

“Anticompetitive Effects of Common Ownership” at Seven Years

BY ISABEL TECU

IN 2014, JOSÉ AZAR, MARTIN SCHMALZ, AND I posted a working paper titled “Anti-Competitive Effects of Common Ownership” (AST).¹ In that paper, we documented that financial investors frequently hold ownership interests in competing firms, which we referred to as “common ownership.”² We further found that common ownership among airlines was likely causing higher airline ticket prices, thereby providing potentially the first empirical evidence that this ubiquitous ownership pattern was reducing competition.

Since the publication of our paper, the debate about the competitive implications of common ownership has taken off. In the seven years since, common ownership has been the subject of an OECD roundtable, a Federal Trade Commission hearing, and a 300-page study commissioned by the European Commission (EC).³ It has been discussed by U.S. and European antitrust officials and cited in a major EC merger decision.⁴ It has been hotly debated by an impressive list of leading antitrust scholars, resulting in several sharply conflicting policy proposals.⁵ And finally, it has become the subject of a long line of new economic research that has methodologically refined the measurement of common ownership and its impact, while variously finding anticompetitive, procompetitive, or no effects of common ownership on specific aspects of competition in specific settings.⁶

This article provides a bird’s-eye view on how AST’s original conclusions have held up to new insights generated since its publication, without attempting to give justice to

the overwhelming number of papers on the topic that have been written since.

Before diving in, it may be helpful to briefly revisit the economic principles and empirical analysis underlying AST’s claim that common ownership leads to anticompetitive effects. The “common ownership hypothesis,” which has a history going back much further than AST,⁷ is based on three key assumptions:

- Less aggressive competition increases competitors’ profits.
- Firm owners seek to maximize the value of the overall portfolio of firms in which they are invested.
- Firms take their owners’ interest into account in their competitive decisions.

If one accepts these assumptions, it follows as a matter of economic logic that commonly owned firms compete less aggressively against each other.

While this idea has a long history in economic theory, AST is possibly the first paper that finds empirical evidence for these predicted anticompetitive effects. In AST, we used the U.S. airline industry as a “case study” because the required data are publicly available and allowed us to compare a large number of different markets over a long period of time. Our findings showed a robust positive correlation between an increase in common ownership among the airlines serving a given route and an increase in ticket prices, while controlling for a large set of potentially confounding factors. We were also able to rule out plausible alternative explanations for this correlation. For example, we found that after BlackRock’s acquisition of Barclays Global Investors (BGI), ticket prices increased more on routes in which the combination of BlackRock’s and BGI’s portfolios implied greater post-acquisition common ownership. Similar routes where the acquisition did not increase common ownership did not experience such an increase in ticket prices. This led us to conclude that the observed price increase was likely *because* of the increase in common ownership.

AST has been attacked on theoretical and empirical grounds. Its critics have offered many insights that have helped to refine the thinking on common ownership and have moved the debate forward. But, as this article explains, none of the critiques against AST has seriously challenged the plausibility of a causal link between common ownership and adverse effects on competition or AST’s empirical results.

What Have We Learned About the Plausibility of a Causal Interpretation of AST’s Results?

AST’s critics have questioned whether common ownership can plausibly cause anticompetitive effects on theoretical grounds. They argue that such effects are implausible *a priori*, and therefore conclude that AST’s empirical results are unlikely to constitute evidence for reduced competition due to common ownership.⁸ In particular, critics point out that the theoretical model underlying AST intends to analyze the effects of one firm holding a partial ownership stake in a

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competitor,⁹ not the effects of financial investors holding positions in multiple competitors. They therefore question the appropriateness of the underlying theoretical assumptions to the setting of common ownership by financial investors, as analyzed by AST.

This line of criticism often focuses on the alleged lack of a potential “mechanism” by which common owners’ incentives to reduce competition could be transmitted to the firms that they own. This focus seems partially beside the point: from an economic perspective, the underlying incentives matter more than specific mechanisms by which the incentives may operate.¹⁰ For example, as discussed further below, common owners’ *inaction* could be a plausible mechanism, because by doing nothing they may not push firms to compete to the same degree as an undiversified owner would. To be fair, though, real-world costs of implementing the anticompetitive incentives created by common ownership could be so high that one might not expect them to have any meaningful or measurable effects. In sum, the mechanism debate helps shed light on real-world frictions that the theory may not consider.¹¹

The Owners’ Incentives. The theory underlying AST assumes that common owners seek to maximize the value of the overall portfolio of firms in which they are invested. According to the theory, common owners thus have an *incentive* to reduce competition between portfolio firms because they seek to maximize their portfolio value. Critics point out that this assumption cannot be presumed, because in AST’s setting the common owners are mostly financial institutions that may lack the clear objective to maximize the value of their total portfolio.

One argument that critics make in support of this assertion is that, within the same financial institution, different funds—often with different investment objectives—own the corporate shares. For example, active funds choose which companies to invest in whereas index funds hold shares in order to replicate an index. Because of this differentiation, investment managers will have different objective functions, with no clear overall objective for the financial institution as a whole.¹²

This argument raises the question of how to define common owners in empirical analyses. For example, should every fund be considered a different owner or should funds that belong to the same financial institution be considered as one owner? The answer hinges on the factual question whether the individual funds or the overall financial institution exercise greater influence over portfolio companies. Financial institutions frequently engage with companies through a centralized “Engagement Office” and also typically vote the shares held by different funds as one, which suggests that these institutions typically exercise their influence over companies as one.¹³ Although there are exceptions,¹⁴ this general trend suggests that, at least as a first approximation, corporate shares held by different funds within the same financial institution can be treated as acting as one, as AST have done.

