

**In Support of Cross Ownership By Institutional Investors –
A Theory of ‘Unilateral Coordination’**

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Abstract

Horizontal shareholding by institutional investors has recently become the ‘hot-button’ issue of both corporate law and antitrust law. Recent scholarly work has argued that the phenomenon of several institutional investors, each of whom is invested in firms that compete in oligopolistic product markets, may be detrimental to competition. Importantly, the argument is that this is the case even if the institutional investors have no control over the firms in which they invest, the investment is completely passive, and the (passive) investors do not coordinate in any way. This view has not only gained scholarly support, but has apparently persuaded enforcement agencies, which have reportedly begun to deal with instances of the phenomenon. The current Paper challenges this newly-developed argument, rapidly gaining acceptance. The Paper argues that horizontal shareholding, or common ownership of firms by institutional investors, is – absent explicit communication – competitively benign. The theoretical argument is bolstered by very recent empirical findings. Enforcement efforts should be abandoned as quickly as they were initiated.

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Introduction

This Paper argues, contrary to the view currently prevalent in the literature, that purely passive investments by institutional investors should not be curtailed in any way, even in the setting of several institutional investors' common ownership of firms that compete with each other in oligopolistic industries.

Institutional investors account for the vast majority of equity-holding in the US. By some estimates, nearly 80% of the total value of the US stock market is held by institutional investors.¹ US-Registered Investment Companies managed more than \$19 trillion in assets at year-end 2016, largely on behalf of more than 95 million US retail investors. The total value of the assets held by these institutional investors is constantly rising, and has so been for nearly 25 years.² Institutional investors are “the dominant capital market player of our time, displacing retail investors who now obtain exposure to equity markets through the intermediation of institutional investors”.³ Any rule regulating the investment strategies of these investors is thus of major significance to the economy.

Institutional investors regularly diversify their investment across a large number of firms and industries.⁴ This diversification is socially important. First, diversification safeguards the investment against idiosyncratic (both firm-specific and industry-specific) risk.⁵ Second, diversified investments obviate the need to pick stocks.⁶ This lowers the cost of obtaining information and analyzing it,⁷ and even the cost of monitoring management. At times, the diversification is done almost mechanically, through index funds,⁸ which require practically no analysis prior to purchasing stock. In other cases, the diversification is less mechanical. But whether the investment is entirely mechanical or requires some limited human involvement, the costs of investment are reduced dramatically. The reduced risk and lower cost of investment benefit not only the institutional investors themselves, but also retail investors whose money institutional investor manage. The advantages translate into lower fees and reduced risk for retail investors. It is uncontested that diversification is socially desirable.⁹

¹ Investment Company Fact Book, A Review of Trends and Activities in the Investment Company Industry, 2017, Investment Company Institute, 57th Ed., at 25 (hereinafter: ICI Report); Eric A. Posner, Fiona M. Scott Morton & E. Glen Weyl, *A Proposal to Limit the Anti-Competitive Power of Institutional Investors*, Antitrust L.J. 14-16, 28 (Forthcoming), at 5; Marshall E. Blume & Donald B. Keim, *The Changing Nature of Institutional Stock Investing* (Forthcoming), available at: < https://faculty.wharton.upenn.edu/wp-content/uploads/2015/06/ChangingInstitutionPreferences_12Nov2014_CFR.pdf>, at 4; Elliott J. Weiss and John S. Beckerman, *Let the Money Do the Monitoring: How Institutional Investors Can Reduce Agency Costs in Securities Class Actions*, 104 Yale L.J. 2053 at 2056 (1994 – 1995), Manesh S. Patel, *Common Ownership, Institutional Investors, And Antitrust*, 15 Antitrust L.J. (Forthcoming), at 3; Jose Azar, Martin C. Schmalz, and Isavel Tecu, *Anti-Competitive Effects of Common Ownership*, at 2 -3 (citing Investment Company Fact Book, Investment Company Institute); Einer Elhague, *Horizontal Shareholding (Essay)* 129 Harvard L.R. 1267 (2016), 1277 – 1278.

² ICI Report, *id.*, at 24 – 25 & 27. The constant trend has shown two dips, in 2008 and in 2011. Both resulted in an almost immediate bounce back in the subsequent years.

³ Posner et al., *supra* note 1, at 2.

⁴ Patel, *supra* note 1.

⁵ Harry Markowitz, *Portfolio Selection*, 7(1) Journal of Finance 77 (1952).

⁶ Dov Solomon, *Rational Shareholder Indifference: How to Awake Investors?*, 39 Iyunei Mishpat 317 (2016).

⁷ Posner et al., *supra* note 1, at 5 – 6.

⁸ Which Posner et al., *id.*, estimate account for less than 20% of the US stock market. See Posner et al., *id.*, at 5. See at note 12 for an explanation of this estimation.

⁹ See generally Harry Markowitz, *Portfolio Selection*, 7(1) Journal of Finance 77 (1952).

Institutional investors' diversification naturally results in institutional investors holding stock of a large number of firms and across a large number of industries.¹⁰ Institutional investors are estimated to (jointly) be the largest shareholders in nearly 90% of public companies in the S&P 500. When combined, the largest institutional investors (BlackRock, Vanguard and State Street) are the single largest shareholder of at least 40% of all public companies in the US.¹¹ One result of this widespread diversified investment is that institutional investors often hold stock of firms in the same industry. The probability that two randomly-selected S&P 1500 firms **in the same industry** have a common shareholder with at least 5% stakes in both firms is around 90%.¹² Among these industries are, naturally, industries that are relatively concentrated, or oligopolistic.¹³ As oligopolistic industries are extremely common,¹⁴ it seems safe to conclude, as scholars and others do,¹⁵ that diversification by institutional investors has resulted in a relatively prevalent phenomenon of several institutional investors holding stock in firms that are competitors in oligopolistic product markets.

Until relatively recently, the (passive) common ownership phenomenon was considered competitively benign. It was also considered to be exempt from antitrust scrutiny, or at least from premerger notification filings, under what has come to be known as the 'investment-only exemption' under the Hart Scott Rodino Antitrust Improvement Act (HSR).¹⁶ According to the HSR, certain stock acquisitions and mergers, most notably in the present context acquisition of stock meeting minimum 'size-of-transaction' and 'size-of-person' thresholds,¹⁷ require premerger notifications to be filed with the antitrust agencies. When such a filing is required, the transaction may not be completed until a statutory period of time has elapsed, during which the antitrust agencies assess whether or not the effect of the proposed transaction may be to substantially lessen competition or tend to create a monopoly in any line of commerce, as per section 7 of the Clayton Act.¹⁸ If the effect of the transaction may be to substantially lessen competition in any line of commerce, the agencies may attempt to block the merger. The HSR exempts acquisitions from the pre-merger notification when the acquirer will not hold over ten percent of the issuer's voting securities, and when the acquisition is made "solely for the purpose of investment".¹⁹ This exemption was, as mentioned, thought to apply to purely

¹⁰ See, e.g., Elhague, *supra* note 1, at 1268.

¹¹ Posner et al., *supra* note 1, at 5 – 6.

¹² Jose Azar, *Portfolio diversification, Market Power, and the Theory of the Firm* (January 30, 2017), available at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2811221>, at 2.

¹³ The generally-accepted concentration measure is the HHI, which sums the squares of each firm's market share. Under the US horizontal Merger Guidelines (US Department of Justice and Federal Trade Commission, Horizontal Merger Guidelines, August 19, 2010) (hereinafter: "**HMG**"), an industry with an HHI above 2500 is generally considered highly concentrated (see at 18 – 19).

¹⁴ Elhague, *id.*, at note 50, citing Gerard Hoberg & Gordon Phillips, <<http://hobergphillips.usc.edu/industryconcen.htm>> (but pointing out that industry definitions may be different from antitrust market definitions), *The Economist*, Business in America – too Much of a Good Thing, March 26th, 2016, available at <<https://www.economist.com/news/briefing/21695385-profits-are-too-high-america-needs-giant-dose-competition-too-much-good-thing>>.

¹⁵ *The Economist*, Corporate Concentration – The Creep of Consolidation Across America's Corporate Landscape, March 24th, 2016, available at <<https://www.economist.com/blogs/graphicdetail/2016/03/daily-chart-13>>.

¹⁶ 15 U.S.C. §18a.

¹⁷ The size-of-transaction threshold has recently been raised to \$323 million, or slightly less than \$81 million if either the acquiring or acquired party has annual net sales or total assets of at least \$16.2 million and the other party has annual net sales or total assets of at least \$161.5 million (the 'person-size-threshold').

¹⁸ 15 U.S.C. §18.

¹⁹ 15 U.S.C. §18a(c)(9). The HSR Rules (Rule 801.1i(1)) state: "*Solely for the purpose of investment*. Voting securities are held or acquired "solely for the purpose of investment" if the person holding or acquiring such voting securities has no intention of participating in the formulation, determination, or direction of the basic business decisions of the issuer".

passive investments.²⁰ Both economically and legally, purely passive investment was considered to raise no antitrust concern.²¹

However, recent academic work has argued that the phenomenon of several institutional investors holding equity across firms that compete in oligopolistic product markets is competitively harmful. Notwithstanding the uncontested benefits of diversification, the phenomenon of common ownership, also referred to as horizontal shareholding or interlocking shareholding, by institutional investors is argued to result in anti-competitive equilibria. Importantly, the argument is that institutional investors' cross ownership of stock in oligopolistic markets results in coordinated-like anti-competitive pricing *even if these institutional investors do not control any of the firms in which they invest, and regardless of these institutional investors' conduct; that is even if they do not coordinate in any way.*²² Although no coordination is alleged, and although coordination amongst institutional investors is considered unlikely,²³ as it violates section 1 of the Sherman Act,²⁴ the argument advanced in the recent literature is that the very structure of the market in these circumstances results in harm to competition as a direct consequence of common ownership. Even if institutional investors do not coordinate, transfer information that they have received as shareholders from one firm to the other, or actively instruct managers, "...no such communication or coordination is necessary for the basic anti-competitive effect, which turns purely on the structural incentives created by horizontal shareholdings".²⁵

A recent empirical article has found evidence supporting the hypothesis that cross ownership by institutional investors dampens competition. Azar et al. attempt to assess the effect of a change in concentration among institutional investors that hold stock in the airline industry on ticket prices. Azar et al. use a modified measurement of concentration that accounts for ownership-concentration (a modified HHI, "MHHI"), originally developed by O'brien and Salop.²⁶ They exploit a merger between institutional investors, BlackRock's acquisition of Barclays Global Investors,²⁷ and identify a positive effect of the increase in (shareholder-level) concentration on ticket prices. They find that ticket prices were 3% - 7% higher under common ownership than they would have been under separate ownership. Although this may seem like

²⁰ But see Daniel P. O'brien and Steven C. Salop, *Competitive Effects of Partial Ownership: Financial Interest and Corporate Control*, 67 Antitrust L.J. 559 (1999 – 2000), contesting the point made in Phillip Areeda & Donald F. Turner, Antitrust Law, 1203d at 322 (1980); David Gilo, *The Anticompetitive effect of Passive Investment*, 99 Mich. L. Rev. 1 (2000). Note, however, that Gilo focuses on the anti-competitive effects of passive investments by a single shareholder, that controls one of the firms (see also O'brien and Salop's analysis of horizontal joint ventures acting independently of their parents' incentives – at 585).

²¹ A comprehensive account of both the case law and the enforcement policy of the Department of Justice and the federal Trade commission is offered by Rock and Rubinfeld, Edward B. Rock and Daniel L. Rubinfeld, *Antitrust for Institutional Investors*, (forthcoming, 2018, Antitrust Law Journal) at 28 – 33). On the 'investment-only' exemption see also generally: <<https://www.ftc.gov/news-events/blogs/competition-matters/2015/08/investment-only-means-just>>.

²² O'brien and Salop, *supra* note 20, at 568; Azar et al., *supra* note 1, at 31. Posner et al., *supra* note 1, at 15. Elhague, *supra* note 1, at 1270.

