

# COMMON OWNERSHIP AND PRICES: A COMPREHENSIVE GENERALIZED STUDY



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## Introduction

Proponents of the “Common Ownership Hypothesis” contend that when a single investor owns equity in multiple competing firms in an industry (i.e., “common ownership”), management of the competing firms will seek to maximize the total portfolio returns of the single investor/common owner, rather than maximizing the profits of their own individual firm. As a result, these proponents argue that common ownership reduces competition among firms, as firms collectively behave more monopolistically than if they did not share a common owner. Based on these purported anti-competitive effects of common ownership, proponents of this hypothesis have initiated policy debates surrounding this issue and have proposed draconian measures that would drastically upend many commonly held tenets of modern portfolio management to address these alleged problems. A critical component of some proposed policies is a significant restriction on the ability of institutional investors to hold equity stakes in multiple firms in certain concentrated industries. Such extreme measures would — if they are even reasonably possible to implement — likely result in a de facto ban on current broadly diversified investment products, including almost all diversified mutual funds, sector-based funds, and the most prevalent and lowest cost type of funds, broad-market-based index funds that offer exposure to large and diverse market indexes (e.g., S&P 500 or Russell 3000).<sup>1</sup> Since exposure to almost any highly diversified strategy necessitates ownership of multiple firms in a given industry, any limitations on ownership would significantly compromise the operation of pension funds and other institutional investors in general.

As the Committee on Capital Markets Regulation (“Committee”) has explained previously, and summarized below, the substantial negative impact that would result from such measures would be severe. Among those who would be impacted are millions of U.S. retail savers and retirees, who depend on the low cost and diversification of diversified funds, including index mutual funds and exchange-traded funds (“ETFs”), to meet their financial goals.<sup>2</sup> Given these significant consequences, it is critical that the policy debate be centered on an accurate analysis of the impact of common ownership. The appropriateness and advisability of policy remedies to address common ownership hinge on the weight of empirical evidence either supporting or disproving the theoretical concerns.

Empirical research on common ownership, beginning with a study of the airline industry, has significantly influenced academic and policy debates. The 2018 airline study by Azar, Schmalz and Tecu argued that common ownership of airlines by institutional investors is associated with

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<sup>1</sup> See COMM. ON CAP. MKTS. REGUL., *An Analysis of Proposals to Restrict Institutional Ownership* (Apr. 2019), <https://www.capmktreg.org/wp-content/uploads/2019/03/CCMR-Analysis-of-Common-Ownership-Proposals.pdf>.

<sup>2</sup> According to the 2025 Investment Company Factbook, 126.8 million U.S. individuals own U.S.-registered investment funds, including mutual funds and ETFs. See INV. CO. INST., *Factbook 2025*, <https://www.ici.org/factbook>.

average ticket price increases of 3% –7%.<sup>3</sup> Of note, while certain claims in the original airline study suggest common ownership *causes* price increases,<sup>4</sup> a subsequent paper by the same authors more definitively clarifies that the airline results do not show causation.<sup>5</sup> Critically, subsequent empirical studies have challenged the validity of the Azar et al. (2018) results, and the Committee has previously highlighted several flaws with the theoretical assumptions as well as the methodological approach of the airline study.<sup>6</sup>

Notwithstanding the significant flaws, the airline paper claims regarding common ownership have sparked policy discussions, including a 2018 Federal Trade Commission (“FTC”) hearing focused on common ownership.<sup>7</sup>

More recently, other issues related to common ownership have been raised in an April 2024 joint public comment issued by the FTC and U.S. Department of Justice urging the Federal Energy Regulatory Commission to “consider the competitive risks of common ownership”<sup>8</sup> and a recent state action against certain asset managers.<sup>9</sup>

However, the narrow industry focus of the common ownership studies necessarily limits the generalizability of the already dubious anti-competitive findings across broader economic contexts

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<sup>3</sup> José Azar, Martin C. Schmalz & Isabel Tecu, *Anticompetitive Effects of Common Ownership*, 73(4) J. FIN. 1513 (2018) [hereinafter Azar et al. (2018)], <http://www.jstor.org/stable/26654659>.

<sup>4</sup> See *id.* at 1517 (claiming that “ticket prices are approximately 3% to 7% higher...than would be the case under separate ownership.”).

<sup>5</sup> See José Azar, Martin C. Schmalz & Isabel Tecu, *A Refutation of ‘Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry’*, ECGI FINANCE WORKING PAPER NO. 837/2022 (2022), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4158149](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4158149) (noting that “[Azar et al. (2018)] do not claim a causal interpretation of their panel regression estimates.”).

<sup>6</sup> See e.g., COMM. ON CAP. MKTS. REGUL., *Common Ownership and Antitrust Concerns* (Nov. 2017), <https://capmktreg.org/wp-content/uploads/2022/11/CCMR-Common-Ownership-1-1.pdf> ; COMM. ON CAP. MKTS. REGUL., *Nothing But The Facts Common Ownership: Theory Meets Reality* (Jan. 2019), <https://capmktreg.org/wp-content/uploads/2019/01/01-15-Nothing-But-The-Facts-Common-Ownership-Theory-Meets-Reality.pdf> ; see also, e.g., Edward B. Rock & Daniel L. Rubinfeld, *Defusing the Antitrust Threat to Institutional Investor Involvement in Corporate Governance*, N.Y.U. L. & ECON. RESEARCH PAPER NO. 17-05 (2017), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2925855](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2925855).

<sup>7</sup> FED. TRADE COMM’N, *FTC Hearing #8: Common Ownership*, (Dec. 6, 2018), <https://www.ftc.gov/news-events/events/2018/12/ftc-hearing-8-common-ownership> .

<sup>8</sup> U.S. DEP’T OF JUSTICE, *Press Release: Justice Department and FTC Submit Joint Comment to FERC Explaining that Common Ownership by Investment Companies Can Raise Competition Concerns* (Apr. 25, 2024), <https://www.justice.gov/archives/opa/pr/justice-department-and-ftc-submit-joint-comment-ferc-explaining-common-ownership-investment>.

<sup>9</sup> See *Amended Complaint, Texas et al. v. BlackRock, Inc., State Street Corp., and The Vanguard Group, Inc.*, No. 6:24-cv-00437 (E.D. Tex. Jan. 16, 2025), <https://www.naag.org/wp-content/uploads/2025/04/Amended-Complaint-TX-v-Blackrock.pdf>.

affecting consumers. It is critical that policy discussions be based on generalizable empirical research, rather than a few select industry-specific studies.<sup>10</sup>

In this report, we present the results of our comprehensive study examining the link between common ownership and industry-level prices across 52 industries, including 30 industries that are either moderately or highly concentrated based on the Herfindahl-Hirschman Index (“HHI”), over a 24-year period.<sup>11</sup> Our study advances the common ownership debate in three ways. First, it examines the direct relationship between common ownership and prices using a cross-industry sample of 4,097 industry-by-quarter observations. Second, it examines the direct relationship between common ownership and prices for each of the 52 industries. Third, our study significantly expands the timeframe considered in the original airline paper, as our sample spans 24 years from 2000 through 2023, as opposed to the airline paper’s much smaller timeframe (2001 through 2014).

Our results comprehensively show no evidence that common ownership has an anti-competitive impact on prices. We find a complete lack of positive correlation between increases in common ownership and prices, which we demonstrate through multiple channels. These findings confirm and expand on the substantial body of research that has also found several flaws in the original common ownership literature. However, our study does so with a comprehensive, multi-industry examination of common ownership and prices at the industry level. While competition can impact markets through several channels, our study focuses on prices, as they are arguably the most conspicuous and quantifiable indicator of competitive dynamics.

Part I of this report presents an overview of the existing theoretical and empirical research, including a critical review of proposals aimed at restricting common ownership. Part II details our new empirical study, which examines the impact of common ownership on prices across a broad range of industries. We describe our methodology and results with strong evidence countering claims of anti-competitive effects associated with common ownership.

## **1. Empirical Literature and Policy Proposals**

### **A. Empirical Literature**

The empirical paper that sparked the current common ownership debate focused on the airline industry with claims that common ownership leads to material increases in airline ticket prices.<sup>12</sup> Importantly, multiple empirical studies have challenged the specific results of the airline paper,

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<sup>10</sup> For a multi-industry study conducted by The Vanguard Group, see Haifeng Wang, Jan-Carl Plagge, James Rowley & Roger A Aliaga-Diaz, *Common Ownership and Industry Profitability: A Cross-Industry View*, SSRN PAPER (2019), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3437129](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3437129).

