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Dual Class Shares in the Age of Common Ownership

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Abstract

Dual class shares and the anticompetitive effects of common ownership are two of the most discussed corporate governance issues of our time. In this Article, we identify a hidden connection between them, which allows us to derive policy implications that are relevant for both. The traditional debate on dual class shares is based on the trade-off between having visionary founders firmly in control of the firm and the risk that they extract private benefits of control. We show that the exclusive focus on this trade-off is rooted on the outdated assumption that all shareholders are firm-value-maximizing (FVM), that is, aim at maximizing the value of the firm in which they have invested. But, as the debate on common ownership acknowledges, diversified institutional investors à la BlackRock care about maximizing the value of their funds' portfolios, irrespective of what happens to any individual investee company: they act as portfolio-value-maximizing (PVM) shareholders. Consequently, they might prefer a lower level of competition in product markets to maximize the joint value of the competitors that are in their portfolio. In present-day financial markets, dominated by PVM institutional investors, dual class shares can then serve the additional purpose of allowing insiders to silence PVM shareholders, thus mitigating the anticompetitive effects of common ownership. For this reason, we argue against banning dual class shares, or even introducing a mandatory time-based sunset. But that is not the end of the story. The ongoing climate crisis is showing that a relatively low number of major carbon emitters can impose gigantic externalities on the planet. The macroeconomics literature, in turn, has provided ample evidence that a subset of systemically important firms can affect the whole economy. Allowing these companies to have dual class shares without limitations grants FVM shareholders à la Zuckerberg the unfettered ability to inflict systemic harm on society. If limitations were imposed on such shares, PVM shareholders would internalize part of these externalities via their other portfolio holdings, and hence have the incentive to steer individual portfolio firms into being mindful of these externalities. Thus, we suggest that there should be limits placed on the use of dual class shares by systemically relevant firms and show how such limitations ought to be tailored according to a firm's specific ability to impose systemic externalities.

Keywords: Climate change, common ownership, corporate governance, dual class shares, macroeconomic risk

JEL Classifications: G3, G20, G28, G30, G34, K22

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Abstract

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The traditional debate on dual class shares is based on the trade-off between having visionary founders firmly in control of the firm and the risk that they extract private benefits of control. We show that the exclusive focus on this trade-off is rooted on the outdated assumption that all shareholders are firm-value-maximizing (FVM), that is, aim at maximizing the value of the firm in which they have invested. But, as the debate on common ownership acknowledges, diversified institutional investors à la BlackRock care about maximizing the value of their funds' portfolios, irrespective of what happens to any individual investee company: they act as portfolio-value-maximizing (PVM) shareholders. Consequently, they might prefer a lower level of competition in product markets to maximize the joint value of the competitors that are in their portfolio.

In present-day financial markets, dominated by PVM institutional investors, dual class shares can then serve the additional purpose of allowing insiders to silence PVM shareholders, thus mitigating the anticompetitive effects of common ownership. For this reason, we argue against banning dual class shares, or even introducing a mandatory time-based sunset.

But that is not the end of the story. The ongoing climate crisis is showing that a relatively low number of major carbon emitters can impose gigantic externalities on the planet. The macroeconomics literature, in turn, has provided ample evidence that a subset of systemically important firms can affect the whole economy. Allowing these companies to have dual class shares without limitations grants FVM shareholders à la Zuckerberg the unfettered ability to inflict systemic harm on society. If limitations were imposed on such shares, PVM shareholders would internalize part of these externalities via their other portfolio holdings, and hence have the incentive to steer individual portfolio firms into being mindful of these externalities.

Thus, we suggest that there should be limits placed on the use of dual class shares by systemically relevant firms and show how such limitations ought to be tailored according to a firm's specific ability to impose systemic externalities.

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INTRODUCTION

Mark Zuckerberg has virtually all his personal wealth invested in Meta Platforms (formerly Facebook),[1] while Warren Buffett has "a full 99% of [his] net worth lodged in Berkshire [Hathaway] stock."[2] Their incentives as controllers of their companies are clear: maximize firm value, irrespective of the effect that doing so might have on other firms.[3] Meanwhile, BlackRock, State Street and Vanguard (known collectively as the Big Three) manage $17 trillion invested in thousands of corporations.[4] Their goal is equally clear: maximize the value of their portfolio, irrespective of what happens to any individual firm therein.[5]

These simple observations raise several crucial questions. Under which conditions do firm-value-maximizing (FVM) shareholders à la Zuckerberg and Buffett have preferences that are less in line with social welfare maximization than portfolio-value-maximizing (PVM) shareholders like the Big Three? And under what conditions is the opposite the case? Can corporate law increase the likelihood that the preferences of FVM shareholders will not prevail when they are heavily misaligned with social preferences? Similarly, can corporate law increase the likelihood that the preferences of PVM shareholders will not prevail when they are heavily misaligned with social preferences? We answer these questions by uncovering the hitherto neglected connection between two of the most controversial corporate governance issues of our time: common ownership and dual class shares.