²³ Azar et al., *supra* note *supra* note 1, at 31; The Economist, Too much of a Good Thing, March 26th, 2016, available at: <<https://www.economist.com/news/briefing/21695385-profits-are-too-high-america-needs-giant-dose-competition-too-much-good-thing>>. Rock and Rubinfeld, *supra* note 21, point out that they do not know of any Section 1 violations, but that the argument that coordination has occurred has been raised in litigation (at 3), referring to *Re Domestic Airline Travel Antitrust Litigation*, U.S. District Court, District of Columbia, MDL Docket No. 2656, filed March 25th, 2016. Elhague, *id.*, at 1269 – 1270, argues that communication (although not outright coordination) does occur.

²⁴ 15 U.S.C. §§ 1–7. See Posner et al., *supra* note 1, at 19.

²⁵ Elhague, *supra* note 1, at 1274.

²⁶ O'brien and Salop, *supra* note 20.

²⁷ *Supra* note 1.

a small price-increase, given the profitability in the industry (approximately 4%), it is a significant change.²⁸ The empirical findings have been challenged by Daniel O’Brien and Keith Waehrer²⁹ and by Edward Rock and Daniel Rubinfeld.³⁰ A newer study examining the same industry while addressing the methodological issues identified in the key empirical research,³¹ as well as another empirical study focusing on the banking industry,³² have found different results. The former of these two very recent studies found no effect of common ownership on prices, and the latter found mixed (although preliminary) results. The empirical findings are therefore quite mixed, at the very least. But the empirical study by Azar et al. has nonetheless been extremely influential, and is heavily relied on by proponents of the theory of competitive harm.³³

Naturally, the recent economic analyses suggesting that passive cross ownership may have an anti-competitive structural effect have been supplemented by legal arguments suggesting that institutional investors’ common ownership of oligopolistic firms’ stock should require pre-merger filing (and antitrust scrutiny) under the HSR even if these are passive investments. The ‘investment-only’ exemption should be construed, so it has been argued, to be inapplicable to such acquisitions, and cross ownership of this kind should be considered to run afoul of section 7 of the Clayton Act.³⁴

There are indicia that the academic writings challenging institutional investors’ business model have found a willing ear at the federal antitrust agencies, the Antitrust Division at the Department of Justice and the Federal Trade Commission, which have reportedly begun to investigate instances of this strategy in several industries.³⁵ These investigations are a potential attack on the entire system of mutual fund holdings.³⁶

The now-prevalent view that passive investments by institutional investors is competitively harmful has even brought about suggestions to limit institutional investors’ diversification, limiting them to either owning stock in no more than one firm per (oligopolistic) industry, or holding stock not exceeding 1% of the total value of any (oligopolistic) industry.³⁷

This Paper argues the opposite. It argues that the competitive concerns are misplaced, and that antitrust law should not deal with purely passive investments by institutional investors,

²⁸ Azar et al., *supra* note 1, at 3.

²⁹ Daniel P. O’Brien & Keith Waehrer, *The Competitive Effects of Common Ownership: We Know Less Than We Think*, posted February 22nd, 2017, available online at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2922677>.

³⁰ Rock & Rubinfeld, *supra* note 21.

³¹ Pauline Kennedy, Daniel P. O’Brien, Minjae Song & Keith Waehrer, *The Competitive Effects of Common Ownership: Economic Foundations and Empirical Evidence*, posted July 26th, 2017, available online at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3008331>.

³² Jacob Gramlich & Serafin Grundl, *Estimating the Competitive effects of Common Ownership*, Draft, April 21, 2017, Finance and Economics Discussion Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board, Washington, D.C., available on SSRN at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2940137>.

³³ E.g. Elhague, *supra* note 1; Posner et al., *supra* note 1.

³⁴ Elhague, *id.*, at 1301 – 1314; Posner et al., *id.*, at 8 & 19.

³⁵ Kennedy et al., *supra* note 31, at note 4, Davidoff Solomon, *Rise of Institutional Investors Raises Questions of Collusion*, April 12, 2016 available at: <<https://www.nytimes.com/2016/04/13/business/dealbook/rise-of-institutional-investors-raises-questions-of-collusion.html>>, Patel, *supra* note 1, at 27. Although at least one of these investigations has apparently been abandoned. See Rock & Rubinfeld, *supra* note 21, at note 46.

³⁶ Solomon, *id.*

³⁷ Posner et al., *supra* note 1, at 27. See also Rock and Rubinfeld’s suggestions – Rock & Rubinfeld, *supra* note 21, at 42 – 49.

specifically when several institutional investors jointly hold stock or debt in competing firms. The argument pressed in this Paper is that absent control of the firms and coordination between institutional investors, which is, as mentioned, neither alleged in these recent academic writings nor likely given the potential criminal liability associated with it,³⁸ passive (non-controlling) common ownership of stock does not worsen the competitive situation. Common ownership by non-controlling institutional investors does not incentivize managers to compete any less vigorously than they would have absent this common ownership. The key observation developed in this Paper is that in contrast to other potentially anti-competitive settings (or anti-competitive conduct), in the setting of passive cross ownership, at least one of the firms *loses* from coordination. Supra-competitive pricing does not benefit all coordinating participants. Rather, some participants lose, so that others may increase their profits. Therefore, the theory of competitive harm advanced in the recent literature is predicated, at times implicitly, on management's willingness to act in a manner that is detrimental to the firm. While this is, of course, possible, it requires some mechanism that will incentivize management to act in such a manner. And this mechanism is absent in the setting of passive non-controlling cross ownership. I develop the concept of 'unilateral coordination', which – while linguistically self-contradicting by definition – helps illustrate the difference in the competitive harm alleged in the current setting and the competitive harm regularly associated with concentrated product markets.

The Paper also addresses the empirical studies. Some of the studies, namely the recent studies finding no correlation between shareholder-level concentration and prices, support the theory advanced in this Paper, although – as mentioned – the empirical evidence is mixed. The Paper briefly reviews the key critique of the empirical findings supporting the opposite theory, building mainly on Rock and Rubinfeld's comprehensive analysis of the shortcomings of those empirical findings.

Since the argument developed focuses on the *mechanism* through which competition is thought to be harmed, it is necessary to delve into the precise mechanisms identified in the literature. To that end, it is helpful to begin with the setting of a single retail investor holding stakes in competing firms, and then proceed to the more complicated setting of a single *passive, non-controlling* investor with cross-holdings in competing firms. Building on the analyses of these two settings, the more complex setting of *several* passive investors with non-controlling stakes in competing firms can then be introduced and analyzed. This step-by-step analysis will help reveal the challenges to the hypotheses regarding cross ownership and its anti-competitive potential.

The remainder of this Paper is structured as follows: chapter *I* introduces the now-prevailing view according to which the phenomenon is harmful to competition; chapter *II* develops the key hypothesis of this Paper. It challenges the arguments presented in chapter *I*, and attempts to demonstrate that there are no anti-competitive outcomes that are attributable to truly passive common ownership of stock. Chapter *III* briefly discusses the empirical evidence. It reviews the criticism of the empirical findings of competitive harm resulting from cross ownership, advanced by O'Brien and Waehrer and by Rock and Rubinfeld. It also reviews the newer (opposite) findings. While additional empirical work is undoubtedly called for, the theory advanced in the current Paper seems well-supported by the most recent empirical studies. Chapter *IV* concludes.

³⁸ See *supra* note 24. See also Model Business Corp. Act § 1.40 (18) (1984).

I. The Theory of Competitive Harm

Before proceeding, two preliminary notes with respect to the structure of the product market are in order.

First, the analysis developed in the literature is irrelevant to competitive product markets. Settings in which there are numerous competitors are settings in which competition is less likely to be chilled, specifically absent express coordination and agreed-upon enforcement mechanisms.³⁹ All agree that a prerequisite for competitive harm stemming from common ownership is that the product market in which investors own stock be a concentrated one.⁴⁰ Following the analyses developed in recent writings, this Paper too focuses on product markets in which competition is of an oligopolistic nature. For ease of exposition, I normally use the case of a product-market duopoly, a two-firm industry. The analysis is equally applicable to other highly concentrated markets, which translates into markets with up to four major competitors.⁴¹ Of course, the ‘but-for’ quantity-price equilibria might be different; that is, the equilibrium in a three-firm oligopoly may be different than the equilibrium in a duopoly or a four-firm industry.⁴² But in terms of the effects common ownership has on competition, the analysis is no different.

A second note, closely related to the first one, is that the analysis developed in this Paper is not to be taken to suggest that markets in which institutional investors are found to commonly own stock are necessarily competitive. Regardless of common ownership, tacit collusion (which is generally legal)⁴³ occurs in concentrated product markets. Neither the existence of tacit collusion nor the concomitant supra-competitive pricing are in any way challenged. Moreover, there might even be reason to expect firms in oligopolistic markets to be over-represented in institutional investors’ portfolios.⁴⁴ This Paper does not suggest in any way that firms in which institutional investors are invested are typically in fierce product-market competition. But the argument advanced in the literature is that when the product market is oligopolistic, common ownership *exacerbates* the anti-competitive outcome by inducing what I will refer to as ‘unilateral coordination’. And this Paper argues that they do not.

³⁹ George J. Stigler, *A Theory of Oligopoly*, 72 *Journal of Political Economy*, 44 (1964).

⁴⁰ See *supra* note 13. But see Posner et al.’s point regarding markets with HHI’s that are lower than 2,500, but with relatively high MHHI’s (at 24). On the MHHI see *infra* note 113 and accompanying text.

⁴¹ As mentioned (*supra* note 13), the acceptable measurement of concentration is an HHI, and according to the HMG, industries with HHIs of 2500 and higher are considered highly concentrated. Mathematically, an HHI of over 2500 means that there are four or fewer major firms in the market (Elhague, *supra* note 1, at 1277).

⁴² The different equilibria would depend not only on the number of competitors, but also on the nature of competition in the industry. See generally Jean Tirole, *The Theory of Industrial Organization*, MIT Press, Cambridge, MA, 1994 (7th printing) at ch. 6.

⁴³ *Bell Atlantic Corp. v. Twombly*, 550 U.S. 544 (2007), *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993), *In re: Text Messaging Antitrust Litig.*, 782 F.3d 867 (7th Cir. 2015).

⁴⁴ Firms in relatively stable oligopolies can be expected to generate supra-competitive profits. If capital markets function perfectly, this should not make the stock of such firms a better investment opportunity. The supra-competitive rents should be reflected in the price at which the oligopolistic firms’ stock is traded, making the stock as lucrative as other firms’ stock in terms of the expected return on the investment. Excessive product-market profits need not imply excessive returns on investment in the firms’ stock. But if there is any element requiring expertise in appraising the value of the stock (*e.g.* the likelihood of regulatory action or inaction, the probability of emerging competition, etc.), institutional investors may be better situated than less sophisticated (certainly lay) investors to identify these opportunities, which may result in over-representation of such firms in institutional investors’ portfolio. On the efficient-market hypothesis see generally Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25(2) *Journal of Finance* 383 (1970).

I.A. Cross-holding by a Single Active Investor

As mentioned, it is helpful to begin by focusing on a single retail investor, who monitors her investment and exerts control over the management of firms in which she is invested. When such an investor diversifies her investment across competing firms, the competitive concern is straightforward. Any investor that has a stake in two or more competitors will naturally prefer lax competition between these competitors, as the investor's overall profits are maximized if the firms do not compete. At the extreme, consider an investor who owns all outstanding stock of the only two firms in an industry. Such an investor can obviously be expected to prevent all competition between the two firms, and the two firms will conduct themselves as if they were one, restricting output and raising prices to the monopolistic level.⁴⁵

Even if the single investor does not hold *all* outstanding stock of the firms, the anti-competitive outcome may be similar. First, even if the shareholder does not hold all outstanding stock of the firms, she may nonetheless control the firms. The threshold for control is lower the more dispersed ownership is.⁴⁶ At times, control may be achieved with relatively small holdings in one or more of the firms. If a shareholder controls the firms in question, the firms can be expected to conduct themselves as if they were fully merged, even if the shareholder's holdings fall far short of 100%. A clear example of this is the situation of a two-firm industry, in which a single investor holds 51% of the outstanding stock of each of the two firms. But even 51% of the outstanding stock is regularly far more than is required for control.⁴⁷ When ownership is dispersed, the same outcome may be achieved with holdings that are smaller by orders of magnitude.