<sup>11</sup> Moderately concentrated industries have an HHI from 1,000 to 2,500. Highly concentrated industries have an HHI exceeding 2,500.

<sup>12</sup> Azar et al. (2018), *supra* note 3.

largely debunking the main conclusions. This section will summarize the claims of the airline paper and highlight the key flaws in the conclusions.

Following the airline paper, several common ownership studies have also examined potential effects on pricing in other industries, including the banking industry, conducted by two of three airline study authors.<sup>13</sup> We summarize these studies and explain how these papers suffer from the same flaws as the airline study. In addition, we highlight a significant multi-industry study that provides strong evidence against a general problem of common ownership with respect to prices.

Beyond price impacts, empirical studies of common ownership have expanded to several other possible effects, including focuses on investment and research and development (“R&D”), firm/product market entry, firm performance, mergers and acquisitions (“M&A”) activity, and corporate governance.<sup>14</sup> However, as we explain below, studies that find negative consequences of common ownership do so using flawed methodologies and have been refuted by other studies that do not suffer from those same flaws.

Moreover, the studies alleging a significant impact of common ownership generally fail to establish a plausible *causal* relationship, merely illustrating a degree of correlation between common ownership and various firm/product characteristics. Mutual fund managers, including those who offer index funds, are not activist investors, as they generally refrain from direct governance actions such as holding board seats, introducing proxy proposals, or nominating directors. The lack of a causal link significantly undermines the validity of these studies’ findings and purported conclusions.

## *i. Airline Paper Summary and Critique*

The original paper at the center of the common ownership debate is the Azar et al. (2018) study (first released in 2014) of common ownership’s impact on airline prices (“airline paper”). Based on its empirical findings, the airline paper argues that increased common ownership is associated with higher average ticket prices of 3-7%.<sup>15</sup>

As a proxy for common ownership, the study proposes the modified Herfindahl-Hirschman Index (“MHHI”), which augments the standard HHI concentration measure used in antitrust analysis by adding an additional term capturing the concentration effects of common ownership. The MHHI is constructed as:

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<sup>13</sup> José Azar, Sahil Raina & Martin C. Schmalz, *Ultimate Ownership and Bank Competition*, 51(1) FIN. MGMT. 227 (2022) [hereinafter Azar, Raina & Schmalz (2022)], <https://doi.org/10.1111/fima.12368>.

<sup>14</sup> We follow the topic breakdown provided in Kristopher Gerardi, Michelle Lowry & Carola Schenone, *A Critical Review of the Common Ownership Literature*, 16 ANNUAL REV. FIN. ECON. 89 (2024), <https://www.annualreviews.org/content/journals/10.1146/annurev-financial-082123-105841>.

<sup>15</sup> See Azar et al. (2018), *supra* note 3.

$$MHHI = HHI + MHHI \text{ delta}$$

The MHHI delta (“MHHID”) represents the contribution of common ownership to the MHHI concentration measure and is calculated based on: (i) the relative equity stakes of common owners, (ii) the market shares of each firm in the market, and (iii) the effective control that each common owner has over a firm.<sup>16</sup> Effective control represents the degree to which a firm’s management will consider the preferences of a common owner.<sup>17</sup>

In the airline paper, the authors assign control weights based on an assumption of proportional control. For example, if a shareholder holds 10% of a firm’s voting shares, then the control weight is assumed to be 10%. However, no established theory supports the assumption of proportional control, nor does theory or empirical evidence support the assumption that firm management considers its owners’ equity holdings of rival firms. Despite this lack of support, the airline paper assumes proportional control in calculating the MHHID.

Notwithstanding the unsupported proportional control assumption, the fundamental flaw in the airline paper is its empirical design, which fails to accurately test the very effects it claims to test. In particular, since the MHHID depends not only on common ownership but also on the market shares of firms, the MHHID varies with changes in market share, *independent* of changes in common ownership. As a result, the MHHID can fluctuate even if common ownership remains stagnant and can even move in the opposite direction of common ownership.<sup>18</sup>

O’Brien & Waehrer (2017) points out that “the [MHHID] and the MHHI may rise *or fall* with an increase in common ownership.”<sup>19</sup> Since a change in the MHHID does not necessarily correspond to a change in common ownership, the MHHID is an unsuitable proxy for common ownership in the airline paper’s empirical model. As a result, the airline paper’s finding of a link between the MHHID and ticket prices *would not* translate to an equivalent link between common ownership and ticket prices.

This methodological design flaw in the airline paper was confirmed empirically by Dennis et al. (2022), which replicates the airline paper’s data and demonstrates that changes in airline industry

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<sup>16</sup> Azar et al. (2018) adopts the MHHI as proposed by Daniel P. O’Brien & Steven C. Salop, *Competitive Effects of Partial Ownership: Financial Interest and Corporate Control*, 67 ANTITRUST L.J. 559 (2000), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=192629](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=192629).

<sup>17</sup> See Daniel P. O’Brien & Keith Waehrer, *The Competitive Effects of Common Ownership: We Know Less than We Think*, 81 ANTITRUST L.J. 729 (2017), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2922677](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2922677).

<sup>18</sup> *Id.*

<sup>19</sup> *Id.* at 745 (emphasis added).

MHHID have indeed resulted from market share fluctuations rather than common ownership.<sup>20</sup> Moreover, the Dennis et al. (2022) study finds that the link between the MHHID and airline ticket prices found in the airline paper is, in fact, driven by changes in market shares, not by changes in common ownership or control. This result severely compromises the airline paper's claim that common ownership has any impact on airline ticket prices. Importantly, while the airline paper authors refute the findings of Dennis et al. (2022) by constructing a common ownership measure that does not fluctuate with market shares, they concede that there is no evidence of *causation* between common ownership and airline ticket price changes.<sup>21</sup>

A separate empirical study similarly confirms the methodological flaws in the airline paper through alternative means. Given the issues with the airline paper's methodology, Kennedy et al. (2017) specify an alternative model for testing common ownership's impact on airline prices.<sup>22</sup> To do so, the study constructs a common ownership proxy that does not depend on market share and thus removes the problems with the airline paper's use of the MHHID. Under this alternative model, the study finds that common ownership *decreases* ticket prices, completely countering the purported impact found by the original airline paper.<sup>23</sup>

In addition to the spurious results generated by the inappropriate use of the MHHID, the airline paper's methodology also leads to erroneous conclusions based on its assumption about institutional investors' holdings and control rights when a firm enters bankruptcy. Critically, the airline paper assumes that institutional investors continue to retain both their holdings and control even during bankruptcy.<sup>24</sup> However, Egland et al. (2019) notes the significant error in this assumption, explaining that bankrupt firms are promptly removed from relevant indexes and, therefore, sold by index funds.<sup>25</sup> Despite this, the airline study presumes that institutional owners retain control throughout bankruptcy.<sup>26</sup> Egland et al. (2019) documents the significant error in this assumption, noting that half of the airline study's time period examined (28 out of 56 quarters) is comprised of inaccurate data based on this flawed assumption.<sup>27</sup> Both Egland et al. (2019) and

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<sup>20</sup> Patrick Dennis, Kristopher Gerardi & Carola Schenone, *Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry*, 77 (5) J. FIN. 2765 (2022) [hereinafter Dennis et al. (2022)], <https://doi.org/10.1111/jofi.13176>.

<sup>21</sup> Azar, Schmalz & Tecu, *supra* note 5.

<sup>22</sup> Pauline Kennedy, Daniel P. O'Brien, Minjae Song & Keith Waehrer, *The Competitive Effects of Common Ownership: Economic Foundations and Empirical Evidence*, SSRN PAPER (2017), <https://dx.doi.org/10.2139/ssrn.3008331>.

<sup>23</sup> *Id.*

<sup>24</sup> See Azar et al. (2018), *supra* note 3.

<sup>25</sup> Mark Egland, Owen Hearey, Todd Schatzki & Channing Verbeck, *Reassessing Common Ownership: Corrections to Azar, Schmalz, and Tecu (2018)*, SSRN PAPER (2019) [hereinafter Egland et al. (2019)], [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3463231](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3463231). The authors note that the research was undertaken with the financial support of BlackRock, but that "the findings and opinions expressed are exclusively those of the authors."