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[1] Dhammika Dharmapala & Vikramaditya S. Khanna, *Controlling Externalities: Ownership Structure and Cross-Firm Externalities* 38 (U. Mich. L. & Econ. Research Paper, Paper No. 21-022, 2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3904316 (reporting that Zuckerberg has 94% of his personal wealth invested in Facebook).

[2] Letter from Warren Buffett to Berkshire Hathaway Inc. Shareholders, 11 (2019), https://www.berkshirehathaway.com/letters/2019ltr.pdf.

[3] To be precise, controlling shareholders aim to maximize the sum of the value of their shares plus any private benefits they may extract from the companies they control. Yet, even so qualified, their focus will be on the controlled firm's value, with no concerns for the effects on other companies of a firm-value-focused management style.

[4] BlackRock manages roughly $7.5 trillion of assets, *see* BLACKROCK, INC., ANNUAL REPORT (FORM 10-K) 4 (2020), State Street $3.16 trillion, *see* STATE STREET, CORP., ANNUAL REPORT (FORM 10-K) 4 (2020), whereas Vanguard manages $7.2 trillion, s*ee Fast Facts about Vanguard*, VANGUARD, https://about.vanguard.com/who-we-are/fast-facts/ (last visited Jan. 24, 2021).

[5] Again, this statement should be qualified because, as agents of their clients, asset managers' incentives may deviate from their principals' interests. In fact, asset managers are corporations themselves, acting through agents whose interests may deviate from those corporations' shareholders. While the reality is thus more nuanced than we depict it in this introduction, the text not only provides a fair approximation of the asset management industry's incentives but also reflects a legal obligation for fund managers to maximize the value of each of their funds' portfolios.

For our purposes, we can define common ownership as the phenomenon whereby an investor owns stakes in two or more horizontal competitors.[6] The rise of institutional ownership in the last few decades has resulted in a dramatic increase in common ownership.[7] If we draw two random firms included in the S&P 1500 that operate in the same industry, there is a 90% chance that they will have a common shareholder owning at least 5% of the shares in both firms.[8] This ownership structure can lower the level of competition in oligopolistic product markets.[9] The basic intuition here is that because institutional investors are interested in maximizing the value of their portfolio, they have incentives to internalize inter-firm spillovers. As aggressive competition by one of their portfolio firms might produce negative spillovers for the other portfolio firms operating in that market, PVM shareholders might prefer a lower level of competition in product markets. In fact, weaker competition is likely to maximize the joint value of the horizontal competitors in their portfolio.[10] Against this background, legal scholars have proposed sweeping structural reforms that would affect virtually every oligopolistic market[11] and would destroy the business model of institutional investors.[12]

Parallel to the rise of common ownership, following Google's example in 2004, the number of firms going public with a dual class shares structure has been increasing.[13] Dual class shares are used to give disproportionate voting rights to founders and key insiders, who are thus granted control over the corporation even if they hold a minority of the firm's cash flow rights.

[6] To be fair, common ownership has a broader scope than horizontal shareholdings, because it can also be "vertical (between firms related in a supply chain) or conglomerate (between firms that are not horizontal competitors nor vertically related):" Einer Elhauge, *How Horizontal Shareholding Harms Our Economy—and How Antitrust Law Can Fix It*, 10 HARV. BUS. L. REV. 207, 209 (2020). Yet, as Elhauge acknowledges, the literature often refers to horizontal shareholdings as "common ownership." *Id*.

[7] Matthew Backus, Christopher Conlon & Michael Sinkinson, *Common Ownership in America: 1980–2017*, 13 AM. ECON. J.: MICROECON. 273, 275-76 (2021) (presenting data on the rise of common ownership). *See also* Erik P. Gilje, Todd A. Gormley & Doron Levit, *Who's Paying Attention? Measuring Common Ownership and its Impact on Managerial Incentives*, 137 J. FIN. ECON. 152, 160-161 (2020) (showing various indicators capturing the dramatic growth of common ownership).

[8] José Azar, *Portfolio Diversification, Market Power, and the Theory of the Firm* 2 (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2811221 (reporting this data and contrasting it with data in 1999, in which this probability was lower than 20%).