Critics’ second argument for why common owners are unlikely to maximize their overall portfolio value is that common owners are often not the “ultimate” owners of the corporate shares that they hold. For example, BlackRock may hold airline shares as an investment manager on behalf of its clients (e.g., individuals saving for retirement). In their view, only the ultimate owners, not the investment manager common owners, benefit directly from the increase in the common owners’ portfolio value.¹⁵ Investment managers thus have at best a blunted incentive to increase their overall portfolio value, they conclude.

This second argument has shortcomings. First, it does not give justice to the fact that investment managers still benefit from an increase in their portfolio value in terms of increased fees and inflow of funds. These rewards can be large compared to the relatively small (possibly zero) costs of not encouraging competition between portfolio companies.¹⁶ Second, critics may be right that investment managers tend to under-invest in corporate oversight and defer more to the company’s management than an ultimate owner may, due to blunted incentives to do so. But such behavior is perfectly in line with the concern that common owners do not put sufficient pressure on portfolio firms to compete.¹⁷

In any case, this line of criticism raises the potentially valid concern that treating common owners as a homogeneous group oversimplifies the analysis. A fruitful avenue of future research could give further thought to the appropriate level of aggregation of ownership, as well as different business models among financial institutions that may lead to heightened or reduced incentives to reduce competition among portfolio firms.

There is another twist to common owners’ incentives that deserves attention: common owners frequently hold shares in other sectors of the economy. Depending on their investment profiles, some common owners could be better off if prices in airlines were lower, rather than higher. For example, common owners may prefer lower airline prices because they own shares in vertically related sectors or because they would benefit from an overall lower price level in the economy.¹⁸ Indeed, Azar and Vives find empirical support for procompetitive effects of cross-industry common ownership for airlines while also confirming anticompetitive effects of within-industry common ownership, as AST found.¹⁹ Thus, some industries may face competitive effects stemming from common ownership across industries, as well as within the industry. These findings have a number of important implications. First, even if common ownership across the entire economy has theoretically neutral effects on competition, common ownership that is concentrated in one industry or market is still a competitive concern. Second, cross-industry common ownership may confound the effect of within-industry common ownership, and therefore requires a contextual analysis of other ownership holdings that could potentially have offsetting effects.²⁰ Third, the common ownership debate as it relates to antitrust focuses

appropriately on common ownership in competitors, not common ownership in firms in general.

The Firm's Incentives. The theory underlying AST assumes that firms take their owners' interests into account in their competitive decisions. According to the theory, common owners thus have the *ability* to affect product market competition in their interest.

Some critics take issue with this assumption partly because they misunderstand what the theory assumes about a common owner's ability to influence its portfolio firms. In the case of airlines, one may wonder whether a common owner can tell Delta Airlines to compete less on the Atlanta-Boston route and more on the Cincinnati-Detroit route. But the fact that AST measures competition at the route-level does not mean that the common owners' incentives need to be transmitted at the route level.²¹ As Antón, Ederer, Giné and Schmalz (AEGS) find, for common ownership to affect markets, common owners merely have to be able to transmit their general competitive incentives to the commonly owned firms.²²

Since long before the current common-ownership debate, academics in economics and finance have proposed several mechanisms by which owners can influence corporate behavior. There is no reason to think that these mechanisms cannot be used to transmit common owners' general competitive incentives to the firms that they own.

First, **shareholder voting** allows owners to transmit their interests to firm management. Some commentators have cast doubt on this mechanism, as shareholders do not directly vote on competitive strategy.²³ But even though shareholders do not vote on specific competitive actions, there may be clear, known distinctions as to the overall level of competition that different board candidates support, and the empirical evidence is fully consistent with a mechanism operating at a broader strategic level. Furthermore, shareholder voting has the potential to change a firm's behavior even though most corporate elections are uncontested. For example, a recent empirical study shows that in uncontested elections the share of dissident votes still matters for the candidates' future career.²⁴ Institutional investors also stress their power to vote against management to elicit changes that then no longer make it necessary to actually vote against management.²⁵

Second, owners can influence corporate behavior through **executive compensation**. AEGS shows that common owners can induce managers to compete less by offering (or tolerating) compensation packages that are relatively insensitive to firm performance. The same study also provides empirical evidence for this mechanism: it finds that executive compensation, as measured by total executive wealth, is more insensitive to firm performance when common ownership links to competitors are greater. The mechanism outlined in AEGS shows how common owners' and corporate managers' interests can align because both would prefer a firm to be less efficient and thus a less aggressive competitor: common owners reap profits from their ownership in the competitors and corporate managers prefer to avoid making costly efficiency

improvements.²⁶ Large diversified investors that do not take an active role in corporate governance and under-invest in stewardship are fully consistent with AEGS's framework and empirical findings.²⁷ This also suggests that "the ultimate problem for competition is not so much the rise of common ownership as the decline of the large undiversified investor."²⁸

Third, **direct communication** between investors and management remains a plausible mechanism. In airlines in particular, earnings calls on which financial investors, including common owners, push for capacity discipline have been investigated by the U.S. Department of Justice and are the target of consumer class actions.²⁹ Private meetings or communications between large investors and a firm's management, including meetings with the express purpose to discuss competitive strategy, have been increasingly documented and commonplace.³⁰ Critics argue that it is unlikely for companies to disclose detailed competitive strategy at these meetings, and in any case antitrust laws would deter investors from nakedly inciting collusion.³¹ But the economic theory does not require detailed market-level communication about competition; general reminders about "discipline" may be entirely sufficient.