<sup>26</sup> See Azar et al. (2018), *supra* note 3.

<sup>27</sup> Egland et al. (2019), *supra* note 25.

Dennis et al. (2022) confirms the significant problems arising from this error, finding that the airline paper’s main results disappear under more plausible bankruptcy assumptions.<sup>28</sup>

Additional research highlights the false assumption regarding control during bankruptcy, demonstrating that the effects of common ownership on airline ticket prices disappear if periods of bankruptcy are excluded.<sup>29</sup> Indeed, Azar & Ribeiro (2024) — a study conducted by one of the original airline paper’s authors — acknowledges this criticism and excludes periods of major airline bankruptcies.<sup>30</sup> Analyzing a time period that does not include airline bankruptcies, Azar & Ribeiro (2024) finds that the net effect of common ownership by the largest asset managers – for whom investments in index funds represent at least 80% of equity assets<sup>31</sup> – is a *decrease* in airline ticket prices.<sup>32</sup>

## ii. Price Effect Studies in Other Industries

Following the airline study, several common ownership studies have also examined potential effects on pricing in other industries, including Azar, Raina & Schmalz (2022) (first released in 2016 and authored by two of three airline study authors) focusing on the banking industry.<sup>33</sup> The banking paper studies links between common ownership and several features of bank accounts, using a modified version of the MHHI, the so-called generalized HHI (“GHHI”). The GHHI measure not only captures common ownership, as does the MHHI, but additionally captures cross-ownership. Cross-ownership is when a firm owns equity in rival firms. For example, a bank may own equity in a rival bank through its asset management division (e.g. through an index fund managed by the bank’s asset management division). Given the presence of cross-ownership in banking, Azar, Raina & Schmalz (2022) incorporates it into the GHHI measure.

Using the GHHI as the measure of common ownership, the banking paper argues that common ownership has led to higher checking account maintenance fees, higher minimum account balance requirements, and lower interest rates for savers.<sup>34</sup> However, much like the airline paper, the results of the banking paper are equally questionable given that the GHHI suffers from the same flaw associated with the MHHI. Since the GHHI also depends on market share, the GHHI can fluctuate

<sup>28</sup> More plausibly, Dennis et al. (2022) assumes that pre-bankruptcy stockholders either lose cash-flow rights or control over the airline.

<sup>29</sup> BLACKROCK, *Common Ownership Data is Incorrect* (Jan. 2019), <https://www.blackrock.com/us/individual>; COMM. ON CAP. MKTS. REGUL, *Letter to Donald S. Clark* at 8 (Jan. 14, 2021), <https://capmktreg.org/wp-content/uploads/2021/01/CCMR-Comment-Letter-FTC-Proposal-01.14.2020.pdf>.

<sup>30</sup> José Azar & Ricardo Ribeiro, *Estimating Oligopoly with Shareholder Voting Models* at 3, CRESSE PAPER (Mar. 2024) [hereinafter Azar & Ribeiro (2024)], [https://www.cresse.info/wp-content/uploads/2024/09/2024\\_ps6\\_pa4\\_RIBEIRO.pdf](https://www.cresse.info/wp-content/uploads/2024/09/2024_ps6_pa4_RIBEIRO.pdf).

<sup>31</sup> Marcel Kahan & Edward B. Rock, *Index Funds and Corporate Governance: Let Shareholders be Shareholders*, 100 B.U. L. REV. 1771, 1784 (2020), <https://www.bu.edu/bulawreview/files/2020/10/KAHAN-ROCK.pdf>.

<sup>32</sup> Azar & Ribeiro (2024), *supra* note 30.

<sup>33</sup> Azar, Raina & Schmalz (2022), *supra* note 13.

<sup>34</sup> *See id.*

regardless of changes in common ownership, making it an equally inappropriate measure for purposes of examining a link between common ownership and bank pricing. Gramlich & Grundl (2024) confirms this problem with the banking results empirically, implementing an alternative model specification that excludes market share, ultimately finding no conclusive link between common ownership and pricing in the banking industry.<sup>35</sup>

Price effects in other specific industries and markets have been examined as well with mixed results. In a study of the impact of common ownership on seed prices, Torshizi & Clapp (2021) argues that common ownership imposes strong anti-competitive price effects on corn, cotton and soybean seeds.<sup>36</sup> The study contends that approximately 6-14% of the increase in seed prices over a twenty-year period (1997-2017) was attributable to common ownership. Backus et al. (2021), however, examines the impact of common ownership on cereal prices and finds that common ownership has had no impact.<sup>37</sup>

While analysis of specific industries has produced controversial and inconclusive findings, a comprehensive multi-industry study by Koch et al. (2021) produces compelling evidence against a general anti-competitive impact on prices caused by common ownership.<sup>38</sup> The study examines the link between common ownership and prices across 78 industries, using five different proxies for common ownership: (i) the MHHI delta, (ii) density of common ownership (the ratio of common owned firm-pairs over the maximum possible number of firm-pairs in an industry),<sup>39</sup> (iii) percentage of common funds (number of institutional shareholders that own equity in multiple firms in an industry over the total number of institutional shareholders in the industry), (iv) percentage of common stocks (number of stocks in an industry with a common owner over the total number of stocks in an industry), and (v) a common ownership incentive term, which reflects the extent to which firms are connected to and influenced by a common owner (and does not account for firm market share).

The study conducts a panel regression of changes in the Producer Price Index (“PPI”) for each industry<sup>40</sup> on changes in each of the five common ownership measures, ultimately finding no cases of statistical significance for any of the measures. While Koch et al. (2021) does not examine each

<sup>35</sup> Jacob Gramlich & Serafin Grundl, *Assessing the Common Ownership Hypothesis in the US Banking Industry*, BD. GOVERNORS FED. RESERVE SYS. FIN. & ECON. DISCUSSION SERIES (Apr. 2024), <https://doi.org/10.17016/FEDS.2024.022r1>.

<sup>36</sup> Mohammad Torshizi & Jennifer Clapp, *Price Effects of Common Ownership in the Seed Sector*, 66 (1) ANTITRUST BULLETIN 1 (2021), <https://doi.org/10.1177/0003603X20985783>.

<sup>37</sup> Matthew Backus, Christopher Conlon & Michael Sinkinson, *Common Ownership and Competition in the Ready-to-Eat Cereal Industry*, NAT’L BUREAU OF ECON. RSCH. WORKING PAPER 28350 (2021) [hereinafter Backus et al. (2021)], [https://www.nber.org/system/files/working\\_papers/w28350/w28350.pdf](https://www.nber.org/system/files/working_papers/w28350/w28350.pdf).

<sup>38</sup> Andrew Koch, Marios Panayides & Shawn Thomas, *Common Ownership and Competition in Product Markets*, 139(1) J. FIN. ECON. 109 (2021) [hereinafter Koch et al. (2021)], <https://doi.org/10.1016/j.jfineco.2020.07.007>.

<sup>39</sup> Ownership levels must exceed 5%.

<sup>40</sup> *Id.* (adjusted for inflation using the Consumer Price Index (CPI)).

industry individually, as is done in our study below, their findings provide strong evidence against a link between common ownership and prices across multiple industries on an aggregated basis. These results strongly challenge any general concerns associated with common ownership and anti-competitive effects related to prices. Our study, explained in Part II below, further confirms these findings on both an aggregated and individual industry basis. In addition, our study provides a more recent examination of common ownership and prices, spanning the years 2000 through 2023 versus the Koch et al. (2021) study period of 1997 through 2012.<sup>41</sup>

### *iii. Additional Potential Common Ownership Effects*

Beyond price impacts, empirical studies of common ownership have also expanded to several other possible effects, including focuses on innovation and R&D, firm/product market entry, firm performance, M&A activity, and corporate governance. In each case, the evidence is mixed and generally inconclusive with contrasting empirical findings documented for several effects.

#### a. Innovation and R&D

While empirical research on common ownership and prices focuses on the existence, or lack thereof, of a negative impact of common ownership, the impact may be positive with respect to innovation and R&D. According to the common ownership hypothesis, commonly owned rivals may be incentivized to coordinate R&D efforts, thus lowering R&D costs and improving R&D efficiency, while enhancing innovation productivity.<sup>42</sup> He & Huang (2017) claims to find such an effect empirically, finding that common ownership leads to increased innovation productivity, where such productivity is defined as the number of patents generated per dollar of R&D expenditure.<sup>43</sup>

However, Lewellen & Lowry (2021) specifically examines the He & Huang (2017) findings and determines that firm responses to the 2008-2009 financial crisis drive the results, not common ownership.<sup>44</sup> When accounting for the misleading 2008-2009 data, the study finds no significant effect of common ownership on R&D.<sup>45</sup>

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<sup>41</sup> Koch et al. (2021) also examines the impact of common ownership on certain firm performance metrics, with a study period of 1985 through 2012.

