to a wide range of technology classes. Intuitively, successor innovations that are more original are those that use a wider range of predecessor innovations. Patent generality is the extent to which a given patent is cited by other patents that belong to a wide range of technology classes. Intuitively, predecessor innovations that are more general are those that are used by a wider range of successor innovations. Patent citations, originality, and generality for a given firm are measured on an average per patent basis.

Id. at 24. The authors found that involvement of long-term investors increased patent counts by 10.6%, patent citations by 3.7%, patent originality by 0.73 percentage points (1.0% compared to its mean), and patent generality by 0.73 percentage points (roughly 1.3% relative to its mean). *Id.*

¹⁹² *Id.* at 25 (reporting that long-term investor ownership reduced balance sheet debt issuance by 0.41% of total assets, off-balance sheet debt usage by 0.30% of total assets, and equity issuance by 0.46% of total assets, so that total financing decreased by about 1.2 percentage points, roughly \$22 million for the average firm).

¹⁹³ *Id.* at 25-26 (reporting decrease in debt maturity of 1.49 percentage points, or roughly 2.1% relative to its mean).

¹⁹⁴ *Id.* at 26.

vestor ownership increased both dividends and share repurchases,¹⁹⁵ which “is consistent with managers being more carefully watched with respect to their use of corporate funds.”¹⁹⁶

- ***Shareholder Value (Returns and Risk)***—Returns by portfolios of companies in the top quintile of long-term investor ownership were substantially higher than those comprised of companies in the bottom quintile. Firms with long investor horizons outperformed those with short investor horizons by approximately 3.5% per year.¹⁹⁷ Their “excess returns” (raw returns minus industry returns) were about 1.5 percentage points per year higher than those of firms with short investor horizons.¹⁹⁸ Earnings of firms with long-term investor horizons were higher by about 0.4 percentage points of total assets, and the volatilities of both earnings and stock returns were lower by approximately 5.2% and 2.5%, respectively.¹⁹⁹

There are good reasons to believe, then, that inducing full passivity on the part of institutional investors would thwart significant welfare gains in the form of agency cost reductions. As a theoretical matter, institutional investors could hardly be expected to invest in discovering information about managerial performance if they could not use the information they learned to make voting decisions, to engage with managers, or to determine whether to sell, hold, or buy company stock. And it strains credulity to suppose that the laundry list of benefits discovered by Harford et al. could be achieved by long-term institutional investors that had no ability to influence managerial decision making by either “voice” (engagement, voting) or the threat of “exit” (selling shares held by their non-index funds).

The central point here is one that efficiency-minded policy makers must always keep in mind: A market failure should never be addressed *in isolation*. Just as a physician should always consider whether a potential remedy for one of her patient’s ailments would exacerbate another, policy makers should account for the likely side-effects of any intervention to correct a defect in private ordering. If a policy aimed at reducing welfare losses from institutional investors’ common ownership of competing firms drove those investors to become fully passive at such firms, agency costs would rise. And if, as

¹⁹⁵ *Id.* (reporting that long-term investor ownership increased dividends and share repurchases by 0.28% and 0.39% of total assets, respectively, so that total payouts were higher by approximately 0.7 percentage points, approximately \$13 million for the average firm).

¹⁹⁶ *Id.*

¹⁹⁷ *Id.* at 27.

¹⁹⁸ *Id.* at 29.

¹⁹⁹ *Id.* at 5, 30-33.

seems likely, the welfare losses from common ownership are small and the likely increase in agency costs from full passivity large, policy makers would do well to retain the bird-in-the-hand of agency cost-reduction and resist the temptation to pursue the bird-in-the-bush of competition enhancements that *might* result from more passive institutional investors.

Conclusion

The authors of the common ownership studies have helpfully drawn attention to a potential competitive problem that merits further study. The antitrust scholars who have proposed policy solutions to that purported problem have also made a valuable contribution by showing how existing law might be used to address anticompetitive harms from investors' common ownership of small stakes in competing firms, should such harms prove grave enough to warrant additional antitrust intervention (with its attendant downsides). But let us not get ahead of ourselves. The propriety of additional antitrust intervention depends on whether the expected marginal benefit of enhanced enforcement outweighs the expected marginal cost of the stepped-up intervention. It does not.