Finally, **director interlocks** (i.e., a director serving concurrently on boards of competing companies) are a mechanism worth mentioning in light of new empirical evidence. A recent study documents the surprising frequency of director interlocks despite legal prohibitions against all but those qualified as *de minimis*.³² While not all companies in the same industry are competitors, this finding suggests that director interlocks cannot be ruled out as a possible mechanism by which common owners influence firms to compete less aggressively.

Critics point out that, even if owners can transmit their incentives to firms using general mechanisms like those discussed above, different owners will likely disagree on the competitive actions a firm should take. Firms, faced with the problem as to which owner to heed, will thus resort to maximizing their own profits, they argue.³³ AST's underlying theory directly addresses the issue of diverging interests between owners by assuming that a firm's management weighs each owner's interests by the degree of influence or control that the owner has over the firm. In other words, corporate managers are assumed to pay more attention to owners that hold a larger proportion of voting shares³⁴—but admittedly maximizing a "weighted average" of owners' interests may seem a complicated objective in practice.

These critics' concerns do not consider that even though owners may differ in terms of how their holdings are distributed across competitors, their interests may still be aligned. *All* owners, regardless of their portfolios and including undiversified owners, will agree on competition-reducing strategies that lead to less competition across all firms in the market because they will increase profits for the company and across the industry.³⁵ Common ownership, however, still has a competition-reducing effect because common owners have greater incentives to see such strategies implemented compared to

undiversified owners. For example, all owners should be in favor of a firm participating in a hypothetical legal cartel involving all firms in the industry. Common owners would be more likely to encourage or stabilize such a hypothetical cartel, though, as the benefits they could reap from doing so would be greater than the benefits undiversified owners could reap. The effects of common ownership on coordinated behavior among firms is an important subject of further research.

Critics also overlook that the mechanisms shareholders use to influence corporate behavior can reconcile different owners' interests. For example, the shareholder voting mechanism allows owners to transmit their interests to firms generally and balances different owners' interests against each other. In particular, economists have explained the firm's objective function used in AST as arising from models of shareholder voting.³⁶

In sum, academic research continues to explore how these and other mechanisms create incentives for firms to compete less aggressively in ways that benefit common owners. It therefore seems premature to dismiss AST's empirical results as impossible on theoretical grounds. Even more, the economic incentives of common owners and portfolio firms, coupled with plausible mechanisms, warrant a concern about potential anticompetitive effects of common ownership in other settings, even if AST had not found a measurable effect in airlines.

How Do AST's Empirical Results Hold Up to Scrutiny?

Several academic papers have claimed to directly refute AST's empirical result. Kennedy, O'Brien, Song, and Waehrer (KOSW) offered an early critique of AST, claiming that their superior empirical models led to the conclusion that common ownership does not raise airline prices.³⁷ Dennis, Gerardi, and Schenone subsequently offered a similar conclusion in a paper provocatively titled "Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry" (DGS).³⁸ However, these studies do not support an affirmative conclusion that no such effects exist. Rather, the conclusion that can be drawn from them is more correctly characterized as "these authors' specific analysis fails to find evidence that common ownership across airlines caused an anticompetitive effect."³⁹ The question therefore boils down to whether empirical analyses that do not find effects are more reliable than AST's and others' analyses that do.⁴⁰

Specific Modeling Choices. When discussing specific critiques about AST's empirical implementation, one needs to consider the standard by which to assess empirical work. Could alternative choices in the treatment of the data lead to different results? Certainly. But unless these alternative choices are clearly superior, there is no reason to think that the conclusions they yield are "more correct." In fact, the findings of "no effect" may simply indicate that these alternative choices distorted the data and thus obscured an actual effect that is there.⁴¹

One such example is the treatment of bankruptcies, because shareholders have no *de jure* control rights over an

airline that is in a bankruptcy proceeding. Several studies find that if shareholder control is set to zero during these bankruptcy episodes, the statistically significant association of common ownership with higher prices goes away.⁴² However, AST showed that if the sample excludes bankruptcy episodes altogether, their results still hold and become stronger, while the results go away if the sample is restricted to observations for airlines in bankruptcy.⁴³ AST's findings are thus fully consistent with shareholders not exercising control over airlines in bankruptcy. It is not clear that setting shareholder control to zero during bankruptcy periods, as critics have suggested, is superior to excluding these periods from the sample altogether. Indeed, one could argue that setting shareholder control to zero during bankruptcy introduces large and artificial fluctuations in common ownership such that any effects of common ownership on prices are obscured. Setting shareholder control to zero is also unlikely to model actual control rights during bankruptcy correctly, because these control rights do not simply disappear, but shift to debt holders, who likely include some of the same financial institutions as the shareholders.⁴⁴

In a similar vein, DGS shows that if shares investors report as non-voting shares are instead treated as voting shares, the effect of common ownership concentration on prices is no longer significant.⁴⁵ But this approach involves a stark overwriting of the existing ownership data. While those data are certainly not perfect, there is no reason to think that treating all reported non-voting shares as voting shares should yield more accurate data.