<sup>42</sup> See, e.g., Gene M. Grossman and Carl Shapiro, *Research Joint Ventures: An Antitrust Analysis*, 97 J.L. ECON. & ORG. 315 (1986), <https://ideas.repec.org/a/oup/jleorg/v2y1986i2p315-37.html>.

<sup>43</sup> Jie (Jack) He & Jiekun Huang, *Product Market Competition in a World of Cross-Ownership: Evidence from Institutional Blockholdings* 30 REV. FIN. STUD. 2674 (2017) [hereinafter He & Huang (2017)], [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2380426](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2380426).

<sup>44</sup> Katharina Lewellen & Michelle Lowry, *Does Common Ownership Really Increase Firm Coordination?*, 141(1) J. FIN. ECON. 322 (2021), <https://doi.org/10.1016/j.jfineco.2021.03.008>.

<sup>45</sup> *Id.*

b. Firm/Product Market Entry

Multiple studies examine the potential link between common ownership and firm/product market entry in the pharmaceutical industry under a premise that commonly owned rivals, namely brand-name versus generic drug companies, will be disincentivized to compete with each other. Xie & Gerakos (2020) finds that brand-name incumbent pharmaceutical companies face less market entry from generic pharmaceutical companies if sharing a common owner with the generic company.<sup>46</sup> However, as noted by Schmalz & Xie (2023) (discussed below), the study merely documents a correlation between common ownership and market entry, failing to establish causation.<sup>47</sup> Newham et al. (2022) similarly find that generic pharmaceutical companies are less likely to enter a particular drug market if the brand-name incumbent is commonly owned.<sup>48</sup> However, the study fails to address the general Lewellen & Lowry (2021) critique, discussed above, regarding the inclusion of data during the 2008-2009 global financial crisis. Given that the sample period in this study spanned 2004-2014, the study potentially suffers from the same misleading results identified by Lewellen & Lowry (2021) in other contexts.

Finally, Schmalz & Xie (2023) finds that generic pharmaceutical companies are more likely to settle infringement lawsuits with brand-name incumbents if sharing a common owner, thus decreasing value to the generic firm and increasing value to the commonly owned incumbent.<sup>49</sup> However, this study suffers from the same flaw found in the airline paper, namely a reliance on the unsupported assumption of proportional control.

In particular, Schmalz & Xie (2023) uses a common ownership measure, termed *Kappa*, that was introduced by Backus, Conlon & Sinkinson (2021).<sup>50</sup> However, this measure is a theoretical measure that relies on an assumption of proportional control. Backus, Conlon & Sinkinson (2021) acknowledges that the proportional control assumption used in their *Kappa* measure is arbitrary and not supported by theory.<sup>51</sup> Despite this, Schmalz & Xie (2023) utilizes *Kappa* as their common ownership proxy while failing to acknowledge this significant limitation noted by Backus, Conlon & Sinkinson (2021) and providing no evidentiary support for the assumption. Given that the Schmalz & Xie (2023) empirical methodology relies so critically on an unsupported assumption, the results are unreliable and unconvincing.

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<sup>46</sup> Jin Xie & Joseph Gerakos, *The Anticompetitive Effects of Common Ownership: The Case of Paragraph IV Generic Entry*, 110 AM. ECON. ASS'N 569 (2020), <https://www.aeaweb.org/articles?id=10.1257/pandp.20201029>.

<sup>47</sup> Martin C. Schmalz & Jin Xie, *Do Corporations Maximize Their Own Value?*, SSRN PAPER (2023) [hereinafter Schmalz & Xie (2023)], [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4234816](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4234816).

<sup>48</sup> Melissa Newham, Jo Seldeslachts & Albert Banal-Estanol, *Common Ownership and Market Entry: Evidence from the Pharmaceutical Industry*, DIW DISCUSSION PAPER NO. 1738 (2022), <https://www.econstor.eu/bitstream/10419/261499/1/dp1738rev2.pdf>.

<sup>49</sup> Schmalz & Xie (2023), *supra* note 47.

<sup>50</sup> Matthew Backus, Christopher Conlon & Michael Sinkinson, *Common Ownership in America: 1980–2017*, 13(3) AM. ECON. J. MICROECONOMICS 273 (2021), <https://www.aeaweb.org/articles?id=10.1257/mic.20190389>.

<sup>51</sup> *Id.* (noting that theory provides little guidance with respect to control assumptions and explicitly cautioning in an earlier draft that “there is no formal link” between this assumption and micro theory)

### c. Firm Performance

The empirical evidence is mixed with respect to the effects of common ownership on firm performance. Common ownership among rivals can potentially provide strategic benefits to rivals to the extent they engage in product market coordination with benefits including increased profitability and higher market share growth. He & Huang (2017) argues to have found such an effect, finding that common ownership indeed leads to increased market share growth.<sup>52</sup> Relatedly, Boller & Scott Morton (2020) finds that common ownership also contributes to higher stock prices of commonly owned rivals, thus indicating increased firm profitability.<sup>53</sup>

Despite these findings, however, Lewellen & Lowry (2021) again adjusts for the 2008-2009 financial crisis and counters the He & Huang (2017) results. The study finds no significant effect of common ownership on market share growth, return on assets (“ROA”), or operating margins.

The comprehensive, multi-industry Koch et al. (2021) study discussed in Part I.A.ii also considers certain firm performance metrics and overwhelmingly finds a lack of impact by common ownership. The study examines the effects of common ownership on both industry-level markups and profit margins, again considering each of five different common ownership measures. Across all possible regressions, the study finds only one statistically significant positive relationship — changes in markups are positively associated with changes in common ownership as proxied by the percentage of common funds. However, using a different common ownership measure — the common ownership term (i.e., the MHHI without market share), the relationship reverses and turns negative. All other relationships are not statistically significant, including all MHHI delta regressions. Overall, the Koch et al. (2021) study establishes on an aggregated multiple-industry basis that common ownership plays no role with respect to firm performance.

### d. Mergers & Acquisitions

In the extreme case, proponents of the common ownership hypothesis posit that commonly owned rivals that engage in product market coordination may ultimately merge with each other as a result of the common ownership. To this end, both He & Huang (2017) and Brooks et al. (2018) find an increase in the probability of M&A activity associated with common ownership. However, Lewellen & Lowry (2021) finds that the frequency of M&A activity is too rare to allow for robust empirical analysis, thus leading to the conclusion that no evidence of a relationship between common ownership and M&A activity has been established.

### e. Corporate Governance

Given that the common ownership hypothesis suggests that institutional owners of rival firms care less about specific firm performance and more about industry performance, effects on corporate governance may arise. An early study of this question focused on the impact of common ownership on executive compensation structures. Antón et al. (2023) — first released in 2016 and which

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<sup>52</sup> He & Huang (2017), *supra* note 43.

<sup>53</sup> Lysle Boller & Fiona Scott Morton, *Testing the Theory of Common Stock Ownership*, NAT’L BUREAU OF ECON. RSCH. WORKING PAPER 27515 (2020), <https://www.nber.org/papers/w27515>.

includes one of the authors of both the airline paper and banking paper — finds that common ownership leads to compensation arrangements that compensate managers less for the success of their own firm and more for the success of the overall industry.<sup>54</sup> As a result, the authors claim, managers are less incentivized to maximize their own firm’s profits and are more incentivized to consider the performance of rival firms as well.

However, not only does this study suffer from the same flaws as the airline and banking papers, given the use of the MHFI, subsequent empirical studies have challenged the results. Kwon (2017) illustrates the significance of the choice of compensation measure.<sup>55</sup> If compensation changes are measured in terms of percentages (e.g., a 1% increase in pay) rather than dollar amounts (e.g. a \$1 increase in pay), then the Antón et al. (2023) findings reverse. In this case, common ownership *increases* the sensitivity of executive compensation to the profits of their own firm versus rival firms, thus promoting more competitive behavior by management.