The theory as to why current levels of intra-industry diversification would occasion consumer harm is implausible,²⁰⁰ and the empirical evidence of such harm is both scant and methodologically suspect.²⁰¹ The policy solutions that have been proposed for dealing with the purported problem would radically rework an industry that has provided substantial benefits to investors, raising the costs of portfolio diversification and enhancing agency costs at public companies.²⁰² Given these problems with the purported problem and difficulties with the policy solutions to it, proponents of enhanced antitrust intervention have not established that the marginal benefits of their proposals would exceed the marginal costs thereof.²⁰³

²⁰⁰ *See supra* Part II.a.

²⁰¹ *See supra* Part II.b.

²⁰² *See supra* Part III.

²⁰³ Professor Elhauge contends that scholars raising questions about the evidence of anticompetitive harm from small stakes common ownership are employing an improper “Merchants of Doubt” strategy to avoid or delay regulation. Elhauge, *supra* note 131, at 23. But it hardly seems improper to demand robust evidence of significant social harm before upending an entire industry—one that provides substantial social benefit—on the basis of a questionable theory.

Elhauge also criticizes those who invoke the principle “First, do no harm” in counseling regulatory caution. *Id.* at 26. That principle, he says, “cuts in [the] opposite direction because the evidence ... indicates that, today, we are already suffering harm from horizontal shareholding” so that “[i]naction is what does harm here, not action.” *Id.* Elhauge appears to misunderstand the “First, do no harm”

At this point, then, the optimal regulatory approach is to do nothing about institutional investors' common ownership of small stakes in competing firms. Such regulatory modesty may disappoint those with a personal interest in having highly complex antitrust doctrines that are aggressively enforced. It is, however, the approach that would maximize social welfare by minimizing the sum of error and decision costs.

principle. It means, “Do no *net* harm.” See Daniel K. Sokol, “*First do no harm*” revisited, *BMJ* (2013) 347:f6426, available at <https://www.bmj.com/content/347/bmj.f6426>. The fact that some harm is occurring (if it truly is) in no way implies that action to correct that harm is appropriate; rather, the actor must ask whether her efforts to stem the harm might themselves create greater harms. If so—i.e., if net harm would result from acting—then she should stay her hand in order to avoid “doing harm.” Because enhanced antitrust intervention to prevent anticompetitive harms from institutional investors' horizontal shareholding would likely create greater social losses by eliminating welfare-enhancing investment products, raising agency costs, and saddling business planners and adjudicators with tremendous new decision costs, the “First, do no harm” principle likely calls for a do-nothing regulatory approach here.

Appendix A

A Non-Technical Guide to Calculating MHHIΔ

The Modified Herfindahl-Hirschman Index (MHHI) attempts to account for both market concentration (HHI)¹ and common ownership factors (MHHIΔ), which together may influence the competitiveness of markets. Thus, MHHI = HHI + MHHIΔ.

The key idea behind MHHIΔ is that firm managers will tend to maximize the returns to their firm’s shareholders, recognizing that some of those shareholders are invested in, and will therefore receive payoffs from, the firm’s competitors. The metric assumes that managers are more sensitive to the interests of shareholders with larger stakes in the company and correspondingly greater voting power.

We attempt below to provide both a narrative description of how MHHIΔ is determined and a step-by-step guide to calculating the measure. To illustrate that process, we calculate MHHIΔ for a hypothetical market involving four firms and five institutional investors. At the outset, though, we set forth the technical formula for MHHIΔ. Posner et al. express it as follows:²

$$\text{MHHI}\Delta = 10,000 \cdot \sum_j \sum_{k \neq j} s_j s_k \left(\frac{\sum_i \beta_{ij} \beta_{ik}}{\sum_i \beta_{ij}^2} \right)$$

where:

- β_{ij} is the fraction of shares in firm j controlled by investor i ,
- the shares are both cash flow and control shares (so control rights are assumed to be proportionate to the investor’s share of firm profits), and
- s_j is the market share of firm j .

To unpack this somewhat intimidating formula, we will first describe the overall process for determining MHHIΔ and then catalog the specific steps involved in calculating the measure.