Additionally, even if the shareholder has no control whatsoever over the firms, cross-holdings may facilitate cartel-like behavior through exchange of information and collusion. A shareholder that has a representative on the board of each of the firms may be able to transfer competitively-sensitive information from one firm to the other,⁴⁸ and even explicitly coordinate pricing and output. This may be the case even if other shareholders are more influential in each of the firms than the cross-holding shareholder, because these other shareholders also benefit from supra-competitive pricing.⁴⁹

A single, active, **controlling** shareholder that holds shares in two or more competitors, may thus result in a merger-like anti-competitive outcome. And a single, active, **non-controlling** shareholder that holds shares in two or more competitors may facilitate collusion, whether oligopolistic coordination or outright cartelistic agreements.

⁴⁵ Ariel Ezrachi and David Gilo, *EC Competition Law and the Regulation of Passive Investments among Competitors*, 26 Oxford Journal of Legal Studies 327, 329 (2006).

⁴⁶ See O'Brien and Salop, *supra* note 20, at 570.

⁴⁷ Rock and Rubinfeld, *supra* note 21 at 9.

⁴⁸ Sharing of information would generally be considered a 'plus factor', tending to make tacit collusion, otherwise legitimate, actionable. See William E. Kovacic et al., *Plus Factors and Agreement in Antitrust Law*, 110 Mich.L. Rev. 393 (2011 – 2012).

⁴⁹ Even if the shareholder does not facilitate direct coordination, the mere fact that such a joint shareholder exists may provide both firms with comfort that inexplicit anti-competitive messages are received. Consider, for example, the following example: firm A is considering a price increase that will only be profitable if firm B also raises prices (otherwise firm B will capture all sales). Firm A wants to raise prices, hoping that firm B will follow suit. Under regular circumstances, firm A cannot be sure that firm B will understand that if it does not follow suit A's prices will be lowered. A joint board member (or a joint shareholder who communicates with his representatives on the respective boards) may be helpful in ensuring that the strategy is made known to the competitor, who can then be expected to cooperate even absent an explicit agreement to do so. Uncertainty, which challenges most tacit collusion situations, is resolved or mitigated through the joint shareholder.

These kinds of anti-competitive outcomes are neither novel nor controversial. Antitrust law is, and has long been, well-designed to deal with them. The first kind, cross-holding that results in merger-like outcomes, is covered by merger control. Merger control is aimed at preventing harm to competition in its incipiency.⁵⁰ Acquisition of shares in a firm meeting some threshold by a shareholder of a competing firm will normally require approval, or at least scrutiny of some sort, by antitrust authorities.⁵¹

The second kind of potential competitive harm, the facilitation of explicit or tacit collusion by a **non-controlling** shareholder is dealt with under both the Clayton Act and the Sherman Act. The Clayton Act addresses such concerns in the same way it addresses the concerns associated with a joint *controlling* shareholder. It preempts the competitive harm *ex ante*, by enjoining the transaction.⁵² An increased likelihood of post-merger collusion may bring about an objection to a specific deal (when that deal requires approval) or post-merger scrutiny (if the deal does not require approval).⁵³ Section 1 of the Sherman Act deals with instances of horizontal collusion *ex post* as an antitrust offence.⁵⁴ This is well established in antitrust doctrine.⁵⁵

I.B. Cross-holding by a Single Investor that is a Passive investor in one of the firms

The analysis becomes more complex when the single investor holding stock of competing firms controls one of the firms, but is a non-controlling passive investor in the other. This is taken to mean that the investor neither dictates the non-controlled firms' conduct, nor delivers information (or explicitly coordinates) between the firms.⁵⁶ As the firms are not controlled by the same shareholder, and as there is no coordination, the firms' competitive conduct should ostensibly remain intact despite the cross-holding.

Nonetheless, and although less straightforward, scholars have identified anti-competitive potential associated with such cross-shareholding as well. Professor Gilo refers to the case in

⁵⁰ *Brown Shoe v. United States*, 370 US 294 (1962) at 317; HMG, *supra* note 13, at 1 & 25. For an account of actual enforcement actions and trends see Mergers, Market Power, and the Need for More Vigorous Enforcement, AntitrustInstitute.org (Preview of Am. Antitrust Inst. Merger Chapter of 2016 Presidential Transition Rep., posted Mar. 25, 2016), available at < <http://www.antitrustinstitute.org/sites/default/files/mergerfinal.pdf>>.

⁵¹ See generally Premerger Notification Rules, 16 C.F.R. Parts 801, 802 and 803, Federal Register / Vol. 76, No. 138 / Tuesday, July 19, 2011 / Rules and Regulations 42471 (specifically the term 'associate'), available at: < <https://www.gpo.gov/fdsys/pkg/FR-2011-07-19/pdf/2011-17822.pdf>>, and the FTC's introductory Guide to premerger notification – FTC, Hart-Scott-Rodino Premerger Notification Program, Guide I – What is the Premerger Notification Program? An Overview, available at: < <https://www.ftc.gov/sites/default/files/attachments/premerger-introductory-guides/guide1.pdf>>.

⁵² Premerger Notification Rules, *id.* Premerger Notification Program, Guide I, *id.* See specifically section 8 of the Clayton Act, 15 U.S.C. §8.

⁵³ On the forward-looking nature of merger control see *supra* note 50, and Deborah L. Feinstein, Director, The Forward-Looking Nature of Merger Analysis Advanced Antitrust U.S. (San Francisco 2014, Bureau of Competition, Federal Trade Commission), available at: < https://www.ftc.gov/system/files/documents/public_statements/forward-looking-nature-merger-analysis/140206mergeranalysis-dlf.pdf>.

⁵⁴ See, e.g., *Timken Roller Bearing Co. v. United States* 341 U.S. 593 (1951), although the case may have been decided differently today under the single-economic-entity doctrine (see Bjorn Lundqvist, Joint Research and Development under US Antitrust and EU Competition Law (Edward Elgar Publishing, MA, 2015), at 34. See also Chapter I of the UK Competition Act 1998. See also: William E. Kovacic, *Antitrust Policy and Horizontal Collusion in the 21st Century*, 9 Loy. Consumer L. Rep. 97 (1996-1997); Murilo Lubambo, *Vertical Restraints Facilitating Horizontal Collusion: Stretching Agreements in a Comparative Approach*, 4 UCLJLJ 135 (2015)).

⁵⁵ On the analysis of this scenario, referred to as the 'cartel ringmaster' scenario, and on the relevant case law establishing that such conduct constitutes an antitrust offense under Section 1 of the Sherman Act, see Rock and Rubinfeld, *supra* note 21, at 1-2 and at 4-6. Although focusing on the hypothetical of a portfolio manager of a fund, the analysis is, of course, equally applicable to any cross-holding 'ringmaster'.

⁵⁶ *Supra* note 22.

which a firm's controller invests in the firm's competitor as "passive investment by controllers".⁵⁷ He shows that under such circumstances, the controller may stifle competition. The key idea here is that if the controller's financial interest in the competitor is larger than its financial interest in the controlled firm, the controller will have a preference for profits to flow from the controlled firm to the non-controlled firm (in which the controller's stakes are larger). As it controls the firm from which it wants profits to flow, the controller will cause that firm to raise prices or otherwise conduct itself in a self-harming manner, to the benefit of its competitor.

Consider the following (extreme) example: Firm A has a dual class stock.⁵⁸ One class of shares grants voting rights but no financial rights, and the other class grants financial rights but no voting rights. Firm A's controller owns all the shares that grant voting rights, but none of the shares that grant financial rights. It controls the firm, but has no financial stake in it. Firm A's controller also holds shares of firm B, firm A's competitor. These are regular shares, and the controller thus has a financial stake in firm B. The controller clearly prefers profits and sales to be diverted from firm A to firm B. The controller earns nothing if profits accrue to firm A, whereas profits accruing to firm B benefit the shareholder. Firm A's management can be instructed to raise the price firm A charges for the product, so that consumers, or a large subset of consumers, will shift demand to firm B.

The analysis can, of course, be generalized. As long as there is any divergence in the financial stakes the controller has in each of the firms, the controller will have a preference for profits to flow to the firm in which its financial stake is the largest. And if the financial holdings in the controlled firm are smaller than the financial stakes in the competitor, the anti-competitive conduct may ensue.⁵⁹ As Gilo summarizes:

"In summary, when a firm's controller (be it a parent company or an individual) invests in the firm's competitor, in addition to the controller's stake in the competitor, the controller's stake in the firm it controls becomes important. The smaller the controller's stake in the firm it controls, the less aggressively will the controller cause the firm it controls to compete. This is because the smaller the controller's stake in the firm it controls, the more weight the controller places on its stake in the competing firm. This further implies that even relatively small stakes the controller holds in the competing firm could substantially lessen competition if the controller has a diluted stake in the firm it controls.

The analysis of passive investment by a firm's controlling shareholder in the firm's competitor is directly analogous to passive investment by a firm's *manager* in the firm's competitor".⁶⁰

Of course, as mentioned, cross-holdings may also facilitate collusion, express or tacit. But the point is precisely that "no such communication or coordination is necessary for the basic anticompetitive effect, which turns purely on structural incentives created by the interlocking shareholdings".⁶¹ Even *absent* collusion, cross-investment has anti-competitive potential. The

⁵⁷ Gilo, *supra* note 20, at 22.

⁵⁸ For an in-depth analysis of the separation of ownership and control (in the present context of industry performance as opposed to the 'classic' setting of the individual firm) see O'Brien and Salop, *supra* note 20.

⁵⁹ See Gilo, *supra* note 20, at 22. Elhague, *supra* note 1, at 1270.

⁶⁰ Gilo, *id.*, at 22.

⁶¹ Elhague, *supra* note 1, at 1274. See also O'Brien and Salop, *supra* note 20, at 568.

controller can be expected to cause the controlled firm to forego competition so as to allow the competing firm (in which the controller has a greater financial stake) to reap the benefits.⁶²

An extremely important observation for the argument pressed in the current Paper is that there is a stark difference between the two settings discussed – the ‘classic’ setting, in which the same shareholder controls *both* firms and exerts this control to relax competition, and the setting in which the shareholder controls only one of the firms.

In the first setting, coordination leaves **both** firms better off than they would have been but for the coordination. The joint (controlling) shareholder, essentially forms a cartel (economically, although not necessarily legally)⁶³ or a *de facto* fully-merged firm. Both firms compete, or more accurately do not compete, as if they were a single monopoly or cartel members. The joint controller facilitates behavior that is profit-increasing from *both* firm’s perspective by eliminating competition between them.

In the second setting, in which the controller controls one firm but has a (passive but greater) financial stake in the other firm, the controlled firm *loses* from the anti-competitive ‘coordination’. It *loses* sales to its competitor, so that its competitor (in which the controller has a larger financial stake) may reap the benefits of this loss by charging monopoly, or at least supra-competitive, prices. This kind of anti-competitive effect corresponds to what is referred to in merger control as ‘unilateral effects’,⁶⁴ or the ‘recapture effect’.⁶⁵ The analysis of this second setting must be sensitive to the idea that one of the ‘coordinating’ firms loses as a result of the coordinated conduct. This is acknowledged by both Gilo and O’Brien and Salop.⁶⁶

This observation will prove key for the analysis developed in this Paper. For want of a better term, we may refer to the conduct of the firms in the setting of a joint shareholder who controls only one of the firms using the oxymoron ‘unilateral coordination’. One firm in the industry (or more than one, if the industry is not a duopoly) unilaterally (and unprofitably) raises its own prices, simply so that another firm may then profitably raise its own prices, to the benefit of the first firm’s controller, but to the detriment of the first firm.

Note, that unilateral coordination is very different not only from the previous scenario of a *de facto* merger (a single controller directing both firms’ conduct), but also from standard tacit collusion. Much like a *de facto* merger, tacit collusion, if successful, benefits both coordinating

⁶² Gilo, *supra* note 20, at 5. See also Elhague, *id.*, at 1270.