Walker (2019) also identifies multiple flaws with the Anton et al. (2023) methodology.<sup>56</sup> First, while Anton et al. (2023) focus on executive wealth relative to firm performance, Walker (2019) notes that firm compensation committees have little short-term influence over this compensation measure. Moreover, the pay metrics that compensation committees can influence have increased in a manner consistent with a conclusion that common ownership strengthens competitive incentives. Finally, if compensation contracts hypothesized by Anton et al. (2023) indeed discouraged competition, then other corporate actions (e.g. lobbying) would also decrease. However, there is no evidence of a decrease in such corporate actions, suggesting the Anton et al. (2023) hypothesis is flawed. Given the stark difference in results depending on compensation methodologies, the issue of common ownership and executive compensation is generally inconclusive.

Despite the findings of Antón et al. (2023), multiple other empirical studies of common ownership and corporate governance generally find a positive impact of common ownership. He et al. (2019) finds that common ownership leads to increased probability that common owners vote against management, which serves as an important check on executives who might otherwise be making self-serving firm decisions (e.g., to promote job security or boost short-term profits for compensation purposes). Chen et al. (2023) finds a negative relationship between common ownership and the profitability of insider trading, indicating a relatively stronger corporate

<sup>54</sup> Miguel Antón, Florian Ederer, Mireia Giné & Martin C. Schmalz, *Common Ownership, Competition, and Top Management Incentives*, 131(5) J. POL. ECON. 1294 (2023) [hereinafter Antón et al. (2023)], <https://www.journals.uchicago.edu/doi/10.1086/722414>.

<sup>55</sup> Heung Jin Kwon, *Executive Compensation Under Common Ownership*, PH.D. DISSERTATION U. CHI. DEP’T OF ECON. (Jun. 2017), <https://catalog.lib.uchicago.edu/vufind/Record/11715049>.

<sup>56</sup> David I. Walker, *Common Ownership and Executive Incentives: The Implausibility of Compensation as an Anticompetitive Mechanism*, 99 B.U. L. REV. 2373 (2019), [https://scholarship.law.bu.edu/cgi/viewcontent.cgi?article=1591&context=faculty\\_scholarship](https://scholarship.law.bu.edu/cgi/viewcontent.cgi?article=1591&context=faculty_scholarship); see also Gerardi et al. (2024), *supra* note 14 (for a summary of the Walker (2019) critiques).

governance structure that addresses insider trading concerns.<sup>57</sup> Finally, Peng et al. (2023) finds a positive relationship between common ownership and accounting comparability, thus reducing the information asymmetry that can arise from inconsistent reporting, while also promoting improved assessments of financial performance through consistent accounting methods.<sup>58</sup>

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<sup>57</sup> Shenglan Chen, Hui Ma, Qiang Wu & Hao Zhang, *Does Common Ownership Constrain Managerial Rent Extraction? Evidence from Insider Trading Profitability*, 80 J. CORP. FIN. 102389 (2023), <https://doi.org/10.1016/j.jcorpfin.2023.102389>.

<sup>58</sup> Qiyuan Peng, Sirui Yin & Rui-Zhong Zhang, *Common Institutional Blockholders and Reporting Practices: Evidence from Accounting Comparability*, 37(2) ACCT. HORIZONS 133 (2023), <https://doi.org/10.2308/HORIZONS-2021-042>.

## B. Proposed Policy Changes

### i. *Key Proposals*

The claims of anti-competitive effects documented in the airline study have sparked a policy debate that has included proposals that would be highly punitive to U.S. savers and retirement account holders. The proposals would impose significant costs and raise investment risks through lower diversification opportunities, all to address an issue whose existence has not been empirically substantiated. Two of the more prominent proposals are set forth in Elhauge (2016) and Posner et al. (2017).<sup>59</sup> At the heart of each of these proposals is the imposition of antitrust liability for institutional investors that own equity in multiple firms in a concentrated industry. To avoid such potential antitrust liability, institutional investors would be required to limit their holdings to a single firm in certain concentrated industries.<sup>60</sup>

In a prior report, the Committee outlined several negative consequences that these restrictive proposals would impose on U.S. capital markets.<sup>61</sup> Committee staff previously determined that 443 of the 500 largest U.S. companies in the S&P 500 would be in “concentrated” industries, defined as any industry with an MHHI exceeding 2500.<sup>62</sup> Based on calculations by Committee staff, the sale by institutional investors of their stakes in all but one firm in each of these industries would involve the sale of \$4 trillion of stock, representing nearly 18% of the aggregate market cap of these 443 companies. Moreover, in our current analysis of the 52 industries discussed below in Part II, approximately 83% (43 out of 52 industries) would exceed the 2500 MHHI threshold, thus triggering substantial liquidations of equity positions.

The effects of such stock sales within individual industries could be even more significant. For example, Committee staff found that institutional investors — including broad-based mutual funds and ETFs under these proposals — who seek to avoid antitrust scrutiny or liability by complying with the one-firm-per-concentrated-industry restriction would have to sell more than half of the total shares outstanding of the largest U.S. airlines. A reorganization of equity ownership of this magnitude could pose serious challenges to market stability and the ability of affected companies and industries to raise capital, which could in turn negatively impact firm productivity and performance.

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<sup>59</sup> Einer Elhauge, *Horizontal Shareholding*, 129 HARV. L. REV. 1267 (2016) [hereinafter Elhauge (2016)], <https://harvardlawreview.org/print/vol-129/horizontal-shareholding/>; Eric A. Posner, Fiona M. Scott Morton & E. Glen Weyl, *A Proposal to Limit the Anti-Competitive Power of Institutional Investors*, 81(3) ANTITRUST L.J. 669 (2017) [hereinafter Posner et al. (2017)], <https://www.jstor.org/stable/26425577>.

<sup>60</sup> The definition of “concentrated” varies among the proposals. The proposal in Elhauge (2016) suggests that industries with an MHHI above 2500 be considered concentrated, while Posner et al. (2017) suggests an HHI threshold of 2500 along with discretionary power for the Department of Justice and Federal Trade Commission to designate industries below an HHI of 2500 as concentrated after considering the degree of common ownership in the industry.

<sup>61</sup> See COMM. ON CAP. MKTS. REGUL., *supra* note 1.

<sup>62</sup> *Id.*

A further problem with these restrictive proposals is that the industries identified as concentrated could change frequently, creating significant problems for institutional investors. That is because the measures used by both proposals to determine industry concentration can fluctuate quickly and unpredictably. Elhauge (2016) proposes a concentration measure based on the MHHI, while Posner et al. (2017) proposes the use of the HHI. However, since the HHI changes as the market shares of firms within an industry change, a firm's market share (for example, Delta's market share within the airline industry) can change based on a multitude of factors that are unrelated to common ownership. This volatility may force institutional investors to constantly adjust holdings, which imposes costs and forces asset managers to make investment decisions based on fluctuating industry concentration measures, rather than based on an established investment thesis that is in the best interest of investors.

The MHHI is even more volatile, as it fluctuates as both common ownership and the market share of firms within each industry change. For example, as illustrated in our prior report, the MHHI of an industry can spike from 2,136 (i.e. below the Elhauge threshold) to as much as 14,106 if a single non-common owner with a 10% stake in a single firm in that industry decides to sell their shares — even if there is no other change in ownership by common owners of firms in the industry. Exposing institutional investors to antitrust liability from investing in multiple firms in an industry simply because another institutional investor made the independent investment decision to sell their stake in one company in that industry could lead to a highly unstable market.

Implementation of these proposals could therefore result in a cycle of institutional investment and liquidation, which would be highly inefficient for capital allocation by public companies. This would likely raise the cost of capital for companies and increase costs for investors due to higher portfolio turnover.

The ability of institutional investors to achieve effective portfolio diversification would also be impaired by these proposals, as prior research has established that portfolios constructed under the one-firm-per-concentrated-industry limitation prevent investors from realizing the full benefits of diversification.<sup>63</sup> A study by the Analysis Group examines the returns of hypothetical portfolios constrained by the one-firm-per-concentrated industry restriction compared to the returns achieved by the S&P 500 index from 1990 to 2017.<sup>64</sup>

The study ran 1,000,000 simulations with different portfolios that complied with the one-firm-per-concentrated-industry limitation. The results illustrate how volatile the returns would be for such portfolios, as the worst performing portfolios (bottom 5%) produced returns that were 22% lower than the best performing portfolios (top 5%). Since the goal of broad-market-based index investing is to generate market returns while minimizing volatility, these results illustrate that the one-firm-per-concentrated industry restriction would prevent investors from achieving the full benefits of

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<sup>63</sup> See COMM. ON CAP. MKTS. REGUL, *supra* note 1, at 8-10 (referencing a study by the Analysis Group commissioned by BlackRock).