¹ HHI, the Herfindahl-Hirschman Index, consists of the sum of the squares of the market shares of firms participating in a market and ranges from near 0 for “perfect competition” to 10,000 for pure monopoly.

² Eric Posner, Fiona Scott Morton, E. Glen Weyl, *A Proposal to Limit the Anticompetitive Power of Institutional Investors*, 81 ANTITRUST L. J. 669, 683 (2017). This version of the formula assumes proportionate control—i.e., that investors’ control rights follow their ownership percentages.

Overview of the Process for Calculating MHHIA

Determining the MHHIA for a market involves three primary tasks. The first is to assess, for each coupling of competing firms in the market (e.g., Southwest Airlines and United Airlines), the degree to which the investors in one of the competitors would prefer that it not attempt to win business from the other by lowering prices, etc.³ This assessment must be completed twice for each coupling. With the Southwest and United coupling, for example, one must assess both the degree to which United's investors would prefer that the company not win business from Southwest and the degree to which Southwest's investors would prefer that the company not win business from United. There will be different answers to those two questions if, for example, United has a significant shareholder who owns no Southwest stock (and thus wants United to win business from Southwest), but Southwest does not have a correspondingly significant shareholder who owns no United stock (and would thus want Southwest to win business from United).⁴

Assessing the incentive of one firm, Firm J (to correspond to the formula above), to pull its competitive punches against another, Firm K, requires calculating a fraction that compares the interest of the first firm's owners in coupling profits (the combined profits of J and K) to their interest in own-firm profits (J profits only). The numerator of that fraction is based on data from the coupling—i.e., the firm whose incentive to soften competition one is assessing (J) and the firm with which it is competing (K). The fraction's denominator is based on data for the single firm whose competition-reduction incentive one is assessing (J). Specifically:

³ This assessment involves computation of the fraction on the far right of Posner et al.'s equation. (That fraction consists of the numerator from step 5 and the denominator from step 6 of the nine-step guide that follows.)

⁴ In that case, United's shareholder base (weighted by control) would have a stronger preference for maximizing own-firm profits (United only) versus coupling profits (United plus Southwest). Squaring the ownership shares of investors in the firm whose incentive to compete with the other is under consideration (as is done in the denominator of the fraction on the right of Posner et al.'s equation) gives greater weight to the interests of shareholders with larger ownership blocks than to similar ownership percentages that are divided among multiple investors. Thus, the presence of a United-only blockholder with, say, 5% ownership is far more significant in encouraging own-firm profit maximization than is a 5% stake collectively owned by multiple United-only shareholders. This accounts for the insight that firm managers tend to be most responsive to their largest shareholders and to pay less attention to the collective interest of their widely dispersed, uncoordinated shareholders.

- The numerator assesses the degree to which the firms in the coupling are commonly owned, such that their owners would not benefit from price-reducing, head-to-head competition and would instead prefer that the firms compete less vigorously so as to maximize coupling profits. To determine the numerator, then, one must examine all the investors who are invested in both firms; for each, multiply their ownership percentages in the two firms; and then sum those products for all investors with common ownership.⁵ (If an investor were invested in only one firm in the coupling, its ownership percentage would be multiplied by zero and would thus drop out; after all, an investor in only one of the firms has no interest in maximization of coupling versus own-firm profits.)
- The denominator assesses the degree to which the investor base (weighted by control) of the firm whose competition-reduction incentive is under consideration (J) would prefer that it maximize its own profits, not the profits of the coupling. Determining the denominator requires summing the squares of the ownership percentages of investors in that firm. Squaring means that very small investors essentially drop out and that the denominator grows substantially with large ownership percentages by particular investors. Large ownership percentages suggest the presence of shareholders that are more likely able to influence management, whether those shareholders also own shares in the second company or not.⁶

Having assessed, for each firm in a coupling, the incentive to soften competition with the other, one must proceed to the second primary task: weighing the significance of those firms' incentives not to compete with each other in light of the coupling's shares of the market. (The idea here is that if two small firms reduced competition with one another, the effect on overall market competition would be less significant than if two large firms held their competitive fire.) To

⁵ These are steps four and five of the nine-step guide that follows.