⁶³ If both firms are fully controlled by the same controller, they may be “incapable of conspiring for purposes of §1 of the Sherman Act” (*Copperweld Corp. v. Independence Tube Corp.* 467 U.S. 752 (1984), at 777), which established what is known as the single-entity defense doctrine. Note, however, that the *Copperweld* rule applies to a conspiracy alleged between a parent company and its *wholly-owned* subsidiary. The precise contours of the single-entity defense are unclear outside the paradigmatic setting of a parent company and a wholly-owned subsidiary. For an account of subsequent case law see Dean V. Williamson, Organization, Control, and the Single Entity Defense in antitrust, United States Department of Justice, Economic antitrust Group Discussion Paper EAG 06-4 January 2006).

⁶⁴ HMG, *supra* note 13, at 20 – 24. The specific kind of unilateral effect that is relevant to the present context is the one discussed in section 6.1 of the HMG.

⁶⁵ Posner et al., at 12; Robert J. Reynolds and Bruce R. Snapp, *The competitive effects of partial equity interests and joint ventures* 4(2) *International Journal of Industrial Organization* 141 (1986).

⁶⁶ Gilo, *supra* note 20, at 5. O’Brien and Salop, *supra* note 20 (at 568), expressly acknowledge this point, and explicitly make the distinction between financial interest and corporate control (see at 569). They tie their analysis to the seminal work of Berle and Means on the separation of ownership and control and its implications on the performance of an individual corporation (Adolf A. Berle, Jr., & Gardiner C. Means, *The Modern Corporation and Private Property* (1932) – see at 563).

firms.⁶⁷ Under the regular oligopolistic setting, one firm raises its price (or otherwise conducts itself) attempting to signal the other firm to do the same. If the other firm does not reciprocate, the first firm returns to the competitive (or pre-collusion) prices, leaving neither of the firms better off.⁶⁸ If the other firm reciprocates, both firms are better off than they would have been had they competed.⁶⁹ By contrast, in the setting of unilateral coordination, the ‘unilaterally coordinating’ firm is worse off than it would have been under competition, regardless of its competitor’s response. Although similar in the sense that one firm may raise prices without having coordinated explicitly with the other, tacit collusion and unilateral coordination are very different. The first is engaged in for the benefit of the firm engaging in it.⁷⁰ The second is engaged in for the opposite reason.

It is helpful to consider the outcome under four different settings in a hypothetical two-firm industry, in which the competitive price is \$1, the duopoly price is \$3, and the monopoly price is \$5. Under competition, both firms will sell for the price of \$1, and split the (competitive) return. Under duopoly, both firms will tacitly collude and sell for the price of \$3, splitting (duopoly) rents. Under a *de facto* merger (joint control) both firms will sell for the price of \$5, splitting monopoly rents. Under unilateral coordination, the unilaterally coordinating firm (the controlled firm) will sell for, say, \$6,⁷¹ allowing the firm in which the controller has a larger financial interest to profitably charge \$5. All monopoly rents will accrue to the second firm, and the first firm will have made no sales.

This example is summarized in the following table, in which the quantities cleared by the market are added into the analysis. The prices under competition, duopoly, and monopoly are unchanged. The corresponding quantities cleared by the market are, say, 20 units at the competitive price of \$1, 14 units at the duopoly price of \$3, and 10 units at the monopoly price of \$5. Firm A is the unilaterally coordinating firm, or the firm initiating duopolistic coordination, as relevant.

⁶⁷ And, indeed, the second kind of competitive concern associated with mergers is coordinated effects of the merger, *i.e.* its facilitation of coordinated conduct. See HMG at 24 – 27; Jonathan M. Baker, *Mavericks, Mergers and Exclusion: Proving coordinated Competitive Effects under the Antitrust Laws*, 77 N.Y.U.L.R 135 (2002).

⁶⁸ See generally Edward J. Green, Robert C. Marshall, and Leslie M. Marx, Tacit Collusion in Oligopoly, in *The Oxford Handbook of International Antitrust Economics* (Roger D. Blair and D. Daniel Sokol eds., vol. 2, 2014).

⁶⁹ M.K. Vaska, *Conscious Parallelism and Price Fixing: Defining the Boundary*, 52(2) University of Chicago L. Rev. 508 (1985); Baker, *supra* note 67.

⁷⁰ See also Rock and Rubinfeld, *supra* note 21 at 17-18.

⁷¹ Or any price higher than \$5.

Table 1

	Price			Quantity			Profit		
	Industry	Firm A	Firm B	Industry	Firm A	Firm B	Industry	Firm A	Firm B
Competition	\$1	\$1	\$1	20	10	10	\$20	\$10	\$10
Duopoly	\$3	\$3	\$3	14	7	7	\$42	\$21	\$21
Monopoly (<i>de facto</i> merger)	\$5	\$5	\$5	10	5	5	\$50	\$25	\$25
Unilateral Coordination	\$5	\$6	\$5	10	0	10	\$50	\$0	\$50

In conformity with standard economic analysis, both firms find monopoly rents, which are the outcome of explicit coordination or a *de facto* merger, superior to duopoly rents, which are – in turn – superior to the competitive outcome.⁷² However, unilateral coordination is an improvement compared to all other possibilities from firm B’s perspective, as under unilateral coordination it accrues all (not only a share of) monopoly rents, whereas from firm A’s perspective unilateral coordination is inferior not only to a *de facto* merger and to duopoly, but even to perfect competition. Firm A’s only rationale for engaging in unilateral coordination is its controller’s preferences.

I.C. Several Passive Investors and Cross Ownership – Interlocking Shareholding

The final development in the theory of competitive harm is fairly recent, and it is this development that is at the heart of this Paper. Recent scholarly work has extended the analysis to situations in which the competing firms are commonly-held by several investors, most commonly institutional investors, even if these investors control *neither* of the firms and do not coordinate amongst themselves.⁷³ Institutional investors’ holdings are publicly known.⁷⁴ Naturally, they are also known to the managers of the companies in which the institutional investors invest. The analysis presented earlier in the context of a single shareholder who has holdings in competing firms can now ostensibly be extended to the setting of several institutional investors who have interlocking holdings. Their joint interest is to curtail

⁷² Economically, in the case of perfect competition economic profits would be zero. This, however, does not challenge the numeric example presented here, as zero economic rents imply exactly covering the opportunity cost – see Herbert J. Hovenkamp, *Federal Antitrust Policy: The Law of Competition and Its Practice*, 5th. St. Paul, MN: West Academic Publishing, 2016 (Hornbook Series), at 3 – 12.

⁷³ Professor Elhague argues, that if the product market is relatively concentrated, then “[w]hen the same set of institutional investors has large, leading stock holdings across such a concentrated product market, their horizontal shareholdings are likely to be problematic” (Elhague, *supra* note 1, at 1272). See also *supra* notes 22 – 25, and 61 – 62.

⁷⁴ When the investors are an index fund, their holdings are obvious to all. Even if they are not, SEC rules require all institutional investors to disclose all their holdings quarterly (Securities Exchange Act § 13 (f)(I), 15 U.S.C. § 78m(f)(I) (2012); <<https://www.sec.gov/fast-answers/answers-form13fhtm.html>>; see: <<https://www.sec.gov/fast-answers/answers-form13fhtm.html>>. On SEC Form 13F see Rock and Rubinfeld, *supra* note 21, at 1-2.

competition between the competing firms in which they have interlocking shareholding. Knowing this, managements compete less vigorously. The competitive result is similar to the anti-competitive result discussed earlier.

This seems like a straightforward extension of the unilateral coordination scenario suggested earlier. Instead of a single shareholder, several institutional investors jointly function as a single shareholder (in the sense that management seeks to serve their interest), and the analysis is duplicated. The theory is, as mentioned, rapidly gaining proponents, and US antitrust enforcement agencies, the DOJ and the FTC, have reportedly launched investigations into instances of interlocking shareholding.⁷⁵

⁷⁵ *Supra* note 35.

II. Challenging (Now) Conventional Wisdom – Is There Anything to Fear?

The argument developed in this Paper is that interlocking shareholding, in and of itself, does nothing to dampen competition. Interlocking shareholding may facilitate explicit coordination. It may also allow information to be credibly shared, thereby stabilizing tacit collusion. But interlocking shareholding in and of itself does not harm competition in any way. And since there is, as mentioned, wide consensus that institutional investors do not engage in coordination or in information sharing (between boards),⁷⁶ there is little reason to deal with interlocking shareholding.

At the outset, the mechanism through which shareholders' incentives trickle down to management is unclear. If such a mechanism is lacking, there is little reason to fear that managers will unilaterally adopt any anti-competitive conduct that they would not have adopted but for the interlocking shareholding. It is here that the observation regarding the self-harming nature of unilateral coordination comes into play. Recall, that in the context of unilateral coordination, the theory of competitive harm requires managers to relax competition in a manner that is detrimental to the firm which they manage. As demonstrated in the example presented earlier, the unilaterally coordinating firm essentially diverts profits to the competitor, by raising prices to an unprofitable level.⁷⁷ This requires the firm to sacrifice profit.

Of course, in the oligopolistic setting, the firm may expect its competitor to follow suit and raise prices as well. This may indeed be the case, and few would argue that tacit collusion (which is, as mentioned, generally legal)⁷⁸ does not occur in oligopolistic markets. But this has nothing to do with interlocking shareholders. This is an outcome of concentration within the product market in which the firms held by the interlocking shareholders compete. The product market may be conducive to tacit collusion, and it may not. If it is, a firm – any firm – may indeed attempt to raise prices hoping that its competitor will reciprocate. If it is not, prices can be expected to be competitive. But regardless of *what* the product-market equilibrium is, there is no reason to think that managers will forego profit absent a mechanism that incentivizes them to do so.⁷⁹ The question therefore resonates even in the oligopolistic setting – why would managers act in a manner that is detrimental to the firm they manage?

II.A. Managerial Compensation Linked to Industry Performance

One answer to this puzzle, offered in the literature,⁸⁰ is that managers' performance-based compensation may be linked to performance of the *industry* rather than to performance of the specific firm (or the extent to which the specific firm's performance exceeds industry

⁷⁶ *Supra* notes 22 – 25.

⁷⁷ Or by engaging in equivalent conduct, for example by deteriorating the quality of the product, or the like.

⁷⁸ See *supra* note 43, Donald F. Turner, *The Definition of Agreement under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75(4) Harv. L.R. 655. 1962; J.B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 38 Antitrust Bull 143 (1993); E. J. Green, R. C. Marshall & L. M. Marx, *Tacit Collusion in Oligopoly*, in **The Oxford Handbook of International Antitrust Economics** (R. D. Blair and D. D. Sokol eds., vol. 2, 2014); but see Richard A. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, 21 Stan. L. Rev. 1562 (1968 – 1969).

⁷⁹ Azar et al., *supra* note 1, at 4.

⁸⁰ E.g. Miguel Anton, Florian Ederer, Mireia Gine, & Martin Schmalz "Common Ownership, Competition, and the Top Management Incentives" ROSS SCHOOL OF BUSINESS Paper No. 1328 European Corporate Governance Institute (ECGI) - Finance Working Paper No. 511/2017SSRN (2016): <<http://cowles.yale.edu/sites/default/files/files/pub/d20/d2046.pdf>>.

performance).⁸¹ But a closer look at such compensation plans, and specifically at the common mechanism that links managerial compensation to industry performance – granting managers stock or options in the firm they manage – reveals that although these compensation plans are problematic from the perspective of the shareholder-management relationship, they are unlikely to bring about unilateral coordination.