<sup>64</sup> See BLACKROCK, *Letter to the Office of the Secretary of the Federal Trade Commission* (Jan. 15, 2019), <https://www.blackrock.com/corporate/literature/publication/ftc-hearing-8-competition-consumer-protection-21st-century-011419.pdf> (describing the Analysis Group study, which was commissioned by BlackRock).

diversification. In addition, our analysis of these findings determined that an initial investment of \$100,000 in one of the restricted portfolios could have earned at least \$112,709 less from 1990-2017 as compared to an investor that had simply held an S&P 500 fund during that period.<sup>65</sup> Thus, the one-firm restriction clearly has the potential to impose material harm on investors.

Finally, index fund investors would face rising management fees as the proposals would entail a de facto ban on broad-market-based index funds, such as the S&P 500, Russell 3000 or Wilshire 5000 index funds. Rather than simply offering passive index-based funds, entailing historically low management fees, fund managers would be forced to actively choose specific firms in each concentrated industry and would be compensated accordingly through higher management fees.

## *ii. Proposed Restrictions on Proxy Voting*

Both Elhauge (2016) and Posner et al. (2017) offer safe harbors that would permit institutional investors to hold equity in multiple firms in concentrated industries under certain conditions.

One such safe harbor is a “passive” ownership safe harbor, whereby institutional investors either refrain from voting in shareholder votes<sup>66</sup> or commit to avoiding all communication with management and exerting no influence over shareholder votes.<sup>67</sup> This “passive” safe harbor would disrupt the balance of control between public companies and their owners and prevent beneficial shareholder engagement. Voting power would become more concentrated in management and institutional investors who do not own shares in other firms in the industry. The effects on corporate governance would be significant, as public companies may become more exposed to short-term pressures from activist investors, who could obtain disproportionate voting power with relatively smaller equity stakes.

We note that there is an ongoing policy debate with respect to voting and shareholder engagement by large asset managers that is separate from common ownership concerns. Such policy issues are generally focused on whether asset managers, with respect to a limited number of social or political ballot items, are voting consistently with the interests of investors in their funds. The Committee explored these issues in its 2020 report, *An Analysis of Investment Stewardship: Mutual Funds and ETFs*.<sup>68</sup> In an effort to address these issues, some asset managers have recently begun to provide

<sup>65</sup> See COMM. ON CAP. MKTS. REGUL., *supra* note 1.

<sup>66</sup> See Elhauge (2016), *supra* note 59.

<sup>67</sup> See Posner et al. (2017), *supra* note 59.

<sup>68</sup> COMM. ON CAP. MKTS. REGUL., *An Analysis of Investment Stewardship: Mutual Funds and ETFs* (May 2020), <https://capmksreg.org/wp-content/uploads/2022/11/An-Analysis-of-Investment-Stewardship-Mutual-Funds-and-ETFs-Final-for-Website-5.19.2020-1.pdf>.

investors with the option to participate more directly in the proxy voting process for their mutual fund and ETF shares.<sup>69</sup> A further discussion of these issues is beyond the scope of this paper.

Restrictions on voting and shareholder engagement, as included in the Elhauge (2016) and Posner et al. (2016) proposals, are not components of “passive” investor frameworks that exist in other regulatory settings. The Securities and Exchange Commission’s (“SEC”) Schedule 13D reporting requirements<sup>70</sup> and the Federal Reserve’s and the Federal Deposit Insurance Corporation’s (“FDIC”) definitions of control with respect to banks<sup>71</sup> each include “passive” investors standards that do not restrict voting. Many institutional investors currently adhere to these standards, further evidencing their lack of control over the companies in the funds’ portfolios. For instance, the SEC requires investors who own more than 5% of registered equity securities to file detailed reports on Schedule 13D, but allow institutional investors to file the less onerous Schedule 13G if they acquire such holdings “in the ordinary course of the person’s business and not with the purpose nor with the effect of changing or influencing the *control* of the issuer.”<sup>72</sup> Institutional fund managers make significant use of this exception.<sup>73</sup>

In addition, under the Change in Bank Control Act, investors who acquire a 10%-25% equity stake in an insured depository institution are presumed to acquire control of the bank. However, the federal banking agencies often accept a legal commitment from the acquirer not to use its acquired shares to influence the bank’s management or policies (a “passivity agreement”) as sufficient to rebut the presumption. Passivity agreements may require, for example, that the acquirer not seek representation on the bank’s board of directors or sell shares to induce bank management to take certain actions.<sup>74</sup> These agreements are commonly entered into with the managers of index funds, whose funds frequently hold, in the aggregate, 10% or more of the voting stock of one or more banks as part of their investment strategies, without intending to influence the banks’ management or policies.

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<sup>69</sup> See BLACKROCK, *Empowering Investors Through BlackRock Voting Choice* (2025), <https://www.blackrock.com/corporate/about-us/investment-stewardship/blackrock-voting-choice>; ST. STREET GLOB. ADVISORS, *Proxy Voting Choice Empowers Investors* (2025), <https://www.ssga.com/us/en/about-us/what-we-do/asset-stewardship/proxy-voting-choice>; VANGUARD *Investor Choice: Empowering Everyday Investors Through Voting Choice* (2025), <https://corporate.vanguard.com/content/corporatesite/us/en/corp/about-our-funds/proxy-voting-across-funds/investor-choice.html>.

<sup>70</sup> 17 C.F.R. § 240.13d-1(b)(1)(i).

<sup>71</sup> *Control and Divestiture Proceedings*, 85 FED. REG. 12398 (Mar. 2, 2020), <https://www.federalregister.gov/documents/2020/03/02/2020-03398/control-and-divestiture-proceedings>; FED. DEPOSIT INS. CORP., *Bank Examinations: Change in Control* (Dec. 27, 2024), <https://www.fdic.gov/bank-examinations/change-control>.

<sup>72</sup> 17 C.F.R. § 240.13d-1(b)(1)(i) (emphasis added).

<sup>73</sup> Ross Kerber, *New SEC Guidance Hits the Big 2, BlackRock and Vanguard*, REUTERS (Feb. 26, 2025), <https://www.reuters.com/sustainability/new-sec-guidance-hits-big-2-blackrock-vanguard-ross-kerber-2025-02-26/>.

<sup>74</sup> See FED. DEPOSIT INS. CORP., *Change in Control: Passivity Agreements and Commitments* (Dec. 27, 2024), <https://www.fdic.gov/bank-examinations/change-control>.

Another proposed safe harbor would allow institutional investors to own multiple firms in a concentrated industry so long as they own less than 1% of the equity in each firm.<sup>75</sup> However, this safe harbor would be equally disruptive and not provide a material improvement in investor portfolio diversification. We estimated in our previous report that the liquidation of equity positions to satisfy this safe harbor could exceed \$5 trillion, representing nearly one-quarter of the market capitalization of the largest U.S. public companies. The above concerns about market disruptions and increased funding costs associated with these proposals would persist under this safe harbor. As a result, the proposed safe harbors do little to alleviate the potential damage caused by these common ownership proposals.

## **2. Comprehensive Study of Prices Across Multiple Industries**

Evident in the literature review in Part I is the fact that no empirical study has dispositively established problematic effects of common ownership. While studies have claimed to find certain impacts in select industries, others have challenged those findings in virtually all instances. Given the likely negative consequences of the common ownership proposals discussed above, it is critical that the broad-based impact of common ownership be further examined before inflicting potentially disruptive measures on investors and U.S. capital markets. To that end, our study examines the impact of common ownership on prices across 52 major industries (representing approximately 63-75% of U.S. private sector GDP),<sup>76</sup> both on an aggregated basis and an individual basis.<sup>77</sup> We focus on industry-level prices, as price impact was the original focus of the common ownership research and also comprises a commonly used metric for evaluating the relative competitiveness of an industry.