[9] *See infra* notes 56-60 and accompanying text.

[10] Martin C. Schmalz, *Common-Ownership Concentration and Corporate Conduct*, 10 ANN. REV. FIN. ECON. 413, 417 (2018) (noting that shareholders have incentives to maximize the value of their portfolio, and hence that aggressive competition can be "in the interest of an individual firm but decrease a common owner's portfolio value.").

[11] *See infra* notes 52-53 and accompanying text.

[12] *See infra* note 54 and accompanying text.

[13] *See infra* notes 67-72 and accompanying text.

The traditional view is that dual class shares allow insiders to pursue their idiosyncratic vision, but at the same time greatly increase the agency cost between management and shareholders.[14]

The number of dual class shares IPOs has been rising despite the opposition of institutional investors. For many years, they have been vocally advocating policies that would either eliminate dual class shares or place significant limitations on firms' ability to issue shares with differential voting rights. For instance, the Council of Institutional Investors has long sponsored the idea that new listings of companies with multiple voting rights should be prohibited,[15] and now pushes for a mandatory time-based sunset for dual class structures.[16] A similar opposition to dual class shares has been voiced by the Investor Stewardship Group,[17] a collective of U.S. institutional investors that includes the Big Three.

The debates on the effects of common ownership and on whether companies should be allowed to adopt dual class shares have thus far moved on two parallel tracks. This is because the traditional discussion on dual class shares is rooted in a world of FVM shareholders and focuses on the trade-off between having visionary founders firmly in control of the firm, and the risk that they extract private benefits of control and thereby steer the firm away from value maximization. But in a world in which FVM and PVM shareholders coexist, there is a close relationship between dual class shares and common ownership, because a dual class structure has a crucial impact on the relative influence of FVM and PVM shareholders with respect to how firms are managed. Other things being equal, it is more likely that a dual class shares company would cater to FVM rather than PVM shareholders' interests.

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[14] *See infra* notes 74-76 and accompanying text.

[15] *See* the email from the Council of Institutional Investors to Ms. Claudia Crowley CEO & Chief Regulatory Officer of the NYSE Regulation 2 (Oct. 2, 2012), https://www.cii.org/files/issues_and_advocacy/correspondence/2012/10_2_12_cii_letter_to_nyse_dual_class_stock.pdf (arguing that "[c]orporations should not have classes of common stock with disparate voting rights."). The same email was sent also to Mr. Edward S. Knight, Executive Vice President, General Counsel & Chief Regulatory Officer of the NASDAQ 2 (Oct. 2, 2012), https://www.cii.org/files/issues_and_advocacy/correspondence/2012/10_02_12_cii_letter_to_nasdaq_dual_class_stock.pdf.

[16] *See* the email from the Council of Institutional Investors to Maxine Waters Chairwoman Committee on Financial Services and Patrick T. McHenry Ranking Member Committee on Financial Services 2 (Oct. 1, 2021), https://www.cii.org/files/issues_and_advocacy/correspondence/2021/October%201,%202021%20letter%20to%20Committee%20on%20Financial%20Services%20(final).pdf (arguing that "[i]f a company chooses to issue multiple classes of stock with differing voting rights, then the dual-class stock must contain a 'sunset' provision.").

[17] *See* INVESTOR STEWARDSHIP GROUP, CORPORATE GOVERNANCE PRINCIPLES FOR US LISTED COMPANIES 2 (Feb. 20, 2019), https://isgframework.org/wp-content/uploads/2020/07/ISG-Corporate-Governance-Principles.pdf (identifying the idea that "[s]hareholders should be entitled to voting rights in proportion to their economic interest" as a fundamental principle of corporate governance).

To put it differently, at dual class companies the preferences of PVM shareholders holding shares in horizontal competitors—and therefore favoring a lower level of competition—are less likely to influence the management. Thus, dual class companies can be expected to compete aggressively in oligopolistic markets regardless of the presence of common owners. That, in turn, forces also other firms to engage in more vigorous competition. The role that dual class shares can play in curbing the anticompetitive effects of common ownership clearly goes against an across-the-board ban on dual class shares or even the option, supported by many institutional investors, of a time-based sunset clause.[18] The existing evidence supports this argument: to date, all studies showing the anticompetitive effects of common ownership have referred to sectors in which there are no companies with dual class structures among the leading competitors.[19]

Does that mean that companies should be allowed to adopt dual class shares without any limitation? Not across the board, we argue. However, our reason for imposing limitations on firms' ability to adopt dual class shares is very different from the one traditionally suggested in the literature. Instead of looking at intra-firm dynamics, and in particular at the agency costs between shareholders and controllers,[20] we focus on firms' ability to impose externalities. Consequently, the limitations we propose are very different from the ones traditionally advocated by the literature. Because it is well-recognized that private ordering is bound to lead to suboptimal outcomes from a social welfare perspective in the presence of significant externalities, our regulatory proposal stands on much more solid ground than those advocated by institutional investors.