In an influential article on managerial compensation Bebchuck, Fried, and Walker argue that managerial compensation plans are not an outcome of optimal contracting, but rather of managerial power. Within this framework, Bebchuck et al. analyze the phenomenon of granting management options to purchase firm stock. Bebchuck et al. make the point that a result of such a mechanism is that managers' compensation is conditioned on absolute share price, rather than on the performance of the stock *in comparison* to other firms' stock. Managers are thus, through this mechanism, rewarded for share price increases that they may not have contributed to.⁸² Bebchuck et al. point out that “[t]o the extent industry- and market-wide effects boost the stock price, the manager will be “rewarded” for these increases when he exercises the options and shareholders will pay for this reward, even though this reward has no effect on the manager’s incentives”.⁸³

It would seem that granting managers option and stock might incentivize them to unilaterally coordinate. However, this is not the case. Although stock or options effectively reward managers for the performance of their competitors, in the context of unilateral coordination this effect is reversed. Granting managers stock or options in the firm they manage creates a *disincentive* to unilaterally coordinate, because if the firm unilaterally coordinates, the effect on the price of its own stock will be *negative*. Profits will flow to competitors, whose stock price will be positively affected. But the stock price of the unilaterally coordinating firm can be expected to drop. This is a result of the simple observation offered earlier – unilateral coordination results in a loss to the firm for the benefit of its competitors. In the extreme numerical example offered in *table 1*, the competitor’s stock will rocket, because it has substituted monopoly rents for a competitive return, but the unilaterally coordinating firm’s stock will plummet, because it has foregone all sales. Managerial compensation plans granting management stock or options in the firm under management are unlikely to result in unilateral coordination. In order to incentivize unilateral coordination, compensation must be designed to benefit management not only when competitors do well, but also when competitors do well *and* the firm under management performs relatively poorly at the same time. Stock and options (of the managed firm) do not accomplish this.⁸⁴

⁸¹ Lucian Arye Bebchuk, Jesse M. Fried & David I. Walker, *Managerial Power and Rent Extraction in the Design of Executive Compensation*, 69 U. Chicago L. Rev. 751 at 804 (2002).

⁸² *Id.*, at 802.

⁸³ *Id.* at 803. The point is stressed in Bebchuk & Fried’s book, L. A. Bebchuk & J. M. Fried, **Pay Without Performance, the Unfulfilled Promise of Executive Compensation** (Harv. U. Press, 2004), at 122.

⁸⁴ An important point, not to be pursued in the present context, is that both corporate law and antitrust law should indeed be concerned with managerial compensation effectively linked to industry performance. Specifically, granting managers stock or options incentivizes explicit and tacit coordination (See Rosa M. Abrantes – Metz & Daniel D. Sokol, **Antitrust Corporate Governance and Compliance**, in *The Oxford Handbook of International Antitrust Economics*, Vol. 2 (Roger D. Blair & D. Daniel Sokol eds., 2014)). If such compensation plans have no welfare-enhancing effect, or if this effect is trivial, uncommon, or can easily be achieved through some other measure that is competitively-benign, as Bebchuck et al. suggest, it may be justified to subject these compensation plans to a *per se* illegality rule. As antitrust case law has long recognized, *per se* illegality is appropriate for practices that harm competition but have no redeeming virtue, or whose redeeming virtue is uncommon or insignificant enough to justify forfeiting these virtues altogether for the benefit of a bright line rule. But importantly for current purposes, the competitive harm brought about by granting managers stock and options is caused through explicit or tacit coordination, not through unilateral coordination. In the context of unilateral

Moreover, incentivizing explicit or tacit coordination has little to do with cross ownership. A shareholder – any shareholder – benefits from relaxed product-market competition. A shareholder – again, any shareholder – may thus devise a compensation plan that incentivizes management to compete less vigorously by explicitly or tacitly coordinating with competitors. The shareholder’s holdings in competitors or the lack of such holdings do not change the profitability of anti-competitive conduct in any way. A shareholder holding 2% of the equity of a single firm in the industry benefits from coordination between that firm and its competitor exactly as a shareholder holding 1% of the equity of the same firm and 1% of the competitor’s equity does. And indeed, the literature has suggested that compensation plans of this sort may bring about explicit coordination as a general matter, regardless of cross ownership.⁸⁵ Cross ownership and unilateral coordination are not required for this analysis to hold.

It is beyond the scope of this Paper to recommend a specific rule to be applied to possible compensation plans that link managers’ compensation to the performance of other firms. Devising such a rule requires a comprehensive analysis of the potential welfare-enhancing effects of such compensation plans,⁸⁶ after which these effects may be balanced against the clear anti-competitive effects of the plans. A *per se* illegality rule may be appropriate, and a rule of reason may be appropriate (if enough welfare-enhancing effects are identified), specifically when the industry-performance-dependent component of compensation is trivial. For current purposes, it suffices to acknowledge that although it does not incentivize unilateral coordination, linking managers’ compensation to the performance of competing firms by granting them stock or options of the firm they manage is undoubtedly a mechanism through which shareholders’ (not necessarily cross-owners’) incentives to inhibit competition trickle down to management. Detached from unilateral coordination, antitrust law should indeed deal with the phenomenon, much like it deals with the acquisition of competitors’ stock.

I now turn to analyze additional mechanisms suggested in the literature as mechanisms that may incentivize management to manage the firm in a self-harming manner, for the benefit of non-controlling, passive, cross owners.

II.B. Future External Remuneration

The term ‘future external remuneration’, as used here, refers to consideration that does not take the form of supporting management in future votes in the company that unilaterally coordinates. This possibility is addressed in the next sub-chapter. In the current context, the remuneration considered is external to the unilaterally coordinating firm. Future external remuneration may take the form of employment within the institutional investor’s organization, future employment in other firms in which the institutional investor may have holdings, lucrative consulting agreements, or any other form of remuneration that is detached from the unilaterally coordinating firm. While from the manager’s perspective there may be little

coordination, such compensation plans in fact *alleviate* the competitive concern, because management has a greater incentive to increase (the specific firm’s) profits.

⁸⁵ See Abrantes – Metz Sokol, *id.* Bebchuck et al. reject the ‘softening industry competition’ explanation for granting managers stock and options. But their objection does not challenge the economic analysis. Bebchuck et al. reject this explanation mainly because as an empirical matter such compensation plans normally link compensation not to specific-industry performance but rather to broader price increases (Bebchuk, Fried & Walker, *supra* note 81, at 809). This objection does not imply that such compensation plans cannot incentivize managers to soften competition.

⁸⁶ See, e.g., A. Agrawal & G.N. Mandelker, *Managerial Incentives and Corporate Investment and Financing Decisions*, 42(4) *Journal of Finance* 823 (1987).

difference between the two forms of consideration (remuneration that is external to the unilaterally coordinating firm and support in future votes), for purposes of the current analysis it is helpful to deal with the two forms separately. The possibility of future consideration in the form of support in future votes is therefore discussed subsequently.

At the outset, recall once again, that absent coordination with competing firms, serving the institutional investor's (or institutional investors') interests requires foregoing profit. This, in turn, implies that managers are breaching their fiduciary obligations to all other shareholders (and other stakeholders, if such a fiduciary duty is owed⁸⁷). They are simply tunneling⁸⁸ profits from the firm to the institutional shareholder,⁸⁹ and consequently bearing the risk of civil lawsuits and, at times, criminal proceedings, with no immediate gain.⁹⁰ Moreover, if managers' compensation is in any way linked to their own firm's performance, be it through stock, options, bonuses, or other compensation methods, they are in fact *paying* (in the form of lost compensation) for this tunneling scheme.⁹¹ Their immediate return on this payment is civil and criminal liability. If there is no explicit quid pro quo agreement between management and the institutional investors for compensation (which would be illegal),⁹² the manager's remuneration is the shareholders' gratitude and the prospect of future consideration.⁹³

If the shareholder is a prominent and influential figure, such gratitude may be valuable.⁹⁴ But if this is the case, unilateral coordination is both implausible, and – far more importantly – has nothing to do with cross ownership or with large financial interests.

Let us begin with the likelihood of the scenario, which is – as suggested – secondary in importance. The likelihood of future remuneration is a function of two determinants: first, the benefitted shareholder must be expected to make some undetermined future payment despite

⁸⁷ Edward M. Iacobucci, *Corporate Fiduciary Duties and Prudential Regulation of Financial Institutions*, 16 *Theoretical Inquiries in Law* 183 (2015).

⁸⁸ The term 'tunneling' is problematic in this context, as tunneling normally describes "the transfer of assets and profits out of firms for the benefit of those who control them" (Simon Johnson, Rafael La Porta, Florencio Lopez-De-Silanes, and Andrei Shleifer, *Tunneling*, 92(2) *AEA Papers and Proceedings*, 22 at 22 (May 2000), available online at: < <https://scholar.harvard.edu/files/shleifer/files/tunneling.pdf>>). In the current context, the benefitted entities are *not* controllers. Nonetheless, from the perspective of the effect on the firm the phenomenon discussed here is no different (although, as I argue, unlikely precisely because the benefitted entity is not a controller).

⁸⁹ In a recent case before the Israeli District Court in Tel Aviv, a publicly traded firm's controller committed to pay management a specific discretionary bonus if the bonus was not granted by the board. The court ruled that officers are not allowed to receive direct remuneration from controllers. The rationale for this ruling is precisely the possibility that this will distort management's incentives, and cause it to act to the benefit of the controller at the expense of other shareholders. See Tel Aviv District Court, 18994-05-17 *De Langa v. Israel Corporation (Formal) et al.*, published on Nevo, April 30th, 2017.

⁹⁰ See generally, Model Business Corp. Act, *supra* note 38, Chapter 8 (specifically §8.30). See also *Langa v. Israel Corporation (Formal) et al.*, *supra* note 89. See generally GEOFF P. STAPLEDON, INSTITUTIONAL SHAREHOLDERS AND CORPORATE GOVERNANCE 8-12 (1996).

⁹¹ Once again, managerial compensation dependent on the specific's firm's performance may incentivize explicit coordination or tacit collusion (See Abrantes – Metz & Sokol, *supra* note **Error! Bookmark not defined.**). But it will not incentivize unilateral coordination.

⁹² If the quid pro quo is explicit, the manager is discharging its obligations under a clear conflict of interest and in breach of its fiduciary duties. See Model Business Corp. Act, *supra* note 38, Chapter 8, and specifically §8.31(a)(2)(i), §8.31(a)(2)(iii), §8.31(a)(2)(v), §8.42.

⁹³ Elhague, *supra* note 1, at 1274.

⁹⁴ John E. Core, Robert W. Holthausen & David F. Larcker, *Corporate Governance, Chief Executive Officer Compensation, and Firm Performance*, 51 *JOURNAL OF FINANCIAL ECONOMICS* 372-373 (1999); Richard Cyert, Sok-Hyon Kang, and Praveen Kumar, *Corporate Governance, Takeovers, and Top-Management Compensation: Theory and Evidence*, 48 *MANAGEMENT SCIENCE* 453-469 (2002).

the fact that it is under no obligation to do so.⁹⁵ But this is not enough. Obviously, the shareholder must also be *aware* that the manager has acted in a manner that was designed for the benefit of the shareholder at the expense of all other stakeholders. At the same time, all other shareholders (as well as all other stakeholders) must *not* realize what is transpiring. The more obscure or subtle the conduct, the less likely the benefitted shareholder is to realize that the manager has acted in a manner that warrants remuneration. The more egregious the conduct, the more likely other stakeholders (and authorities) are to realize what the manager is doing.⁹⁶ Consider a manager who is in competition with another firm, in which a prominent figure (who is not a controlling shareholder) has a larger financial stake. The manager realizes that it is in the shareholder's best interest to raise prices, so that profits flow to the competitor. The manager therefore unilaterally coordinates by raising prices to an unprofitable level, citing a market survey, estimations of demand, market trends, or the like as the justification for the price-increase. The competitor responds by also raising prices (to a level lower than that of the first firm's), and the competitor's profits are increased. The prominent shareholder's portfolio will have ultimately yielded a greater return. But the immediate implication of the justification provided for the conduct (say, a market survey) is that the motivation for the decision becomes obscure to the shareholder as well. The influential shareholder may conclude that the first manager has simply made a bad business decision, and decide to offer a lucrative position to the competing manager, whose company has outperformed the first. Of course, the influential shareholder may also realize that the real reason for the increased profits is the elaborate scheme (unilaterally) devised by the first manager, and conclude that this manager deserves reward for her loyalty. *A-priori*, the first conclusion seems a much more immediate conclusion than the second. The second conclusion becomes more forthcoming if the scheme is outrageous and the price-increase clearly has no business justification. But if that is the case, detection of the breach by other stakeholders,⁹⁷ authorities and the like also becomes much more likely.