General Methodology. A more serious concern may be whether AST's general empirical methodology is in fact appropriate to analyze the causal effect of common ownership on prices. The main issue with the reduced-form regressions employed by AST, which AST acknowledged but only partially addressed, is the endogeneity of market shares. Specifically, AST's measure of common ownership, the "modified Herfindahl-Hirschman Index" (MHHI), depends on the ownership links between airlines and the airlines' market shares—but market shares are simultaneously determined with price. That is, an airline that reduces its price on a given route will likely gain market share on that route, and this change in market share will enter into the MHHI, causing a feedback loop from price to MHHI, in addition to the relationship between MHHI and price that AST sought to capture. Both KOSW and DGS have gone so far as to argue that the endogenous relationship between market shares and the MHHI can entirely explain AST's results. However, AST's results hold up when the endogeneity of market shares is addressed, as discussed below.

One approach to the problem of endogenous market shares is to replace the MHHI by a measure of common ownership that does not depend on market shares. For example, KOSW constructs three alternative indices of common ownership concentration that do not use market shares and finds that all three of these measures are positively and statistically

significantly correlated with airline prices, just as the MHHI originally used by AST. Similarly, Azar and Vives' recent study uses a measure of common ownership that avoids market shares and also confirms the positive and statistically significant effect of that measure on airline prices.⁴⁶ These findings show that AST's conclusions do not depend on a measure of common ownership that uses market shares. In light of this, DGS's claims to the contrary may be explained as a misinterpretation of DGS's empirical results. For example, DGS's "model-free" measure of common ownership increases with the number of airlines operating in a market, so that its estimated effect on prices likely conflates the procompetitive effect of adding another competitor and the anticompetitive effect of common ownership.

A second solution to address the market share endogeneity issue is to estimate a "structural model" that explicitly accounts for the co-determination of market shares and prices in equilibrium. KOSW concludes that there is no evidence for an effect of common ownership on airline prices based on their structural model. A paper by Park and Seo, however, also estimates a structural model and finds just the opposite from KOSW, thus confirming AST's results using a very different empirical methodology from AST.⁴⁷ KOSW's implementation of the structural estimation is unlikely to be superior to that of Park and Seo.⁴⁸ Thus, AST's results are not necessarily over-turned in a structural model, as KOSW claims.

Conclusion

Critiques of AST on theoretical grounds do not justify an outright dismissal of AST's empirical findings. What matters from an economic perspective are the owners' and firm managers' underlying incentives, not their specific mechanisms to achieve these incentives. The ongoing mechanisms debate is a useful exercise for identifying frictions that the theory abstracts away from and that might render its predictions more or less plausible in specific cases.⁴⁹

Critics' empirical claims that appear to contradict AST also do not provide evidence that warrants dismissal of AST's original conclusion that common ownership likely causes higher prices in U.S. airline markets. While future research may yet lead us to reevaluate certain AST premises, the fact that several academics and consultants have tried to dismantle AST's empirical results, while other academics came to the same conclusion as AST using a very different methodology, has served to increase our understanding of, and confidence in, these results.

Ultimately, common ownership's competitive impact, which AST studied in terms of airline prices, is an empirical question that depends on the ownership patterns and possible frictions in a given market. A burgeoning economic literature has found anticompetitive effects in other industries and on other dimensions of competition, but common ownership may also have procompetitive effects or competitively neutral effects in some settings.⁵⁰ While this article does not address policy solutions, the general thesis does not

rule out a place for policies seeking to limit the extent or effects of within-industry ownership concentration.

AST launched an important debate about the intersection of antitrust and corporate governance. It will be interesting to follow future insights generated from the continued cross-pollination of these fields. Such insights by critics and supporters alike will further our collective understanding, for example of the different incentives different common owners face, and the effect of common ownership on coordination among firms. ■

¹ José Azar, Martin C. Schmalz & Isabel Tecu, *Anticompetitive Effects of Common Ownership* (Working Paper, 2014), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2427345. The paper was published in the *Journal of Finance* in 2018. José Azar, Martin C. Schmalz & Isabel Tecu, *Anticompetitive Effects of Common Ownership*, 73 J. FIN. 1513 (2018) [hereinafter AST]. This article abbreviates this and other academic economics papers based on the initials of the authors' last names.

² Unless otherwise specified, the term "common ownership" as used in this article refers to common ownership among competitors, not to common ownership among all firms generally. See also AST, *supra* note 1, at 1514 (focusing on "partial common ownership of natural competitors").

³ Org. for Econ. Co-operation & Dev. [OECD], Competition Committee, *Common Ownership by Institutional Investors and Its Impact on Competition*, Dec. 6, 2017, <https://www.oecd.org/daf/competition/common-ownership-and-its-impact-on-competition.htm>; Fed. Trade Comm'n, *FTC Hearing #8: Common Ownership*, Dec. 6, 2018, <https://www.ftc.gov/news-events/events-calendar/ftc-hearing-8-competition-consumer-protection-21st-century>; NICOLETTA ROSATI ET AL., JOINT RSCH. CTR., EUR. COMM'N, *COMMON SHAREHOLDING IN EUROPE* (2020), <https://publications.jrc.ec.europa.eu/repository/handle/JRC121476>.