We start by noting that the unfolding climate crisis and the macroeconomics literature have shown that a specific subset of firms can impose gigantic externalities on the planet and the economy. Allowing these companies to have dual class shares without any limitation implies that FVM shareholders oblivious to these externalities have an unfettered ability to inflict systemic harm. A clear example is Buffett's Berkshire Hathaway, which was the fourth main source of carbon dioxide emissions (CO_2) in the U.S. in 2019.[21] However, empirical evidence

[18] *See* the email from the Council of Institutional Investors, *supra* note 16, at 3-4 (arguing that "If a company chooses to issue multiple classes of stock with differing voting rights, then the dual-class stock must contain a 'sunset' provision.").

[19] *See infra* Table 1.

[20] *See infra* notes 82-84 and accompanying text.

[21] *See* Political Economy Research Institute of University of Massachusetts Amherst, *Greenhouse Polluters Index* (2021), https://peri.umass.edu/greenhouse-100-polluters-index-current (last visited Jan. 28, 2021) (presenting a list of the 100 top CO_2 emitters in U.S. with Berkshire Hathaway ranking 4th).

suggests that PVM shareholders have relatively strong incentives to mitigate these negative externalities,[22] since PVM shareholders suffer from them to some extent via their other portfolio holdings. Thus, to prevent FVM shareholders from having disproportionate power at these key firms, we suggest some limits on dual class shares for systemically relevant firms. We then explain how to tailor such limitations according to a firm's specific ability to impose systemic externalities.

We can now provide two straightforward answers to the questions we raised at the beginning. First, at firms that can impose systemic externalities, FVM shareholders are likely to have preferences that are less aligned with those of society at large. Meanwhile, at firms that cannot impose systemic externalities, PVM shareholders are likely to have preferences that are less aligned with those of society at large. Second, we argue that corporate law can limit the negative impact of such preferences by allowing most firms to freely adopt dual class structures, while imposing some limits on systemically relevant firms' freedom to do so.

The rest of the Article proceeds as follows. Part I sets the scene by discussing the evidence in support of the claim that institutional investors sometimes act as portfolio value maximizers, and by introducing the debates surrounding the anticompetitive effects of common ownership and dual class structures. Part II discusses the role that dual class companies can play in fostering competition despite the growth of common ownership. Furthermore, it advances arguments against the introduction of a mandatory sunset. Part III shows how a small subset of firms is playing a disproportionately large role in creating negative systemic externalities. For these firms, we suggest imposing limitations on the freedom of FVM shareholders to retain control over the company through multi-voting rights. In this way, PVM shareholders would have more chances to impose their preferences and internalize a larger fraction of systemic externalities via their other portfolio firms. Part IV deals with the possible advantages and counterarguments of our proposal.

I. SETTING THE SCENE: PORTFOLIO VALUE MAXIMIZATION, COMMON OWNERSHIP AND DUAL CLASS SHARES

In this Part, we introduce the theoretical background and the empirical evidence that will support our claims. To begin with, we discuss the rise of institutional investors in capital

[22] *See infra* notes 40-48 and accompanying text.

markets and the empirical evidence that they act as portfolio value maximizers. Then, we discuss the empirical evidence regarding the anticompetitive effects of common ownership, and finally we introduce the debate on dual class shares.

A. Institutional Investors as Portfolio Value Maximizers

The traditional idea is that shareholders "want to maximize the net present value of the firm's earnings per dollar invested."[23] In other words, shareholders have been described as "firm value maximizing." Yet, following the institutionalization of capital markets and the reconcentration of ownership in the hands of a few institutional investors, this description has become outdated. The largest asset managers—and in particular BlackRock, Vanguard and State Street—own significant stakes in an exceedingly large number of corporations operating in various industries and countries.[24] Most importantly, the vast majority of their assets under management are invested in passive or index funds,[25] the defining feature of which is that they do not try to beat the market but merely track an index, such as the S&P500 or the Nasdaq Composite.[26] Investors in such funds are indifferent about the performance of any given firm in their portfolio. What they care about is the value of their portfolio as a whole. Similarly, managers of passive funds derive their revenues from fees, which are calculated as a percentage

[23] Henry Hansmann & Reinier Kraakman, *The End of History for Corporate Law*, 89 GEO. L.J. 439, 441 (2000).