We demonstrate through several key findings that common ownership concerns related to prices are generally non-existent when evaluated on a larger, industry-wide scale. First, on an aggregated industry basis, we find **no evidence of a causal link between common ownership and industry-wide prices.**

Second, we also evaluate the link between common ownership and industry-level prices on an individual industry basis (i.e., separate analyses for each industry). The results are similar to our aggregated analysis, as we find **no statistically significant positive relationship between common ownership and prices in any of the 52 industries studied.**<sup>78</sup> This is true among industries with high levels of common ownership as well as highly concentrated industries.

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<sup>75</sup> See Posner et al. (2017), *supra* note 59.

<sup>76</sup> Based on 2023 annual data. The estimate was obtained based on Committee calculations from data published by the Bureau of Economic Analysis on GDP Value Added by Industry. The remainder of the industries do not have associated PPIs and, thus, were excluded from the analyses.

<sup>77</sup> Publicly traded companies comprise 52 industries, as classified by 2-digit SIC code, with the sufficient data necessary to construct all relevant variables.

<sup>78</sup> Conversely, one industry (Communications) demonstrates a statistically significant *negative* relationship between common ownership and prices.

## A. Data

We conduct our study by testing the empirical link between industry prices, proxied by the industry-specific PPI, and common ownership in those industries, proxied by the modified Herfindahl-Hirschman Index (“MHHI”). Our analysis required the collection of significant amounts of data with respect to the choice of industries, price data, and common ownership measures. Our sample covers quarterly data from the first quarter of 2000 through the fourth quarter of 2023, thus representing a substantially longer sample period than the airline paper’s 2001 - 2014 sample as well as most other common ownership studies.

### *i. Industry Classification*

Our study examines the link between common ownership and prices in 52 industries. We delineate industries based on 2-digit Standard Industrial Classification (“SIC”) codes, which represent the major industry groups within the SIC system. Examples of 2-digit SIC industries include Building Construction General Contractors (SIC 15), Food and Kindred Products (SIC 20), and Depository Institutions (SIC 60). Our choice of 2-digit codes is motivated by a balancing of aggregation and granularity designed to identify industry-specific effects and provide statistically meaningful results. Based on this classification, we find 52 industries that include publicly traded companies and have sufficient data to construct our relevant variables.

Overall, our sample size consists of a mean (median) of 3,563 (3,402) firms across all industries for the years 2000 through 2023. At the industry level, the mean (median) industry size in our sample is 91.6 (39.8) firms annually. Industry sizes vary significantly, with the smallest industries consisting of fewer than five firms on average annually (e.g., 3.9 for Forestry), while the largest industries consist of several hundred firms (e.g., 671.0 for Depository Institutions).

### *ii. Prices*

For industry-specific prices, we relied on the PPI as reported by the U.S. Bureau of Labor Statistics (“BLS”). The PPI tracks the average change in prices that domestic producers receive for their goods or services over time, serving as a key indicator of prices at the wholesale level.<sup>79</sup> For our industry-level analyses, we use industry PPIs, which specifically track prices within individual industries. Industry PPI data is obtained from the BLS database.

The Consumer Price Index (“CPI”) is an alternative measure of prices that tracks the average change in prices that consumers pay for their goods or services over time. However, the PPI arguably reflects the more relevant metric for measuring potential anti-competitive effects of common ownership, which would likely be more apparent through the price fluctuations at the producer level before being passed on to consumers. The CPI reflects final retail prices paid by the consumer, which can be influenced by several factors not directly related to competitive effects,

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<sup>79</sup> U.S. BUREAU OF LAB. STATISTICS, *Producer Price Indexes*, <https://www.bls.gov/ppi/>.

including taxes and subsidies, that may obscure the underlying cost structures that the PPI more directly reflects.

### *iii. Common Ownership Measure*

We construct a common ownership measure using the same methodology as the original airline paper, namely the MHHI, and follow the same methodology to estimate each of these MHHI factors. We employ the MHHI measure as our common ownership proxy despite the methodological flaws highlighted above to illustrate the lack of generalizability of the airline study findings (significant flaws notwithstanding). However, as an additional check on the relationship between common ownership and prices, we also conduct our analysis using the Dennis et al. (2022) modified version of MHHI that corrects for the flaws of the original MHHI. The modified version of MHHI sets market share to one for all firms, thus capturing only changes in common ownership and not changes in market share. As noted below, the results are similar under each measure.

Relative equity stake is the percentage of all shares (voting and nonvoting) of a given firm held by each investor. The market share of each firm in the market is calculated as the firm's total revenue as a percentage of aggregate industry revenue. Finally, effective control is estimated as the percentage of all voting shares (both sole and shared voting) of a given firm held by each investor. Institutional ownership data is obtained from Thompson Reuters' 13F database along with voting data. Revenue data for calculating market share is obtained from public 10-K filings.

## B. Empirical Methodology and Results

Our study examines the impact of common ownership on prices on both an aggregated basis (i.e., pooled regressions incorporating data from all industries) as well as an individual industry basis, whereby we analyze the common ownership effects on each industry separately.

### *i. Pooled Regressions (Aggregated Analysis)*

We first tested whether a relationship exists between common ownership and prices on an aggregated basis. Our pooled regression model takes the form:

$$\Delta PPI = \beta_1 * \Delta MHHID + \beta_2 * \Delta HHI + \beta_3 * \Delta OwnConc + \beta_4 * \Delta Inv\#Firms + \beta_5 * \Delta COGS + \alpha + \varepsilon$$

whereby the quarterly change in industry PPI ( $\Delta PPI$ ) is the dependent variable and change in common ownership ( $\Delta MHHID$ ) is the main explanatory variable. We also include several control variables following the academic literature: the HHI ( $HHI$ ),<sup>80</sup> ownership concentration

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<sup>80</sup> Azar et al. (2018) also control for the HHI in their model.

(*OwnConc*),<sup>81</sup> inverse of the number of firms in the industry, i.e.  $1 / \#$  of firms (*Inv#Firms*),<sup>82</sup> and cost of goods sold relative to assets (*COGS*).<sup>83</sup> For each control variable, the regressor represents the quarterly change in the variable. The model also includes time fixed effects to control for aggregate trends and industry fixed effects,<sup>84</sup> as well as a constant ( $\alpha$ ) and an error term ( $\epsilon$ ). In this model,  $\beta_1$  is the coefficient of interest, representing the relationship between prices ( $\Delta PPI$ ) and common ownership ( $\Delta MHHID$ ).

We find that the  $\beta_1$  coefficient is not statistically significant, thus providing evidence **against a link between common ownership and prices** on an aggregated multi-industry basis.<sup>85</sup> Table 1 presents the results of our pooled regression, indicating the lack of statistical significance of the common ownership variable (*MHHID*). We further note that ownership concentration, number of investment firms and COGS are not statistically significant controls.

**Table 1**

Variables	Coefficient ( $\beta$ )
<i>MHHID</i>	0.0111
<u>Control Variables</u>	
<i>HHI</i>	0.0231**
<i>OwnConc</i>	-0.0348
<i>Inv#Firms</i>	0.0229
<i>COGS</i>	0.0185
Constant	0.0092***
R-squared	0.110
No. of observations (industry-quarter)	4,097

\* 10%, \*\* 5%, and \*\*\* 1% significance

<sup>81</sup> As included by Azar et al. (2018), ownership concentration is the sum of the shares squared across institutional owners.

<sup>82</sup> As included in Koch et al. (2021).

<sup>83</sup> As included in Koch et al. (2021).

<sup>84</sup> Time fixed effects are a set of dummy variables for each quarter-year, which absorb prices variation attributable to aggregate trends. Azar et al. (2018) also include time fixed effects in the airline study. See Azar et al. (2018), *supra* note 3, at Table. III (panel regressions include “Year-quarter fixed effects” as the time fixed effect). Industry fixed effects are a set of dummy variables for each 2-digit SIC code industry, which absorb prices variation attributable to aggregate trends.

<sup>85</sup> Based on a 90% confidence threshold.

Our alternative MHHI specification following Dennis et al. (2022) produces similar results with a lack of statistical significance on the common ownership variable.