⁶ As the numerator grows relative to the denominator, whether because more of Firm J's investors also own shares of Firm K or because any one investor of J also owns a larger share of K, the value of the fraction increases, suggesting a stronger incentive to reduce competition with Firm K. If there are large shareholders of the firm being assessed (J) and those shareholders also own large shares of the second firm (K), which would increase the ratio, they are more likely able to induce management to reduce competition. If the large shareholders in the first firm do not own shares in the second firm (i.e., their contribution to the numerator is zero), then they are more likely able to influence management to compete aggressively, even if smaller shareholders do own shares in the second firm.

determine the significance to the market of the two coupling members' incentives to reduce competition with each other, one must multiply each of the two fractions determined above (in Task 1) times the product of the market shares of the two firms in the coupling. This will generate two "cross-MHHI deltas," one for each of the two firms in the coupling (e.g., one cross-MHHI Δ for Southwest/United and another for United/Southwest).

The third and final task is to aggregate the effect of common ownership-induced competition-softening throughout the market as a whole by summing the softened competition metrics (i.e., two cross-MHHI deltas for each coupling of competitors within the market). If decimals were used to account for the firms' market shares (e.g., if a 25% market share was denoted 0.25), the sum should be multiplied by 10,000.

Following is a detailed list of instructions for assessing the MHHI Δ for a market (assuming proportionate control—i.e., that investors' control rights correspond to their shares of firm profits).

A Nine-Step Guide to Calculating the MHHI Δ for a Market

1. List the firms participating in the market and the market share of each.
2. List each investor's ownership percentage of each firm in the market.⁷
3. List the potential pairings of firms whose incentives to compete with each other must be assessed. There will be two such pairings for each coupling of competitors in the market (e.g., Southwest/United and United/Southwest) because one must assess the incentive of each firm in the coupling to compete with the other, and that incentive may differ for the two firms (e.g., United may have less incentive to compete with Southwest than Southwest with United).⁸ This implies that the number of possible pairings will always be $n(n-1)$, where n is the number of firms in the market.⁹

⁷ As a practical matter, investors with tiny ownership percentages—which, for publicly traded firms, includes the vast majority of investors—will have no discernible effect on MHHI Δ and can be ignored.

⁸ See *infra* note 4 and accompanying text.

⁹ For example, in a market served by four airlines—American, Delta, Southwest, and United—there would be twelve potential pairings: American/Delta, American/Southwest, American/United, Delta/American, Delta/Southwest, Delta/United, Southwest/American, Southwest/Delta, Southwest/United, United/American, United/Delta, United/Southwest.

4. For each investor, perform the following for each pairing of firms: Multiply the investor's percentage ownership of the two firms in each pairing (e.g., Institutional Investor 1's percentage ownership in United * Institutional Investor 1's percentage ownership in Southwest for the United/Southwest pairing).
5. For each pairing, sum the amounts from item four across all investors that are invested in both firms. (This will be the numerator in the fraction used in Step 7 to determine the pairing's cross-MHHIΔ.)
6. For the first firm in each pairing (the one whose incentive to compete with the other is under consideration), sum the squares of the ownership percentages of that firm held by each investor. (This will be the denominator of the fraction used in Step 7 to determine the pairing's cross-MHHIΔ.)
7. Figure the cross-MHHIΔ for each pairing of firms by doing the following: Multiply the market shares of the two firms, and then multiply the resulting product times a fraction consisting of the relevant numerator (from Step 5) divided by the relevant denominator (from Step 6).
8. Add together the cross-MHHIΔs for each pairing of firms in the market.
9. Multiply that amount times 10,000.¹⁰

We now illustrate this nine-step process by working through a concrete example.

An Example

Suppose four airlines—American, Delta, Southwest, and United—service a particular market. American and Delta each have 30% of the market; Southwest and United each have a market share of 20%.

Five funds are invested in the market, and each holds stock in all four airlines. Fund 1 owns 1% of each airline's stock. Fund 2 owns 2% of American and 1% of each of the others. Fund 3 owns 2% of Delta and 1% of each of the others. Fund 4 owns 2% of Southwest and 1% of

¹⁰ This step is required only if participating firms' market shares (listed in Step 1 and multiplied in Step 7) have been expressed using decimals – i.e., a 25 percent market share as .25 and a one percent ownership percentage as .01. Because multiplying market shares expressed in the hundredths (.25 * .01) will generate a figure in the ten-thousandths (.0025), this step will be necessary to put the MHHIΔ measure on a scale similar to HHI (near zero to 10,000).

each of the others. And Fund 4 owns 2% of United and 1% of each of the others. None of the airlines has any other significant stockholder.