Second, and far more important than the likelihood of the scenario, is the fact that this scenario has very little to do with cross ownership or large financial interests. Let it be assumed, that the scenario is likely. The manager is able to conceal harmful conduct from all stakeholders but one shareholder (or a few shareholders), who realizes precisely what transpired and why, and then upholds its (implied, unspecified, and non-binding) commitment to reward the manager in the future. The shareholder in question need not be the controlling shareholder, or

⁹⁵ This may be done for a host of reasons. Importantly, the shareholder may find it valuable to obtain a reputation of a shareholder that rewards managers who have furthered its interests. In this context, Heymann's observation, although focusing on reputation in its social context, is useful: "At its core, then, reputation is the result of the collective act of judging another and the potential use of that result to direct future engagements" (Laura A. Hermann, *The Law of Reputation and the Interest of the Audience* 52 B.C. L. Rev. 1341 (2011) at 1342). For a discussion of reputation in the business context (although focusing on corporate reputation and employee reputation) see Karen S. Cravens and Elizabeth Goad Oliver, *Employees: The Key Link to Corporate Reputation Management*, 49 Business Horizons 293 (2006). For a formal comprehensive discussion of reputation in settings in which players have repeated interactions (as in the current setting) see George J. Mailath and Larry Samuelson, **Repeated Games and Reputation – Long-Run Relationships** (Oxford University Press, 2006).

⁹⁶ Management may be able to bring its conduct to the attention of the shareholder. But it is in the manager's interest to claim that it has acted to the benefit of the shareholder (and the detriment of other stakeholders) regardless of whether or not this is true. This makes the manager's report to the shareholder less credible.

⁹⁷ Other shareholders' financial interest in detecting such breaches may be small. But the possibility of filing a class action (and receiving the monetary consideration as class plaintiff) should provide enough incentives to detect the breach and pursue an action. In this context, it is important to recall that the setting becomes more conducive to unilateral coordination as the controller's financial interest in the unilaterally coordinating company decreases, implying that other shareholders will find it even more appealing to act. Not surprisingly, the case cited by Rock and Rubinfeld (*supra* note 21) as the only case alleging such conduct – *Re Domestic Airline Travel Antitrust Litigation*, U.S. District Court, District of Columbia, MDL Docket No. 2656, filed March 25th, 2016 – is a class action. In any event, authorities and criminal sanctions, which are probably an even greater deterrent than civil action, are definitely more likely as the conduct becomes more questionable.

even a large shareholder, of the unilaterally coordinating firm. Quite the contrary: as mentioned, all else equal, the *smaller* the financial stakes the shareholder has in the unilaterally coordinating firm, the *more* likely unilateral coordination is. The prerequisite for this scenario is only that the benefitted shareholder be a prominent figure. In fact, the scenario is even more likely if the institutional investor holds *none* of the unilaterally coordinating firm's stock.

Consider the following setting: BlackRock, a leading institutional investor, holds 0.5% of firm A's outstanding stock and 3% of firm B's outstanding stock. Firm A's CEO decides to raise firm A's prices to an unprofitable level, hoping that other investors will not understand that the price-increase is in fact a breach of the CEO's fiduciary duties, but that BlackRock will. The CEO further anticipates that although under no obligation to do so, BlackRock will offer him some future lucrative employment contract. This scenario is precisely the scenario envisaged by advocates of the anti-competitive theory of harm brought about by cross ownership. First, the ploy is more profitable for BlackRock the *smaller* its holdings in firm A. The profitability of the scheme is, as will be recalled, a function of the *difference* in BlackRock's holdings in the unilaterally coordinating firm and the firm to which profits flow. For any level of holding in the competing firm, if BlackRock's holdings drop to zero in the unilaterally coordinating firm, its profits are maximized.⁹⁸ Second, if BlackRock is not a shareholder of the unilaterally coordinating firm, the scheme becomes much more difficult to detect. If BlackRock is a shareholder of firm A, other stakeholders or authorities are more likely to be alarmed by a business decision that turns out to be harmful to the firm, when another firm held by Blackrock reports increased earnings at the same time. Even if the precise scheme is unclear, red flags are likely to be raised. The scheme is much less conspicuous if BlackRock is not a shareholder of the unilaterally coordinating firm at all.⁹⁹ This is not to suggest that detection is always likely if BlackRock is a shareholder of firm A. But in this respect too, the unilaterally coordinating manager is better off if BlackRock is not a shareholder at all. Finally, in jurisdictions in which shareholders owe fiduciary duties to each other,¹⁰⁰ BlackRock itself, not only management, may be breaching its fiduciary duties if a firm it controls unilaterally coordinates.

If BlackRock holds no shares of the unilaterally coordinating firm, the scheme is far more profitable, detection is much less likely, and both management's risk and BlackRock's risk (when a fiduciary duty is owed by shareholders) are significantly mitigated. At the same time, BlackRock may still realize that the strategy was designed for its benefit, and reward the manager in the future.

⁹⁸ In the numeric example used previously, BlackRock's profits are increased by 0.5 Cents for every dollar that flows to firm B as a result of the scheme. Rather than 2.5 Cents for every dollar of profit flowing to firm B ($3\% - 0.5\% = 2.5\%$), it will earn 3 Cents for every such dollar. The profitability of the scheme for BlackRock will have increased by 20%.

⁹⁹ If BlackRock is not a shareholder, management's conduct is far more likely to be effectively protected under the business judgment rule than if shareholders' conflicting interest are observed. On the business judgment rule see *In re Walt Disney Co. Derivative Litigation*, 907 A.2d 693, 698 (Del Ch. 2005), *Aronson v. Lewis*, 473 A.2d 805 (Del. 1984). On the inapplicability of the Business judgment rule to situations in which a controlling shareholder benefits at the expense of other shareholders see Robert A. Kutcher, *Breach of fiduciary Duties* (although specifically discussing majority shareholders' unfair treatment of minority shareholders).

¹⁰⁰ The fiduciary duties that may be owed in closely-held corporations (see e.g. *Hagshenas v Gaylord*, 1990 Ill App 3d 60) are, of course, irrelevant to the current setting. But in some jurisdictions, fiduciary duties may be owed by controlling shareholders of publicly traded corporations as well. See European Parliament, Directorate General for Internal Policies, *Rights and Obligations of Shareholders – National Regimes and Proposed Instruments at EU Level for Improving Legal Efficiency* (PE 462.463, 2012), at 30 (1.2.5); Article 192(b) of the Israeli Corporation Act, 1999; Joseph Gross, *Trends in the Duties of Holders of Control in a Company*, A Mishpat Va'Asakim (Published January 1, 2004).

Ultimately, the theory boils down to an argument that a firm's management may devise a strategy that, while in breach of the managers' fiduciary duties, tunnels funds to an influential figure, for no immediate benefit, but with hope of future reward. An influential entity's gratitude may definitely be valuable. And although prohibited,¹⁰¹ managers may indeed breach their obligations to other shareholders if they have the opportunity to self-serve. But even if this is somehow likely absent an agreement, or at least explicit understanding, it has very little to do with cross ownership in the industry.

A final point in this respect is one made by Rock and Rubinfeld. Even if unilateral coordination were likely, the market would presumably self-correct. Recall, once again, that the scenario envisaged is one in which the institutional investors who the unilaterally coordinating firm or firms set out to please do not control these firms. This, in turn, suggests that the unilaterally coordinating firms present a lucrative investment opportunity. As Rock and Rubinfeld state: "Without control, any sacrifice of firm profits out of deference to a shareholder's other holdings will provide a profitable investment opportunity for a shareholder that thinks it can shift the strategy back towards maximizing single firm value".¹⁰²

Importantly, a potential shareholder that identified this investment opportunity need not even engage in a takeover battle or attempt to control the firm. As unilateral coordination is wasteful (from the unilaterally coordinating firm's perspective), all other shareholders would benefit from discontinuing such unilateral coordination. And as the benefitted shareholder is not a controller, it would be enough for the investor identifying unilateral coordination (or simply bad management) to buy any amount of stock, and then explain the situation to other shareholders, who have no cross-holdings in the industry, or whose holdings are larger in the unilaterally coordinating firm. If unilateral coordination occurred, this would clearly attract activist investors. Importantly, these investors' task would be easier than usual. They could simply purchase stock and draw other shareholders' attention to the fact that profits had been tunneled. The market could be expected to swiftly self-correct.

The Case of Several Institutional Investors

This form of tunneling is even less likely when there are *several* cross owners, as is the case with institutional investors who jointly hold significant stakes in competing firms. The reason is that if each institutional investor's stake in each of the competing firms is different, each investor may prefer a different firm to be the unilaterally coordinating firm. Investors prefer profits to flow to the firm in which their own holdings are the largest. Each institutional investor's preference will thus depend on its individual *difference* in holdings, and may therefore be very different from other institutional investors' preferences. To understand how limiting this is to the theory of competitive harm, it is helpful to note that in *all* of the industries which are surveyed in the recent literature, a conflict of interests among institutional shareholders would seem to further challenge any hope of unilateral coordination.

We may begin with the pharmaceutical industry, which is presented in the key empirical Article (later discussed) on the topic as an illustrative industry conducive to anti-competitive outcome absent any explicit coordination or information sharing. According to Azar et al., in the pharmacy industry, the five largest institutional investors who hold stock in CVS (a firm active in the product market) are Blackrock, Fidelity, Vanguard, State Street and Wellington. They hold a total of slightly less than 25% of CVS' stock. The same institutional investors also hold

¹⁰¹ Model Business Corp. Act, *supra* note 38.

¹⁰² Rock and Rubinfeld, *supra* note 21, at 27 - 28.

approximately 19.55% of Walgreens' stock.¹⁰³ Assuming the product market is relatively concentrated, the hypothesis is that the firms' managements will act to further the interests of these shareholders at the expense of other stakeholders. However, once the joint holdings of the three largest institutional investors are broken down by investor, it becomes clear that if management were to attempt to serve these investors it would, absent explicit coordination, find itself baffled:

Table 2

<i>Investor</i>	<i>Holdings in CVS</i>	<i>Holdings in Walgreens</i>
BlackRock	5.9%	4.44%
Fidelity	5.1%	3.07%
Vanguard	4.78%	5.26%

Blackrock and Fidelity hold approximately 6% and 5% of CVS' stock, respectively, and approximately 4.5% and 3% of Walgreens' stock, respectively. They both have a strong preference for profits to flow to CVS. But Vanguard holds 4.78% of CVS' shares, and 5.26% of Walgreens' shares. Vanguard thus prefers that profits flow to Walgreens. If CVS were to unilaterally coordinate (*i.e.* unprofitably raise its own prices to the benefit of Walgreens), BlackRock and Fidelity would have lost. If Walgreens were to do the same, Vanguard would have lost.

Under these circumstances, unilateral coordination is even less likely. It is difficult to decide *which* influential institutional investor to serve and which to harm. Furthermore, even if management somehow makes this decision, a problem of detection emerges. Unlike serving an influential shareholder when other shareholders are dispersed, lay, retail investors, who may have neither the incentives nor the ability to monitor performance,¹⁰⁴ in the current setting there will always be a shareholder with significant holdings that has been harmed, and is as likely to realize that it has been harmed as the benefitted shareholder is to realize that it has been benefitted. And since the harmed shareholder has significant holdings in the unilaterally coordinating firm, action is much more likely to be taken.

Once again, institutional investors may coordinate between themselves and agree that profits should flow to CVS, where their joint holdings are greater than their joint holdings in Walgreens. BlackRock and fidelity, who will have gained from this, will have gained more than Vanguard, the losing shareholder, will have lost. As this is Pareto efficient (from the cross owners' perspective), the losing party can be compensated. But this requires both explicit coordination at the investors' level, which would be an offense under section 1 of the Sherman Act, and some method through which the joint decision is conveyed to management (which would, in turn, be violating its own duties). Management cannot be expected to unilaterally coordinate otherwise.

A similar problem emerges if one is considering the second example of a concentrated industry with concentrated ownership, the Banking industry. Here too, according to Azar et al., the six largest investors hold approximately 24% of JP Morgan Chase, 20% of Bank of America, and

¹⁰³ Azar et al., *supra* note 1, Table 1 – Panel B. On the assumption of no coordination see at 4-5 (although Azar et al. do not dismiss the possibility that there is also explicit coordination, or at the very least that preferences or demands of the shareholders are communicated to management, and in fact seem to insinuate that this may be the case).