[24] In 2020, BlackRock voted for 153,000 proposals in 16,200 shareholders meetings. Of these meetings 5,940 were in Asia-Pacific (excluding Japan), 4,190 were in U.S. and Canada, 2,434 in Europe and Middle East (excluding U.K.), 2,350 in Japan, 775 in U.K. and 507 in Latin America. *See* BLACKROCK, 2020 INVESTMENT STEWARDSHIP ANNUAL REPORT 16-19 (2020), https://www.blackrock.com/corporate/literature/publication/blk-annual-stewardship-report-2020.pdf. Vanguard, voted in 12,429 shareholders meetings on 176,834 proposals of companies operating in 27 different markets. *See* 2020 VANGUARD INVESTMENT STEWARDSHIP 5 (2020), https://about.vanguard.com/investment-stewardship/perspectives-and-commentary/2021_investment_stewardship_annual_report.pdf. Last, State Street Advisors voted in 19,370 meetings on 181,370 proposals related with companies from 73 different countries. *See* STATE STREET GLOBAL ADVISORS STEWARDSHIP REPORT 6 (2020), https://www.ssga.com/library-content/pdfs/asset-stewardship/asset-stewardship-report-2020.pdf.

[25] BlackRock, Vanguard and State Street have, respectively, 81.3%, 81.1% and 96.9% of their assets under management invested in passive index funds. Jan Fichtner, Eelke M. Heemskerk & Javier Garcia-Bernardo, *Hidden Power of The Big Three? Passive Index Funds, Re-Concentration of Corporate Ownership, and New Financial Risk*, 19 BUS. & POL. 298, 304 (2017).

[26] *See, e.g.*, Jan Fichtner & Eelke M. Heemskerk, *The New Permanent Universal Owners: Index Funds, Patient Capital, and the Distinction Between Feeble and Forceful Stewardship*, 49 ECON. & SOC. 493, 494 (2020) (noting that index funds "replicate established stock indexes" and "do not actively buy and sell stocks based on expected future earnings but merely follow the market").

of the value assets under management,[27] and from lending shares.[28] Hence, they have no interest in the performance of individual portfolio firms. They will prefer portfolio firms not to generate negative externalities (and to generate positive externalities) affecting other firms in their portfolios. In other words, they will act as PVM shareholders.

Many empirical studies have found evidence of institutional investors acting as PVM shareholders.[29] To be sure, that does not imply that institutional investors never act in line with the preferences of FVM shareholders or that they can lead firms to completely internalize intra-portfolio externalities. The empirical evidence supports a much narrower claim, namely that in some instances institutional investors might push firms to account for a fraction of intra-portfolio externalities.

To begin with, a series of studies showed that common ownership leads firms to internalize a fraction of the positive externalities generated by innovation. It is well-established in the economic literature that innovators can only appropriate a fraction—more precisely about two-thirds—of the returns on research and development (R&D) investments.[30] The obvious corollary is that there is underinvestment in innovation.[31] However, the shareholders of the firm investing in R&D might have weaker incentives to underinvest if they own also significant stakes in the competitors, suppliers and customers of the firm, given that they could appropriate a larger fraction of the value generated by the innovation. Recent studies support this idea[32]

[27] Lucian A. Bebchuk, Alma Cohen & Scott Hirst, *The Agency Problems of Institutional Investors*, 31 J. ECON. PERSP. 89, 96-97 (2017) ("Mutual fund managers and investment managers of other similarly structured funds are not permitted to collect incentive fees on increases in the value of their portfolio but may only charge fees that are calculated as a percentage of assets under management.").

[28] *See* Edwin Hu, Joshua Mitts & Haley Sylvester, *The Index-Fund Dilemma: An Empirical Study of the Lending-Voting Tradeoff* 2 (N.Y.U. L. & Econ. Rsch. Paper, Paper No. 20-52, 2020), https://ssrn.com/abstract=3673531 (describing how institutional investors derive profits from lending shares).

[29] *See infra* text accompanying notes 30-48. For an overview of the literature *see* Luca Enriques & Alessandro Romano, *Rewiring Corporate Law for an Interconnected World* 64 ARIZ. L. REV. 51, 67-74 (2022).

[30] *See* Nicholas Bloom, Mark Schankerman & John Van Reenen, *Identifying Technology Spillovers and Product Market Rivalry*, 81 ECONOMETRICA 1347, 1384 (2013).