Step 1: List firms and market shares.

1. American – 30% market share
2. Delta – 30% market share
3. Southwest – 20% market share
4. United – 20% market share

Step 2: List investors' ownership percentages.

	<i>American</i>	<i>Delta</i>	<i>Southwest</i>	<i>United</i>
<i>Fund 1</i>	.01	.01	.01	.01
<i>Fund 2</i>	.02	.01	.01	.01
<i>Fund 3</i>	.01	.02	.01	.01
<i>Fund 4</i>	.01	.01	.02	.01
<i>Fund 5</i>	.01	.01	.01	.02

Step 3: Catalogue potential competitive pairings.

1. American-Delta (AD)
2. American-Southwest (AS)
3. American-United (AU)
4. Delta-American (DA)
5. Delta-Southwest (DS)
6. Delta-United (DU)
7. Southwest-American (SA)
8. Southwest-Delta (SD)
9. Southwest-United (SU)
10. United-American (UA)
11. United-Delta (UD)
12. United-Southwest (US)

Steps 4 and 5: Figure numerator for determining cross-MHHIΔs.

	<i>Fund 1</i>	<i>Fund 2</i>	<i>Fund 3</i>	<i>Fund 4</i>	<i>Fund 5</i>	SUM
<i>AD</i>	.0001	.0002	.0002	.0001	.0001	.0007
<i>AS</i>	.0001	.0002	.0001	.0002	.0001	.0007
<i>AU</i>	.0001	.0002	.0001	.0001	.0002	.0007
<i>DA</i>	.0001	.0002	.0002	.0001	.0001	.0007
<i>DS</i>	.0001	.0001	.0002	.0002	.0001	.0007
<i>DU</i>	.0001	.0001	.0002	.0001	.0002	.0007
<i>SA</i>	.0001	.0002	.0001	.0002	.0001	.0007
<i>SD</i>	.0001	.0001	.0002	.0002	.0001	.0007
<i>SU</i>	.0001	.0001	.0001	.0002	.0002	.0007
<i>UA</i>	.0001	.0002	.0001	.0001	.0002	.0007
<i>UD</i>	.0001	.0001	.0002	.0001	.0002	.0007
<i>US</i>	.0001	.0001	.0001	.0002	.0002	.0007

Step 6: Figure denominator for determining cross-MHHIΔs.

	<i>American</i>	<i>Delta</i>	<i>Southwest</i>	<i>United</i>
<i>Fund 1</i>	.0001	.0001	.0001	.0001
<i>Fund 2</i>	.0004	.0001	.0001	.0001
<i>Fund 3</i>	.0001	.0004	.0001	.0001
<i>Fund 4</i>	.0001	.0001	.0004	.0001
<i>Fund 5</i>	.0001	.0001	.0001	.0004
SUM	.0008	.0008	.0008	.0008

Steps 7 and 8: Determine cross-MHHIΔs for each potential pairing, and then sum all.

1. AD: $.09(.0007/.0008) = .07875$
 2. AS: $.06(.0007/.0008) = .0525$
 3. AU: $.06(.0007/.0008) = .0525$
 4. DA: $.09(.0007/.0008) = .07875$
 5. DS: $.06(.0007/.0008) = .0525$
 6. DU: $.06(.0007/.0008) = .0525$
 7. SA: $.06(.0007/.0008) = .0525$
 8. SD: $.06(.0007/.0008) = .0525$
 9. SU: $.04(.0007/.0008) = .035$
 10. UA: $.06(.0007/.0008) = .0525$
 11. UD: $.06(.0007/.0008) = .0525$
 12. US: $.04(.0007/.0008) = .035$
- SUM** **= .6475**

Step 9: Multiply by 10,000.

MHHIΔ = 6475.

(NOTE: HHI in this market would total $30^2 + 30^2 + 20^2 + 20^2 = 2600$. MHHI would total 9075.)