⁴ See, e.g., Margrethe Vestager, European Commission Competition Commissioner, *Competition in Changing Times*, Address at the FIW Symposium (Feb. 16, 2018), <https://ec.europa.eu/newsroom/comp/items/614523/default>; Noah Joshua Phillips, Commissioner, Fed. Trade Comm'n, *Taking Stock: Assessing Common Ownership*, Remarks at The Global Antitrust Economics Conference (June 1, 2018), https://www.ftc.gov/system/files/documents/public_statements/1382461/phillips_-_taking_stock_6-1-18_0.pdf; Makan Delrahim, Assistant Att'y Gen., Remarks at Fordham University School of Law (May 1, 2019), <https://www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-remarks-fordham-university-school-law>; Case M.7932—Dow/DuPont, Comm'n Decision, ¶ 2349 (Mar. 27, 2017) (Summary: 2017 O.J. (C 353) 9), http://ec.europa.eu/competition/mergers/cases/decisions/m7932_13668_3.pdf.

⁵ Einer Elhauge, *Horizontal Shareholding*, 129 HARV. L. REV. 1267, 1301–16 (2016) (arguing that U.S. antitrust law provides a remedy for an "anti-competitive stock acquisition"); Eric A. Posner, Fiona Scott Morton & E. Glen Weyl, *A Proposal to Limit the Anticompetitive Power of Institutional Investors*, 81 ANTITRUST L.J. 669, 678 (2017) (proposing a Clayton Act enforcement policy limiting institutional investors to one firm per industry or a total value of less than 1% of the industry); Edward B. Rock & Daniel L. Rubinfeld, *Antitrust for Institutional Investors*, 82 ANTITRUST L.J. 221, 270–77 (2018) (arguing that limits suggested by Posner et al. will cause institutions to disengage from "normal and appropriate involvement in corporate governance" and suggesting a "safe harbor" for investors holding less than 15% of industry value); Menesh Patel, *Common Ownership, Institutional Investors, and Antitrust*, 82 ANTITRUST L.J. 279, 282–83 (2018) (arguing that, rather than across-the-board restrictions or safe-harbor provisions, "common ownership should be evaluated on a case-by-case basis . . . and the antitrust agencies . . . should . . . consider all factors bearing on common ownership's potential anticompetitive effects"); Fiona Scott Morton & Herbert Hovenkamp, *Horizontal Shareholding and Antitrust Policy*, 127 YALE L.J. 2026, 2031 (2018) (asserting that "[b]oth the Sherman Act and the Clayton Act can be brought to bear against anticompetitive horizontal shareholding"); Thomas A. Lambert & Michael E. Sykuta, *The Case for Doing Nothing About Institutional Investors' Common Ownership of*