[31] *Id.* at 1349 (reporting that the socially optimal level of investments in R&D is over twice as high as the level currently observed).

[32] *See* Ángel L. López & Xavier Vives, *Overlapping Ownership, R&D Spillovers, and Antitrust Policy*, 127 J. POL. ECON. 2394, *passim* (2019) (showing under which conditions overlapping ownership can lead to higher R&D and to higher social welfare).

and further show that common ownership facilitates the diffusion of innovation[33] and avoids duplications of R&D investments.[34]

A similar logic can be applied to voluntary disclosure. Like in the case of investments in R&D, firms are not able to internalize all of the benefits associated with voluntary disclosure.[35] Thus, common ownership by shareholders with PVM preferences should be associated with higher disclosure, given that common owners can internalize at least a fraction of these inter-firm spillovers. This is exactly what one empirical study has found.[36]

The evidence that institutional ownership leads to the internalization of part of inter-firm externalities is not limited to these domains, and extends to many areas of corporate governance[37] and business strategies.[38]

But the most important and debated implication of the idea that large diversified institutional investors lead firms to internalize a portion of intra-portfolio externalities is the hypothesis that PVM shareholders might aim to mitigate climate-related externalities.[39] Azar

[33] Leonard Kostovetsky & Alberto Manconi, *Common Institutional Ownership and Diffusion of Innovation* 5 (2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2896372 (finding that common owners can be a vehicle for the diffusion of innovation).

[34] Xuelin Li, Tong Liu & Lucian A. Taylor, *Common Ownership and Innovation Efficiency* 4 (Jacobs Levy Equity Mgmt. Center for Quantitative Fin. Res. Paper, 2021) (discussing the finding that common ownership can increase social welfare by reducing unnecessary duplication of R&D costs).

[35] *See, e.g.*, Anat R. Admati & Paul Pfleiderer, *Forcing Firms to Talk: Financial Disclosure Regulation and Externalities*, 13 REV. FIN. STUD. 479, 480 (2000) (noting that firms only internalize a fraction of the social value of the information they disclose).

[36] *See* Jihwon Park et al., *Disclosure Incentives When Competing Firms Have Common Ownership*, 67 J. ACCOUNTING ECON. 387, 389 (2019) (providing empirical evidence for the finding that "common ownership is positively associated with the likelihood and frequency of issuing earnings and capex forecasts.").

[37] *See, e.g.*, Jie Jack He, Jiekun Huang & Shan Zhao, *Internalizing Governance Externalities: The Role of Institutional Cross-Ownership*, 134 J. FIN. ECON. 400, 401 (2019) (finding that "institutional shareholders with larger ownership stakes in peer firms (i.e., same-industry firms with similar size) are more likely to vote against management on shareholder-sponsored governance proposals).

[38] Ruichang Lu et al., *Frenemies: Corporate Advertising Under Common Ownership*, MGMT. SCI. 1, 1 (2021) (finding that "competing firms owned by the same institutional blockholders experience a significant reduction in advertising expenditure."); John Healey & Ofer Mintz, *What If Your Owners Also Own Other Firms in Your Industry? The Relationship Between Institutional Common Ownership, Marketing, and Firm Performance*, 38 INT.'L. J. RES. MARKETING 838, 840 (2021) (finding that an increase in institutional common ownership is associated with an increase in firm performance, especially for firms with lower marketing capabilities) ; José Azar, Yue Qiu & Aaron Sojourner, *Common Ownership Reduces Wages and Employment* 2 (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3954399 (finding that increase in common ownership at the local level is associated with a decrease in annual wages per employee); Xin Dai & Yue Qiu, *Common Ownership and Corporate Social Responsibility*, 10 REV. CORP. FIN. STUD. 551, 552 (2021) (finding evidence that common ownership affects firms' corporate social responsibility practices).

[39] Madison Condon, *Externalities and the Common Owner*, 95 WASH. L. REV. 1, *passim* (2020) (discussing extensively the incentives of diversified investors to internalize climate externalities). *See* also Suren Gomtsian, *Different Vision of Stewardship: Understanding Interactions Between Large Investment Managers and Activist Shareholders*, 21 J. CORP. L. STUD. 12 (2021) (claiming that diversified investors do recognize the crucial role of systematic risks and reporting Blackrock CEO Larry Fink's concerns about climate change risk for investors).