¹⁰⁴ Although, as suggested earlier, there are mechanisms, most notably the class action mechanism, which can be expected to offset shareholder indifference, specifically in the current setting. See *supra* note 96.

over 33% of Citigroup. But when these holdings are broken down, the picture becomes much more complicated:¹⁰⁵

Table 3

<i>Investor</i>	<i>Holdings in JP Morgan Chase</i>	<i>Holdings in Bank of America</i>	<i>Holdings in Citigroup</i>
BlackRock	6.7%	5.38%	9.29%
Fidelity	3.16%	2.56%	3.83%
Vanguard Group	4.78%	4.51%	4.4%

Once again, any unilateral coordination that benefits BlackRock and Fidelity would be harmful to Vanguard, and vice versa. This setting is even more problematic, because the industry is comprised of three banks. Therefore, *two* banks would need to unilaterally coordinate for each investor to benefit from such conduct. This requires even more elaborate coordination, and is therefore even less likely to occur absent explicit coordination amongst investors and explicit instructions to management.

This argument is slightly less immediate in the third industry presented by Azar et al., the Technology industry. The largest shareholders jointly hold approximately 20% of Apple, and 27% of Microsoft. All three joint shareholders who are institutional investors – BlackRock, Fidelity and Vanguard – have greater stakes in Microsoft, as summarized in the following table:¹⁰⁶

Table 4

<i>Investor</i>	<i>Holdings in Apple</i>	<i>Holdings in Microsoft</i>
BlackRock	5.58%	5.33%
Fidelity	3.28%	3.08%
Vanguard	4.95%	4.49%

Although their holdings in Apple are only slightly greater than their holdings in Microsoft, BlackRock, Vanguard and Fidelity undoubtedly all prefer profits to flow to Apple. But Microsoft’s third-largest shareholder is, according to Azar et al., Bill Gates, who holds 4.52% of Microsoft’s stock. Bill Gates holds none of Apple’s stock, and therefore clearly has an extremely strong preference for profits to flow *to* Microsoft. It is unlikely, at the very least, that Microsoft will unilaterally coordinate. Any dollar unilaterally lost to Apple implies an almost 5-Cent loss to Microsoft’s third-largest shareholder (Bill Gates). The benefit to Microsoft’s other three largest shareholders is approximately 1 Cent in total.¹⁰⁷ It is similarly unlikely that Apple will act to the detriment of its largest shareholders to the benefit of Bill Gates, who has no holdings in Apple. Once again, shareholders may coordinate price, quantities, or other

¹⁰⁵ Azar et al., *supra* note 1, table 1 – Panel C.

¹⁰⁶ BlackRock – 5.58%-5.33%; Vanguard – 4.95%-4.49%; Fidelity – 3.28%-3.08%.

¹⁰⁷ I limit the analysis to the three largest shareholders for consistency, as these are the same investors previously considered. If one looks at these shareholders alone, total gains from unilateral coordination are less than 1 Cent (0.25 + 0.46 + 0.2 = 0.91). However, such conduct by Microsoft will yield a total benefit of more than 1 Cent to its large shareholders, because the fourth largest shareholder, State Street, holds 4.59% of Apple, and 4.39% of Microsoft, so an additional 0.2 Cents will accrue to a large shareholder. This, however, does not change the point. Bill Gates will have lost approximately 5 Cents, for a benefit of 1.11 Cents divided among four other shareholders.

competitive dimensions, and then notify managements of their decisions. Alternatively, they may agree that it is worthwhile to have one firm unilaterally raise its prices to the benefit of the other firm. But they would then need to agree on payments to be made by the shareholder or shareholders benefitting from this unilateral coordination to the shareholders or shareholder losing from it (and, once again, at the minimum inform management of the unilaterally coordinating firm of their decision). These compensation schemes are, given the differences in holdings, extremely complex, and can be expected to require elaborate formulae and lengthy negotiations. Absent explicit (illegal) coordination, this is extremely unlikely.

A similar coordination problem emerges in all of the industries surveyed by Posner et al. as oligopolistic industries in which there are significant cross ownership patterns. In the mobile phones-industry there are four major competitors – At&T, Verizon, T-Mobile, and Sprint.¹⁰⁸ When looking at investors' holdings in each of these competitors, it is clear that they have completely opposing (and very strong) preferences. Vanguard, BlackRock, and Capital Group's stakes in Verizon are larger than their stakes in any other company in the industry. They would clearly insist that profits flow to Verizon. Evercore is invested only in At&T and would thus lose if profits were to flow to any other competitor. Deutsche Telekom holds slightly more than 65% of T-mobile (with no holdings in any other competitor), and SoftBank holds nearly 83% of Sprint's stock, with no holding in any other competitor. Absent explicit coordination between, at the minimum, Deutsche Telekom, Vanguard, BlackRock, SoftBank, and Evercore, it is extremely difficult to unilaterally coordinate. The breakfast cereal, aluminum, and cooking stoves industries all demonstrate similar holding patterns. In each of these industries different influential shareholders can be expected to have contradicting (and strong) preferences with respect to where profits should flow to.

Finally, the airline industry – the industry analyzed by Azar et al. – also exhibits a holding pattern that makes unilateral coordination unlikely. Rock and Rubinfeld reformat the data on institutional investors' holdings in the airline industry as a spreadsheet.¹⁰⁹ A quick glance at this spreadsheet shows that the largest shareholder in each of the six major airlines is almost always different from the largest shareholder in the other airlines: Delta Air Lines' largest shareholder is Berkshire Hathaway; Southwest Airlines Co.'s largest shareholder is PRIMECAP; American Airlines' largest shareholder is T. Rowe Price; United Continental Holdings' largest shareholders are BlackRock and Berkshire Hathaway (each with 9.2% of Continental's stock); Alaska Air's largest shareholder is T. Rowe Price; and JetBlue Airways' largest shareholder is Vanguard. Absent explicit coordination, it is impossible to see how unilateral coordination may have occurred.

In the airline industry, the idea of unilateral coordination is even more perplexing. In addition to the very different holdings, Rock and Rubinfeld also show that holdings in the airline industry changed dramatically over time.¹¹⁰ Changings in holdings would further complicate unilateral coordination, as the unilaterally coordinating firm would need to constantly change, depending on the firm in which institutional shareholders' (joint) holdings were largest at any given point in time.

II.C. Support in Future Votes Within the Unilaterally Coordinating Firm

¹⁰⁸ Posner et al., *supra* note 1, Appendix.

¹⁰⁹ Rock and Rubinfeld, *supra* note 21, at 12 – 13.

¹¹⁰ Rock and Rubinfeld, *supra* note 21, at 13 – 14.

As mentioned, if management's expected remuneration is the shareholder's support in future votes in the unilaterally coordinating company, the analysis must be slightly adapted. But the basic result remains the same. The analysis is slightly different, because if the expected consideration is to take the form of support in future votes, the institutional investor which management seeks to tunnel profits to (via the other firm in which the investor holds) must have holdings in the unilaterally coordinating firm. Otherwise, it cannot deliver on its implied commitment to support management in votes. In this setting, unlike in the previous setting of *external* remuneration, holdings in the unilateral coordinating firm are, at least at the stage when management receives its 'payment', essential.

However, the previous observations still hold: the scheme is still less profitable due to the institutional investor's holding in the unilaterally coordinating firm, the risk of detection is greater, and the institutional investor itself may be liable (in jurisdictions where shareholders owe fiduciary duties). It would therefore generally be preferable for the institutional investor to purchase equity of the unilaterally coordinating firm *after* unilateral coordination had occurred rather than before management unilaterally coordinates. The institutional shareholder would then purchase equity at the post-unilateral-coordination (lower) prices, rather than hold the equity as it depreciated in value (due to unilateral coordination), and detection would be less likely. Cross ownership is not only unnecessary, but in fact harmful in this setting as well.

But even if, for whatever reason, the benefitted institutional investor had to hold equity of the unilaterally coordinating firm *before* management unilaterally coordinated, the other objections to the hypothesis would remain relevant: other institutional investors, whose holdings in the unilaterally coordinating firm were greater than their holdings in the firm to which profits flowed, would likely retaliate against management that harmed them. Even if they did not file a lawsuit or turn to authorities, the effect of tunneling on their future votes would be the opposite of the effect on the future votes of the benefitted institutional investor. They could be expected to vote *against* management. And since the setting envisaged is one in which the benefitted shareholder is a shareholder with relatively small holdings in the unilaterally coordinating firm, the net effect on future voting will regularly be negative from management's perspective. The benefitted shareholder is, by definition, the shareholder whose holdings are small (relative to its other holdings), whereas *all* shareholders whose holdings are greater in the unilaterally coordinating firm will have been alienated. As the data in tables 2, 3 and 4 suggest, this would not have been a profitable strategy (from management's perspective) in any of the industries for which data is offered in the recent literature. The would-be alienated shareholders' holdings far exceed those of the would-be grateful shareholders'.

Additionally, Rock and Rubinfeld's observation regarding the possibility of self-correction by the market makes any such plan even less likely to succeed.¹¹¹ Even if the harmed institutional investors do not retaliate against management at their own initiative, any investor that noticed that the unilaterally coordinating firm was underperforming would find it to be a lucrative investment, and could easily purchase stock with a view to replacing management or altering its conduct (recall, again, that the benefitted shareholder is not a controlling shareholder). Once again, as mentioned, this investor could then quite easily persuade the investors who management had wronged to join it in outvoting management. Importantly, the investor would not even need to purchase a significant share of the unilaterally-coordinating firm's equity. In all of the industries surveyed, unilateral coordination harms investors that hold a larger share of the firm's equity than the potentially benefitted shareholder. Thus, there would be no need for a hostile takeover, major purchases by activist investors, or the like. Simply acquiring some

¹¹¹ See *supra* note 102.

equity and drawing shareholders' attention to what has transpired would be enough. And, of course, this will have been profitable for the activist investor, who will have bought the equity at a lower price and could sell it once the unilateral coordination was terminated.

Therefore, although support in future votes is slightly different from other forms of consideration in the sense that it requires the investor to whom profits are tunneled to hold equity of the unilaterally coordinating firm, on closer examination this does not alter the analysis significantly. This form of consideration too does not require holdings at the time of the unilateral coordination, and even if it does – it would nonetheless be susceptible to the other shortcomings of the hypothesis of competitive harm.

III. The Empirical Evidence

As mentioned, an influential empirical research by Azar et al. has found empirical evidence supporting the hypothesis that institutional investors' cross ownership dampens competition. Azar et al.,¹¹² analyzing the airline industry, identify a positive effect of common ownership on ticket prices. They use a measurement of concentration that takes into account the network cash flow and control rights that constitute the airlines' shareholders' economic interests, the "MHHI".¹¹³ Azar et al. use a measurement of the effect of common ownership ("MHHI Δ "), developed by O'brien and Salop. They exploit BlackRock's acquisition of Barclays Global Investors to confirm the results, and find that ticket prices are approximately 3%-5% higher on the average US airline route than would be the case under separate ownership.

This would seem to challenge the theoretical argument advanced in this Paper. However, Azar et al.'s methodology has been challenged by several subsequent writers.¹¹⁴

First, the use of MHHI Δ , as well as any HHI-type measurement (which Gramlich and Grundl denote as GHHI – General HHI), suffers from potential endogeneity problems. This is the case because quantities cleared by the market – which the HHI uses to measure concentration – are a function, *inter alia*, of market concentration,¹¹⁵ and because ownership shares are not strictly an independent variable. Ownership shares (MHHI – the independent variable used by Azar et al.) are dependent, *inter alia*, on factors other than common ownership, which affect both price and MHHI. Therefore, the relationship between price and MHHI may be a function of these factors.¹¹⁶ Gramlich and Grundl themselves, when controlling for the endogeneity problem, find mixed results.¹¹⁷

Second, Rock and Rubinfeld argue that the change in concentration in holdings that resulted from BlackRock's merger with BGI – from around 3% each to 6% – is, from a theoretical perspective, an implausible explanation for the price-increase.¹¹⁸ They also discuss additional possible events that may have triggered the price-increase, arguing that these are not controlled for in the Azar et al. research.