- Small Stakes in Competing Firms* (Univ. of Mo. School of Law Legal Studies Research Paper No. 2018-21, 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3173787 (suggesting that “the purported problem is overblown . . . and . . . additional antitrust intervention to fix it is, at least at current levels of common ownership, unwarranted”); Keith Klovers & Douglas H. Ginsburg, *Common Ownership: Solutions in Search of a Problem*, FRÉDÉRIC JENNY: STANDING UP FOR CONVERGENCE AND RELEVANCE IN ANTITRUST, LIBER AMICORUM - VOL. II 261, 261 (Nicolas Charbit & Thomas Moretto eds., 2021) (describing antitrust enforcement against common ownership as “misguided”).
- ⁶ For recent surveys of the literature, see Matthew Backus, Christopher Conlon & Michael Sinkinson, *The Common Ownership Hypothesis: Theory and Evidence* (Brookings Econ. Studies Working Paper, 2019); Martin C. Schmalz, *Recent Studies on Common Ownership, Firm Behaviour, and Market Outcomes*, 66 ANTITRUST BULL. 12 (2021).
- ⁷ See, e.g., Julio J. Rotemberg, *Financial Transaction Costs and Industrial Performance* (Sloan School of Management Working Paper No. 1554-84, 1984), <https://dspace.mit.edu/bitstream/handle/1721.1/47993/financialtransac00rote.pdf?sequence=1>.
- ⁸ See, e.g., Lambert & Sykuta, *supra* note 5, at 9–12, 23–34; Rock & Rubinfeld, *supra* note 5, at 229–51; Klovers & Ginsburg, *supra* note 5, at 272–73.
- ⁹ The application of this theory to partial ownership interests in competitors has been formalized by Bresnahan and Salop, and Salop and O’Brien, who developed the modified Herfindahl-Hirschman Index (MHHI) as a measure of market concentration that takes the ownership structure of market participants into account. See Timothy F. Bresnahan & Steven C. Salop, *Quantifying the Competitive Effects of Production Joint Ventures*, 4 INT’L J. OF INDUS. ORG. 155 (1986); Steven C. Salop & Daniel P. O’Brien, *Competitive Effects of Partial Ownership: Financial Interest and Corporate Control*, 67 ANTITRUST L.J. 559 (2000). The MHHI is commonly used by competition authorities to assess the competitive impact of mergers involving partial ownership interests. See, e.g., Eur. Comm’n, Guidelines on the Assessment of Horizontal Mergers under the Council Regulation on the Control of Concentrations Between Undertakings, 2004 O.J. (C 31) 5, 15 n.25; Case IV/M.1383—Exxon/Mobil, Comm’n Decision, 2004 O.J. (L 103) 1 (Sept. 29, 1999); Case COMP/M.2283—Schneider/Legrand, Comm’n Decision, 2004 O.J. (L 101) 1 (Jan. 30, 2002); and Case. COMP/M.7932—Dow/DuPont. While the U.S. Horizontal Merger Guidelines do not explicitly mention the MHHI, they describe the same effects of partial ownership captured by the MHHI. U.S. Dep’t. of Justice & Fed. Trade Comm’n, Horizontal Merger Guidelines, § 13 (2020).
- ¹⁰ For example, the analysis of unilateral price effects that antitrust agencies frequently apply in merger analysis is not concerned with specific mechanisms through which the merged firm may increase prices, but with the merged firm’s incentives to do so. See Horizontal Merger Guidelines, *supra* note 9, § 1.
- ¹¹ Two recent papers on different sides of this debate are C. Scott Hemphill & Marcel Kahan, *Strategies of Anticompetitive Common Ownership*, 129 YALE L.J. 1392, 1400 (2020) (“[F]or most mechanisms, there is either no strong theoretical basis for believing that institutional CCOs could or would want to employ them, no significant evidence suggesting that they do employ them, or both.”); Einer Elhauge, *The Causal Mechanisms of Horizontal Shareholding*, 82 OHIO ST. L.J. 1, 5 (2021) (“[W]e have ample proof on causal mechanisms and . . . others are mistaken when they argue that enforcement should focus on causal mechanisms, rather than on anticompetitive market structures.”).
- ¹² See, e.g., Hemphill & Kahan, *supra* note 11, at 1421–22; Klovers & Ginsburg, *supra* note 5, at 267–71.
- ¹³ For example, BlackRock’s Investment Stewardship website states, “BlackRock aims to take a common view in-house regarding our engagement and voting policies and utilises the investment stewardship group to coordinate, communicate and carry out these policies.” *Investment Stewardship*, BLACKROCK, <https://www.blackrock.com/au/individual/about-blackrock/investment-stewardship> (last visited Oct. 18, 2021).
- ¹⁴ See Klovers & Ginsburg, *supra* note 5, at 268–69.
- ¹⁵ See, e.g., Lucian Bebchuk & Scott Hirst, *Index Funds and the Future of Corporate Governance: Theory, Evidence, And Policy*, 119 COLUM. L. REV. 2029, 2055 (2019); Klovers & Ginsburg, *supra* note 5, at 271.
- ¹⁶ Jonathan Lewellen & Katharina Lewellen, *Institutional Investors and Corporate Governance: The Incentive to be Engaged*, J. FIN. (forthcoming), <https://doi.org/10.1111/jofi.13085>.