*ii. Individual Regressions (Separate Industry Analyses)*

While the above results are based on a pooled (i.e., aggregated) study of a broad range of industries, we also examined the link between common ownership and prices separately in 52 individual industries. For each industry, we ran a time series regression of industry prices (industry  $\Delta$ PPI) on common ownership ( $\Delta$ MHHID). We also included the same control variables as in the pooled regression.<sup>86</sup>

The results of these 52 regressions show that **none** of the 52 industries demonstrates a statistically significant positive relationship between common ownership and prices, including the airline and banking industries (our findings differ from prior studies due to our more extensive sample time period and focus on the PPI rather than individual airline ticket prices or bank interest rates and fees).<sup>87</sup> Conversely, one industry (Communications) is found to have a *negative* relationship between common ownership and prices with strong statistical significance,<sup>88</sup> suggesting that higher common ownership is associated with lower price levels in that industry. In addition, several of these industries that show no relationship have relatively high levels of common ownership, including General Merchandise Stores (4,830 MHHID), Building Construction Contractors (4,570 MHHID), and Apparel and Accessory Stores (3,810 MHHID). Thus, high degrees of common ownership are not indicative of anti-competitive influence by the common owners. Table 2 presents the full results for the 52 industries.

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<sup>86</sup> Rather than using fixed effects in the individual regressions, we de-trend the data by subtracting cross-sectional averages for each variable.

<sup>87</sup> Based on a 95% confidence threshold for statistical significance. One industry (Engineering, Accounting, Research Management, and Related Services) does exhibit a weak statistically significant positive relationship at a 90% confidence level.

<sup>88</sup> Above 99% confidence.

**Table 2**

Industry Name	2-digit SIC code	$\beta_1$ coefficient	Statistical significance
Agricultural Production - Crops	01	0.017	No (<90%)
Amusement and Recreation Services	79	-0.048	No (<90%)
Apparel and Accessory Stores	56	-0.176	Weak(<95%)
Apparel and other Finished Products Made from Fabrics and Similar Materials	23	-0.002	No (<90%)
Automotive Dealers and Gasoline Service Stations	55	-0.024	No (<90%)
Automotive Repair, Services, and Parking	75	0.015	No (<90%)
Bituminous Coal and Lignite Mining	12	0.082	No (<90%)
Building Construction General Contractors and Operative Builders	15	0.034	No (<90%)
Building Materials, Hardware, Garden Supply, and Mobile Home Dealers	52	-0.185	No (<90%)
Chemicals and Allied Products	28	-0.110	No (<90%)
Communications	48	-0.010	Strong (>99%)
Depository Institutions	60	-0.199	Weak (<95%)
Educational Services	82	-0.003	No (<90%)
Electronic and other Electrical Equipment and Components, except Computer Equipment	36	0.040	No (<90%)
Engineering, Accounting, Research, Management, and Related Services	87	0.055	No (<90%)
Fabricated Metal Products, except Machinery and Transportation Equipment	34	0.000	No (<90%)
Food and Kindred Products	20	-0.019	No (<90%)
Food Stores	54	0.039	No (<90%)
Forestry	08	0.100	No (<90%)
Furniture and Fixtures	25	0.045	No (<90%)
General Merchandise Stores	53	-0.035	No (<90%)
Health Services	80	0.009	No (<90%)
Home Furniture, Furnishings, and Equipment Stores	57	0.090	No (<90%)
Hotels, Rooming Houses, Camps, and other Lodging Places	70	-0.017	No (<90%)
Industrial and Commercial Machinery and Computer Equipment	35	0.049	No (<90%)
Insurance Agents, Brokers and Service	64	-0.003	No (<90%)
Insurance Carriers	63	0.013	No (<90%)
Leather and Leather Products	31	0.000	No (<90%)
Legal Services	81	0.038	No (<90%)
Lumber and Wood Products, except Furniture	24	0.145	No (<90%)
Metal Mining	10	0.038	No (<90%)
Mining and Quarrying of Nonmetallic Minerals, except Fuels	14	0.058	No (<90%)
Miscellaneous Manufacturing Industries	39	0.033	No (<90%)
Motor Freight Transportation and Warehousing	42	0.014	No (<90%)
Oil and Gas Extraction	13	0.114	No (<90%)
Paper and Allied Products	26	0.059	No (<90%)
Petroleum Refining and Related Industries	29	0.401	No (<90%)
Pipelines, except Natural Gas	46	-0.007	No (<90%)
Primary Metal Industries	33	-0.013	No (<90%)
Printing, Publishing, and Allied Industries	27	-0.002	No (<90%)
Railroad Transportation	40	0.086	Weak (<95%)
Rubber and Miscellaneous Plastics Products	30	0.076	No (<90%)
Security and Commodity Brokers, Dealers, Exchanges, and Services	62	0.059	No (<90%)
Stone, Clay, Glass, and Concrete Products	32	0.034	No (<90%)
Textile Mill Products	22	-0.003	No (<90%)
Tobacco Products	21	-0.006	No (<90%)
Transportation by Air	45	-0.074	No (<90%)
Transportation Equipment	37	0.059	No (<90%)
Transportation Services	47	-0.019	No (<90%)
Water Transportation	44	-0.026	No (<90%)
Wholesale Trade-Durable Goods	50	0.061	No (<90%)
Wholesale Trade-Nondurable Goods	51	0.030	No (<90%)

As was the case in the pooled regressions, our alternative MHHI specification following Dennis et al. (2022) produces similar results. Under the alternative MHHI measure, **none** of the 52 industries demonstrates a statistically significant positive relationship between common ownership and prices.<sup>89</sup> One industry (Depository Institutions) is found to have a *negative* relationship between common ownership and prices with strong statistical significance.<sup>90</sup>

Finally, we further demonstrate the absence of a relationship between common ownership and prices by comparing common ownership levels in industries with the highest price increases to industries with the lowest price changes. If common ownership did produce anti-competitive effects through higher prices, we would expect higher common ownership among industries with the highest upward pressure on prices.

To test this, we first calculate the average  $\Delta$ PPI for each industry over our entire sample period. We then split the industries into 5 groups based on average  $\Delta$ PPI (e.g., industries with lowest  $\Delta$ PPI in group 1, followed by the next lowest  $\Delta$ PPI in group 2, and so on). We then calculate the average MHHID (common ownership) for each of the 5 groups and examine whether there is a correlation between  $\Delta$ PPI and common ownership among the industries. The results are tabulated in Table 2.

**Table 3**

	$\Delta$ PPI	MHHID
Lowest PPI (20 <sup>th</sup> percentile)	0.003	0.205
PPI Group 2 (21-40 <sup>th</sup> percentile)	0.007	0.229
PPI Group 3 (41-60 <sup>th</sup> percentile)	0.008	0.194
PPI Group 4 (61-80 <sup>th</sup> percentile)	0.010	0.177
Highest PPI (81-100 <sup>th</sup> percentile)	0.017	0.206

Table 3 illustrates that there is no correlation between high price industries and high common ownership. Industries with the highest price changes generally have the same level of common ownership as industries with low price changes. Of particular note is that the PPI Group 2 – the group with the second-lowest price changes - have the highest level of common ownership, which is more indicative of a pro-competitive impact of common ownership rather than an anti-competitive impact.

Overall, based on these results, we find strong evidence against a link between common ownership and prices in a more generalized context. Given the strength of these results, our study firmly

<sup>89</sup> Based on a 95% confidence threshold for statistical significance.

<sup>90</sup> Above 99% confidence.

disproves the existence of anti-competitive effects of common ownership on a generalized basis beyond the select few industry-specific findings in prior research.

## Conclusion

While common ownership proponents argue through a series of empirical studies that common ownership of firms by institutional investors leads to anti-competitive effects, the findings have been largely debunked by subsequent research given the methodological flaws. Unfortunately, despite the several counter studies that refute the common ownership concerns, policies aimed at institutional owners and asset managers have been proposed to address the purported anticompetitive effects. Such proposals would likely result in a de facto ban on almost all mutual funds and any fund or strategy pursuing a broadly diversified investment strategy, ultimately imposing substantial costs on retail savers and retirees, and hurting U.S. businesses that rely on investor capital. Given these significant consequences, it is critical that the policy debate be centered on an accurate picture of the common ownership landscape.

Our comprehensive study examining the link between common ownership and industry-level prices across 52 industries sheds significant light on this issue. Not only do we find an overall lack of relationship between common ownership and prices at an aggregated multi-industry level, but we also find a lack of positive relationship for each of the 52 industries individually, including the airline and banking industries. Our findings thus contribute further compelling evidence *against* the existence of a common ownership problem in U.S. equity market, which should quell the considerations of extreme policy measures proffered to address this nonexistent problem.



134 Mount Auburn Street, Cambridge, MA 02138  
[www.capmksreg.org](http://www.capmksreg.org)