¹¹² *Supra* note 1.

¹¹³ The MHHI is a modified HHI (on the HHI see *supra* note 13), that incorporates ownership concentration into the concentration measurement of an industry.

¹¹⁴ O'brien & Waehrer, *supra* note 29, Gramlich & Grundl, *supra* note 32, Rock & Rubinfeld, *supra* note 21.

¹¹⁵ Gramlich & Grundl, *id.* at 2 – 3.

¹¹⁶ O'brien & Waehrer, *supra* note 29, at 4 – 5. See also Kennedy et al., *supra* note 31, at 4, Rock & Rubinfeld, *supra* note 21, at n. 43.

¹¹⁷ Rock and Rubinfeld note that Azar et al. comment on the endogeneity, but do not offer instrumental variables to control for this. See Rock and Rubinfeld, *supra* note 21, at n. 49.

¹¹⁸ *Id.* at 21.

Finally, Rock and Rubinfeld argue that the timing of the ‘natural shock’ – BlackRock’s merger with BGI – coincides with at least two or three other potentially powerful explanations for the price increase. The merger occurred in 2009, a year after Delta’s acquisition of Northwest airlines, and when the adverse effects of the great recession were diminishing. Also, in 2010, one year following the merger, United acquired Continental. Rock and Rubinfeld suggest that these mergers may have increased product quality, which in turn might imply that quality-adjusted prices stayed constant or even decreased. Alternatively, even if quality-adjusted prices indeed increased, this could have been a result of increased product-market concentration (attributable to mergers within the product market), rather than of increased concentration at the shareholder level.¹¹⁹ Ultimately, Rock and Rubinfeld “find unconvincing Azar et al.’s evidence suggesting that increased ticket prices were due to the BlackRock/BGI merger rather than these alternative, highly plausible, explanations”.¹²⁰

Finally, it is to be remembered that Azar et al. do not collect data on performance-based compensation of management in the industry. In line with current theory, the authors consider industry-linked-performance-based compensation to be one of several mechanisms through which shareholders may cause management to compete less vigorously.¹²¹ They therefore do not attempt to limit the analysis to a setting in which industry-performance-based compensation is not observed. Within the framework of industry-performance-based compensation, they do not attempt to distinguish between granting management stock or options (which, as has been shown, will not incentivize unilateral coordination) and other possible mechanisms which may link managerial compensation to industry-performance. Importantly, even if such mechanisms are identified, their prevalence in the industry is a key determinant of their potential to induce unilateral coordination.¹²²

As mentioned, Kennedy et al. attempt to address the issues identified with Azar et al.’s research. They apply a different approach to the same industry, substituting indices of common ownership incentives for concentration measures. Attempting to construct the same dataset, they find no evidence that common ownership raises prices.¹²³

The tentative conclusion to be drawn from current state of the empirical research is that the empirical findings support the theory developed in this Paper. However, this conclusion is, as suggested, tentative, and should be treated cautiously. The empirical findings are controversial,

¹¹⁹ *Id.* at 22.

¹²⁰ *Id.*

¹²¹ See Azar et al., *supra* note 1, at 4 – 5 and Section 6.

¹²² The predictions suggested by this Paper are in fact very nuanced regarding how common such mechanisms must be in an industry to induce unilateral coordination. Even if a mechanism that links managerial compensation to industry-wide performance (and detaches compensation from firm-specific performance) is introduced, the prevalence of this mode of compensation in the industry must also be considered. Perhaps counter-intuitively, industry-wide linkage of performance based compensation to industry performance will *not* incentivize unilateral coordination. The reason is that all of the firms in which such a compensation mechanism is in place are incentivized to unilaterally coordinate. Therefore, if all firms in the industry have such compensation plans in place, each will try to raise its price above that of the competing firms, and industry prices will be too high, resulting in lost profit. Industry-wide prevalence of industry-performance-dependent compensation will result in a race to the top (from a price perspective), or to the bottom (from an overall profit perspective). Industry-wide prevalence of such compensation plans will, however, incentivize cartelistic behavior. Managers will have an interest in reaching an anti-competitive agreement with their competitors (to the benefit of shareholders), as their profits are maximized if total industry profits are maximized. It is only when *some* firms in the industry have such compensation plans in place that unilateral coordination is plausible. Any empirical research attempting to ascertain the validity of the theory must be sensitive to this observation (see also Abrantes – Metz & Sokol, *supra* note 91).

¹²³ Kennedy et al., *supra* note 31, at 4.

and this controversy has attracted quite some attention,¹²⁴ resulting in “diametrically opposed results”.¹²⁵ Ultimately, while there is indeed empirical support for the argument pressed in this Paper, it seems that at present the most compelling conclusion regarding the empirical results is Rock and Rubinfeld’s conclusion that “there is more work to be done”.¹²⁶

¹²⁴ See Rock and Rubinfeld, *supra* note 21, at n. 56, addressing a potential solution that Azar et al. offer to the endogeneity problem, and explaining why they find the solution not compelling. See also Gramlich and Grundl, *supra* note 32 at n. 1, discussing additional empirical studies with contradicting results – Heung Jin Kwon *Executive Compensation under Common Ownership*, Draft, November 29th, 2016, available at: <<http://fmaconferences.org/Boston/ExecutiveCompensationunderCommonOwnership.pdf>> and Miguel Antón, Florian Ederer, Mireia. Giné, and Martin Schmalz, *Common Ownership, Competition, and Top Management Incentives*, Finance Working Paper N° 511/2017 (October 2017), available on SSRN at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2802332>.

¹²⁵ Rock and Rubinfeld, *supra* note 21, at 25.

¹²⁶ Rock and Rubinfeld, *id.*, at 23.

IV. Policy Implications

Following the now widely-accepted analysis according to which cross ownership of firms in oligopolistic product markets spontaneously results in supra-competitive conduct, antitrust doctrine has been called on to prevent or limit such cross ownership. The argument is that such cross ownership should be considered to run afoul of section 7 of the Clayton Act. As mentioned, to that end, interpretations and analyses of the ‘investment-only’ exemption in the HSR have been advanced, arguing that when the relevant transaction-size and firm-size thresholds are met, acquisitions of oligopolistic firms’ stock by cross holding investors should even be subject to *ex ante* antitrust scrutiny.

The analysis presented in this Paper does not automatically imply the opposite. Although this Paper suggests that cross ownership by institutional investors does not, in and of itself, harm competition, it does not contest the idea that cross ownership in oligopolistic markets is a setting in which shareholders may have incentives to chill competition. It could therefore be argued that antitrust law should address stock acquisition that results in cross ownership in oligopolistic markets. Since merger control is designed to preempt potential harm to competition,¹²⁷ the Clayton Act could theoretically be applied to stock acquisitions that afford shareholders additional opportunities to inhibit competition, whether by delivering information from one firm to the other, explicitly coordinating between the two firms, or by instructing management to explicitly coordinate.

The problem, however, is that the application of antitrust law to passive cross ownership has a significant social cost on the one hand, and is redundant in addressing the competitive concerns on the other.

First, on the social cost side – a rule regulating institutional investors’ ability to diversify their portfolio will impact the degree of diversification, which is an important social tool. It increases institutional investors’ (and through them, retail investors’) exposure to firm-specific idiosyncratic risk. Posner et al. have proposed limiting institutional investors’ holdings in oligopolistic industries by either allowing institutional investors to own stock of only one firm in an oligopoly, or by limiting the holdings in each of the firms to a total of 1% of the value of the industry.¹²⁸ The first of these clearly results in reduced diversification. The second limits the total amount any institutional investor may invest in a specific (oligopolistic) industry, which imposes a social cost borne by both sides of the investment transaction: institutional investors are forced to invest significantly larger portions of their portfolio in less appealing opportunities, and oligopolistic-product-market firms are denied access to capital which would otherwise have been forthcoming. Posner et al. acknowledge that their proposal has a negative impact on diversification.¹²⁹ They argue that the size of the effect on diversification would be limited, relying on one Article on the topic¹³⁰ which explains that a reduction of more than 90% in the standard deviation of a portfolio can be achieved by randomly selecting one stock from each industry. They further explain that the actual effect of their proposal on diversification may be even less pronounced, due to a host of reasons.¹³¹ But even if the effect on

¹²⁷ *Supra* note 50 and accompanying text.

¹²⁸ *Supra* note 37.

¹²⁹ *Id.* at 35.

¹³⁰ Posner et al., *supra* note 1, refer to John Y. Cambel et al., *Have individual Stocks Become More Volatile? An Empirical Exploration of Idiosyncratic Risk*, 56 J. Fin. 1 (2001) – see *id.*

¹³¹ These includes the narrower definition of industry as compared to that proposed by Cambel et al. (who broke major stocks into 49 industries), the importance of industry diversification, a lack of effect on holdings in

diversification is limited, it nonetheless exists. The diversification and discretion of the investors through whom the vast majority of investors are exposed to the stock market, is curtailed. And this will affect nearly \$20 trillion of investments.

Second, on the advantage side of applying the Clayton Act to this setting – virtually nothing can from such application. As cross ownership itself does not affect the incentives of management, no spontaneous anti-competitive conduct can be expected to ensue. Competition may be inhibited only through explicit coordination at the managerial level. Such coordination already runs afoul of section 1 of the Sherman Act *and* of corporate law.

As explained, each institutional investor has opposing preferences with respect to the unilaterally coordinating firm. Therefore, institutional investors would need to coordinate amongst themselves in order to agree on which firm would unilaterally coordinate. This kind of agreement would itself be an antitrust offense. Even assuming such an agreement were reached, institutional investors would then need to communicate their instructions to management, which could not know how to act until instructed. Instruction to management to prefer a course of action that benefits the cross owning shareholder at the expense of the firm is disallowed by corporate law. Managers who complied with the instructions would be intentionally inflicting harm on the corporation,¹³² thereby breaching their own fiduciary duties.¹³³

It is important to note, that in this context corporate law would prohibit compliance with such instructions *regardless* of antitrust law. In other circumstances, anti-competitive conduct benefits *all* coordinating firms, and – as a derivative – all of their shareholders. Therefore, absent an antitrust prohibition, corporate law should not only allow, but in fact encourage anti-competitive conduct. Absent a prohibition, corporate law would applaud even the formation of cartels. It is only antitrust law’s condemnation of cartels and other anti-competitive business practices that makes them problematic from a corporate-law perspective.

By contrast, in the current setting the vast majority of the unilaterally coordinating firms’ stakeholders lose from the anti-competitive conduct. As mentioned, unilateral shareholding is simply a form of tunneling. With the exception of the cross owning shareholder (or shareholders), whose holdings in the unilaterally coordinating firm must be relatively small (otherwise unilateral coordination will have been unprofitable), all shareholders of the unilaterally coordinating firm *lose* from this unilateral coordination. Corporate law already prohibits such conduct, which is an egregious breach of management’s fiduciary duties.

Thus, the channel through which shareholders’ incentives may be transformed into action is addressed by section 1 of the Sherman Act and by corporate law. There is little value in an additional piece of antitrust legislation (the Clayton Act) that may be applied to the situation in an attempt to block acquisitions of stock.

If there were no downside to applying the Clayton Act to the situation, its application would be neither beneficial nor harmful. But given the social cost of forcing institutional investors to less lucrative investments or to undiversified portfolios, the benefit of an additional piece of legislation that may be cited to address conduct that is already prohibited seems extremely

industries that are not concentrated, and a ‘safeguard’ policy that would allow holdings even within the same (oligopolistic) industry.

¹³² Model Business Corp. Act, *supra* note 38 (e.g. § 8.09).

¹³³ Model Business Corp. Act, *id.* (§ 8.30).

small. It is far better to steer clear from unnecessarily regulating institutional investors' strategy, diversification, and discretion.

The conclusion to be drawn from the analysis presented in this Paper is therefore that antitrust law should thus not be harnessed to prohibit passive cross ownership by non-controlling institutional investors.