- ¹⁷ Elhauge, *supra* note 11, at 24; Eric A. Posner, *Policy Implications of the Common Ownership Debate*, 66 ANTITRUST BULL. 140, 144 (2021). This view assumes that firm managers agree with common owners in that they find competition undesirable.
- ¹⁸ Critics have made this argument to suggest that AST’s empirical results are implausible. See, e.g., Lambert & Sykuta, *supra* note 5, at 19–22. But the fact that AST found empirical effects of within-industry common ownership without accounting for cross-industry common ownership suggests that AST may underestimate the true effects of within-industry common ownership.
- ¹⁹ See José Azar & Xavier Vives, *General Equilibrium Oligopoly and Ownership Structure*, 89 ECONOMETRICA 999 (2021); José Azar & Xavier Vives, *Revisiting the Anticompetitive Effects of Common Ownership* (IESE Business School Working Paper, 2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3805047 [hereinafter Azar and Vives, *Revisiting*]. Azar and Vives also show that the effects documented by AST are not driven by the “Big Three” index investors BlackRock, Vanguard, and State Street; that finding supports the idea that large index investors may be sufficiently diversified across other sectors that their anticompetitive incentives could be outweighed by their procompetitive incentives in some markets. *Id.* at 2, 23–26.
- ²⁰ Cross-industry common ownership in airlines can be considered an “omitted variable” in AST’s empirical analysis; Azar and Vives show that AST’s central conclusions still hold when this “omitted variable” is accounted for. Azar & Vives, *Revisiting*, *supra* note 19, at 19.
- ²¹ Indeed, AST showed that the effect of carrier-level average common ownership across markets is an order of magnitude larger than the remaining effect of route-level common ownership.
- ²² Miguel Antón, Florian Ederer, Mireia Giné & Martin C. Schmalz, *Common Ownership, Competition, and Top Management Incentives* at 4 (Eur. Corp. Governance Inst. Finance Working Paper No. 511/2017, 2021), <https://ssrn.com/abstract=2802332> [hereinafter AEGS].
- ²³ See, e.g., Rock & Rubinfeld, *supra* note 5, at 239.
- ²⁴ Reena Aggarwal, Sandeep Dahiya & Nagpurnanand Prabhala, *The Power of Shareholder Votes: Evidence from Uncontested Director Elections*, 133 J. FINANC. ECON. 134, 134 (2019) (“We show that contrary to popular belief based on prior studies, shareholder votes have power and result in negative consequences for directors. Directors facing dissent are more likely to depart boards [...]. Directors facing dissent who do not leave are moved to less prominent positions on boards. Finally, we find evidence that directors facing dissent face reduced opportunities in the market for directors.”).
- ²⁵ For example, the head of corporate governance at State Street Global Advisors explained that “[t]he option of exercising our substantial voting rights in opposition to management provides us with sufficient leverage and ensures our views and client interests are given due consideration.” Mike Scott, *Passive Investment, Active Ownership*, FIN. TIMES, Apr. 6, 2014.
- ²⁶ The latter assumption is supported by a large literature on managerial incentive design, which posits that managers do not innately care about firm performance but are more concerned with their own private utility. For a recent survey see Alex Edmans & Xavier Gabaix, *Executive compensation: A modern primer*, 54 J. ECON. LIT. 1232 (2016). An interesting insight from AEGS is that, while common ownership implies higher prices, it does not necessarily imply higher mark-ups. In that paper’s set-up, a higher degree of common ownership implies lower incentives for top managers to increase firm-wide productivity because (1) such productivity enhancements would cannibalize profits of commonly owned competitors and (2) lower firm-wide productivity in turn translates into higher costs and higher prices. However, although mark-ups are not higher, firm profits are higher, partially because executives do not need to be paid as much.
- ²⁷ AEGS is not without criticism. Earlier empirical studies of the relationship between common ownership and executive compensation come to seemingly opposite conclusions from AEGS, but these studies use the sensitivity of executives’ annual compensation to firm performance rather than the sensitivity of total executive wealth. Arguably, total executive wealth is the more relevant measure. On a conceptual level, critics have argued that intuitively the negative effect on competitors’ profits of improved firm efficiency