and co-authors found evidence supporting this hypothesis.[40] First, they showed that the Big Three are more likely to engage with portfolio companies that record higher emissions.[41] Second, they found a strong negative and robust association between holdings by the Big Three and the CO_2 emissions of the firm, and that this effect is prevalent for firms in which the Big Three hold larger stakes and are thus likely to be more influential.[42] Third, they found that the impact of the Big Three's ownership has become stronger in recent years, as these institutions have increased their commitment to environmental, social and governance (ESG)-conscious practices.[43] Lastly, they found that inclusion in the Russell 1000 and Russell 2000 indexes—which inevitably implies an increase in Big Three ownership—results in a subsequent reduction in CO_2 emissions.[44]

Further support for this hypothesis comes from a study by Dyck and coauthors, who found that institutional ownership is associated with firms' better environmental and social performance.[45] The effect is especially strong with respect to environmental performance as they found that an increase in one standard deviation in institutional ownership is associated with better environmental scores,[46] an effect that is much larger for institutional investors to have signed the United Nations Principles for Responsible Investment.[47] Most importantly, they observed that this effect is not driven by the fact that institutional investors buy into companies with better environmental and social performance. Instead, institutional investors improve the performances of companies they already own.[48]

B. Common Ownership: Evidence and Policy Proposals

[40] José Azar et al., *The Big Three and Corporate Carbon Emissions Around the World*, 142 J. FIN. ECON. 674 (2021).

[41] *Id.* at 675.

[42] *Id.*

[43] *Id.* at 676.

[44] *Id*. See also Dharmapala & Khanna, *Controlling Externalities: Ownership Structure and Cross-Firm Externalities*, supra note 1, at 14 (finding that environmental engagements by institutional investors are 640% more common in countries where ownership structure is generally dispersed than in countries with a significant proportion of blockholders).

[45] Alexander Dyck et al., *Do Institutional Investors Drive Corporate Social Responsibility? International Evidence*, 131 J. FIN. ECON. 693, 694 (2019).

[46] *Id*.

[47] UN Principles for Responsible Investments represent an international network of investors, whose aim is to promote the incorporation of environmental, social and corporate governance values into investment decision-making and ownership practice. Their goal is to encourage a more sustainable global financial system. *See* PRI Association, *What are the Principles for Responsible Investment?*, https://www.unpri.org/pri/what-are-the-principles-for-responsible-investment (last visited Jan. 17, 2022).

[48] *Id.*

In virtually all oligopolistic markets large institutional investors have a significant stake in the main competitors. According to some scholars, this ownership structure—generally labelled common ownership—would lead to a lower level of competition in product markets.[49] In a nutshell, the idea is that common owners prefer to maximize the joint value of the portfolio companies operating in the market, instead of maximizing the value of any given portfolio firm.[50] For this reason, they might prefer a lower level of competition in product markets, so that all their portfolio companies can enjoy extra-competitive profits. Against this background, the managers of such corporations would have no incentives to push their firm to compete aggressively, as this would be against the preferences of their own shareholders.[51]

Building on this line of reasoning, leading legal scholars have advanced several policy proposals that would limit the extent to which common ownership would be permissible. In particular, Posner, Scott-Morton and Wyel have argued that investors should not be allowed to own shares in more than one horizontal competitor in each oligopolistic market,[52] while Elhauge suggested that high levels of common ownership should be *quasi per se* illegal.[53]

These proposals, if adopted, would force institutional investors to completely revolutionize their business model and would re-design financial markets,[54] while it is less clear whether

[49] *See* Einer Elhauge, *Horizontal Shareholding*, 129 HARV. L. REV. 1267, 1268 (2016) (arguing that "[e]conomic theory has long shown that horizontal shareholdings can reduce the incentives of horizontal competitors to compete with each other."); Eric A. Posner, Fiona M. Scott-Morton & E. Glen Weyl, *A Proposal to Limit the Anti-Competitive Power of Institutional Investors*, 81 ANTITRUST L. J. 669, 670 (2017) (defining the anticompetitive effects of common ownership the "the major new antitrust challenge of our time.").

[50] *Id.* at 1269.

[51] *Id.* at 1307.

[52] Posner et al., *supra* note 49, at 708-12 (2017) (summarizing their policy proposal as follows: "No institutional investor or individual holding shares of more than a single effective firm in an oligopoly may ultimately own more than 1% of the market share unless the entity holding shares is a free-standing index fund that commits to being purely passive." (Emphasis omitted)). A similar proposal has also been advanced by scholars concerned with the effects of common ownership on labor market outcomes. *See* Zohar Goshen & Doron Levit, *Common Ownership and the Decline of the American Worker* 49 (Eur. Corp. Gov. Inst. – L. Working Paper No. 584/2021, 2021), https://ssrn.com/abstract=3832069 (describing how the rise of common owners contributed to a shift of wealth from labor to capital and to an increase of income inequality, and suggesting that "to solve the problems caused by common ownership, the answer is to break up common owners."); *See also* Fiona M. Scott-Morton & Herbert J. Hovenkamp, *Horizontal Shareholding and Antitrust Policy*, 127 YALE L. J. 2026, 2033-47 (2018) (discussing the tools available to policymakers to mitigate the anticompetitive effects of common ownership).