- should be outweighed by the positive effect on the firm's own profits, and thus net common owners should prefer firms to be more efficient, rather than less. See, e.g., Hemphill & Kahan (2020), *supra* note 11, at 1432–33; David Walker, *Common Ownership and Executive Incentives: The Implausibility of Compensation as an Anticompetitive Mechanism*, 99 B.U. L. REV. 2373, 2399–2400 (2019). AEGS, *supra* note 22, at 3, however, shows precisely that this intuition does not need to hold.
- ²⁸ Posner, *supra* note 17, at 145.
- ²⁹ Nathan Shekita, *Interventions by Common Owners* at 4–5 (Working Paper, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3658726. Although not discussing the role of financial analysts on these calls, Aryal, Ciliberto and Leyden find that if “capacity discipline” is mentioned on earnings calls by all airlines operating in a given route, route-level capacity declines. In their model, airlines’ statements are not targeted at specific routes but the impact is measured at the route level, just as common ownership effects are measured at the route level but likely operate at a broader, firm-wide level. Gaurab Aryal, Federico Ciliberto & Benjamin T. Leyden, *Coordinated Capacity Reductions and Public Communication in the Airline Industry*, REV. ECON. STUD., forthcoming.
- ³⁰ Shekita, *supra* note 29, at 9. For example, common owners met with executives from shale companies and sent them letters to discourage production expansion, which executives seem to have heeded. *Id.* at 4.
- ³¹ See, e.g., Hemphill & Kahan, *supra* note 11, at 1425.
- ³² Yaron Nili, *Horizontal Directors*, 114 Nw. U. L. REV. 1179, 1207–20 (2020).
- ³³ Rock & Rubinfeld, *supra* note 5, at 236.
- ³⁴ This objective function can be justified by models of shareholder voting; the weight the firm places on each owner can be modeled empirically as a function of the owner's share of voting shares.
- ³⁵ Hemphill and Kahan refer to such strategies as “consensus mechanisms,” in contrast to “conflict mechanisms,” and claim that consensus mechanisms have not been empirically proven because the MHHI used by AST (and other measures used in the literature) rely on theories of unilateral effects, not coordinated effects. Hemphill & Kahan, *supra* note 11, at 1399. The theory that motivates AST does not explicitly account for the “coordinated effects” evoked in some of the mechanisms. But the MHHI can still be viewed as a valid metric to measure consensus mechanisms because it measures common owners’ greater disincentives to deviate from coordination, compared to undiversified owners. Finally, even if, as Hemphill and Kahan claim, consensus mechanisms were not captured by the empirical studies to date, this does not imply that consensus mechanism could not play an important role.
- ³⁶ See José Azar, *Portfolio Diversification, Market Power, and the Theory of the Firm* (Working Paper, 2017), <https://ssrn.com/abstract=2811221>.
- ³⁷ Pauline Kennedy, Daniel P. O'Brien, Minjae Song & Keith Waehrer, *The Competitive Effects of Common Ownership: Economic Foundations and Empirical Evidence* at 23 (Working Paper, 2017), <https://ssrn.com/abstract=3008331> [hereinafter KOSW].
- ³⁸ Patrick J. Dennis, Kristopher S. Gerardi & Carola Schenone, *Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry*, J. FIN. forthcoming [hereinafter DGS]. For responses from the AST authors, see José Azar, Martin C. Schmalz & Isabel Tecu, *Research on the Competitive Consequences of Common Ownership: A Methodological Critique*, 66 ANTITRUST BULL. 113 (2021) [hereinafter AST Methodological Critique]; José Azar, Martin C. Schmalz & Isabel Tecu, *Reply to: “Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry”* (Working Paper, 2018), <https://ssrn.com/abstract=3168095> (responding to an earlier version of DGS that included multiple claims that the current version of DGS no longer makes; see Schmalz, *supra* note 6, at 34–37, for a discussion). Other recent academic papers make broad claims that there is no valid evidence for anticompetitive effects of common ownership but do not empirically investigate the markets AST studied. See, e.g., Andrew Koch, Marios Panayides & Shawn Thomas, *Common Ownership and Competition in Product Markets*, 139 J. FIN. ECON. 109 (2021); Katharina Lewellen & Michelle B. Lowry, *Does Common Ownership Really Increase Firm Coordination?*, 141 J. FIN. ECON. 322 (2021); Eyub Yegen, *Common-Ownership and Portfolio Rebalancing* (Working Paper, 2019), <https://ssrn.com/abstract=3345779>.
- ³⁹ These studies cannot claim that there is no evidence for anticompetitive effects of common ownership in the U.S. airline industry even if they could successfully “disprove” AST, as they do not engage with the evidence presented by Park and Seo, who find anticompetitive effects of common ownership in the U.S. airline industry using a very different empirical methodology than AST used. See Alex Haerang Park & Kyoungwon Seo, *Common Ownership and Product Market Competition: Evidence from the U.S. Airline Industry*, 48 KOREAN J. OF FIN. STUDIES 617 (2019).
- ⁴⁰ BlackRock also commissioned research to identify problems with AST's work. That research identified three issues: AST's assumptions with regard to “(1) measurement of financial incentives of asset managers, (2) measurement of corporate control and financial incentives during bankruptcy, and (3) accounting for changes in industry structure over time.” Mark Egland, Owen Hearey, Todd Schatzki & Channing Verbeck Jr., *Reassessing Common Ownership: Corrections to Azar, Schmalz, and Tecu* (2018) at 2 (Working Paper, 2019), <https://ssrn.com/abstract=3463231>. The first two of these points are discussed in the main text of this article. The third argument is that AST failed to account for potential changes in the relationship between industry concentration (including common ownership) and prices over time. This argument can be countered in a similar vein as the bankruptcy point; slicing the data into smaller sub-periods will inevitably lead to finding no statistically significant effect, as the estimation relies on variations in the data over time to identify the effect. Furthermore, there is no reason to expect changes in industry structure to alter the relationship between industry concentration and prices over time, and AST's control variables already capture changes in industry structure over time that may impact prices directly.
- ⁴¹ Economists refer to this phenomenon as “attenuation bias.”
- ⁴² DGS, *supra* note 38; Egland et al., *supra* note 40, at 10.
- ⁴³ AST *supra* note 1, at 1532, tbl.4 and surrounding discussion.
- ⁴⁴ For example, American Airlines bondholders while the company was in bankruptcy included J.P. Morgan and BlackRock. These bondholders played an active role in determining American Airlines’ exit from bankruptcy, for example by discussing a proposed merger with American Airlines and U.S. Airways executives, as reported by the *Wall Street Journal*. Mike Spector, *American Airlines Bondholders Debate Its Future*, WALL ST. J., (Jan. 9, 2013), <https://www.wsj.com/articles/SB10001424127887323442804578231801585294348>.
- ⁴⁵ DGS, *supra* note 38, at tbl. 4 and surrounding discussion.
- ⁴⁶ Azar & Vives, *Revisiting*, *supra* note 19, at 2–3, 28.
- ⁴⁷ Park & Seo, *supra* note 39, at 621 (“Our empirical analysis shows that common ownership has softened competition among airline companies in the first quarter of 2009. . . . Firms tend to act more collusively as the common ownership linkage becomes stronger.”).
- ⁴⁸ See AST, *Methodological Critique*, *supra* note 38.
- ⁴⁹ A better understanding of the mechanisms may also be helpful to inform policy responses. Posner, *supra* note 17, at 142 (“[T]he question of mechanism is important because the policy response . . . should normally be tailored to the mechanism.”). However, shutting down a specific mechanism arguably could lead to the strengthening of other mechanisms.
- ⁵⁰ See, e.g., Melissa Newham, Jo Seldeslachts & Albert Banal Estañol, *Common Ownership and Market Entry: Evidence from the Pharmaceutical Industry* (DIW Berlin Discussion Paper No. 1738, 2019), <https://ssrn.com/abstract=3194394>; Jin Xie & Joseph Gerakas, *The Anticompetitive Effects of Common Ownership: The Case of Paragraph IV Generic Entry*, 110 AEA PAPERS AND PROCEEDINGS 569 (2020); Mohammad Torshizi & Jennifer Clapp, *Price Effects of Common Ownership in the Seed Sector*, 66 ANTITRUST BULL. 39 (2021); Lysle Boller & Fiona Scott Morton, *Testing the Theory of Common Stock Ownership* (Nat'l Bureau of Econ. Rsch., Working Paper No. w27515, 2020), <https://www.nber.org/papers/w27515>; Matthew Backus, Christopher T. Conlon & Michael Sinkinson, *Common Ownership and Competition in the Ready-to-Eat Cereal Industry* (Nat'l Bureau of Econ. Rsch., Working Paper No. w28350, 2021), <https://www.nber.org/papers/w28350>; Ángel L. López & Xavier Vives, *Overlapping Ownership, R&D Spillovers, and Antitrust Policy*, 127 J. POLIT. ECON. 2394 (2019); Miguel Antón, Florian Ederer, Mireia Giné & Martin C. Schmalz, *Innovation: The Bright Side of Common Ownership?* (Working Paper, 2021), <https://ssrn.com/abstract=3099578>.