[53] Elhauge, *supra* note 49, at 1314 (arguing that institutional investors would have only two ways to avoid liability: "refraining from horizontal investments or committing not to vote their stock.").

[54] Edward B. Rock & Daniel L. Rubinfeld, *Defusing the Antitrust Threat to Institutional Investor Involvement in Corporate Governance* 2 (N.Y.U.L. & Econ. Research Paper No. 17-05, 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2925855 (noting that Posner et al.'s proposal would destroy institutional investors' current business models).

they would increase the level of competition in the markets.[55] Changes of such magnitude, however, seem hardly warranted given the nuanced picture painted by the empirical studies on this issue. While there is relatively compelling evidence that common ownership can affect the level of competition in product markets, this evidence merely refers to the following handful of selected markets: passenger air transportation[56]; soy, corn and cotton seed[57]; retail banking[58]; and the pharmaceutical industry.[59]

Admittedly, the fact that the evidence refers only to some markets does not necessarily mean that common ownership has a negative impact on the level of competition *only* in these markets. In fact, carrying out studies to isolate the impact of common ownership on product prices is very complex, and the necessary data are not always available. But even accounting for this *caveat* and taking the results of these studies at face value,[60] the empirical evidence hardly provides sufficient grounds for invasive reforms like those proposed by Posner, Scott-Morton and Wyel and Elhauge. In fact, there are strong theoretical reasons to believe that common ownership is unlikely to have the same effect on all markets.

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[55] Alessandro Romano, *Horizontal Shareholding and Network Theory*, 38 YALE J. ON REG. 363, 396-400 (2021) (explaining why the sweeping proposals advanced by legal scholars are unlikely to increase the level of competition in product markets).

[56] *See* José Azar, Martin C. Schmalz & Isabel Tecu, *Anticompetitive Effects of Common Ownership*, 73 J. FIN. 1513, 1517 (2018) (finding that higher values of common ownership in the airline industry are associated with prices at the route level that are 3 to 7 percent higher). Their seminal paper spurred an intense debate. Two empirical papers questioned their results. *See* Patrick Dennis, Kristopher Gerardi & Carola Schenone, *Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry* 5 (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3063465 (finding "little evidence" of a positive correlation between ticket prices and common ownership in the airline industry); Pauline Kennedy et al., *The Competitive Effects of Common Ownership: Economic Foundations And Empirical Evidence* 4 (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3008331 ("In contrast to AST, we find no evidence in our price regressions and structural model estimation that common ownership raises prices."). The authors of the original studies reacted to these criticisms by defending their findings. *See* José Azar, Martin C. Schmalz & Isabel Tecu, *Reply to: 'Common Ownership Does Not Have Anti-Competitive Effects in the Airline Industry'* (2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3168095.

[57] Mohammad Torshizi & Jennifer Clapp, *Price Effects of Common Ownership in the Seed Sector*, 66 ANTITRUST L. BULL. 39, 41 (2021) (finding that "approximately 6.2%–14.6% of maize, soybean, and cotton seed price increases over the 1997–2017 period are attributable to common ownership.").

[58] José Azar, Sahil Raina & Martin C. Schmalz, *Ultimate Ownership and Bank Competition*, 2021 J. FIN. MGMT. 1, 40 (2019) (finding that indicators accounting for ownership for ownership structure—and in particular of common ownership—better predicts market outcomes like interest rates, maintenance fees and fee thresholds).

[59] Jin Xie & Joseph Gerakos, *The Anticompetitive Effects of Common Ownership: The Case of Paragraph IV Generic Entry*, 110 AM. ECON. ASS. PAPERS & PROCE. 569, 572 (2020) (examining how common ownership affects the product-market outcome in the pharmaceutical sector by analyzing a sample of 666 patent lawsuits).

[60] For empirical studies challenging the idea that common ownership has a negative impact on the level of competition *see* Jacob Gramlich & Serafin Grundl, *Estimating The Competitive Effects Of Common Ownership* 2 (FEDS Working Paper No. 2017-029, 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2940137 (proposing an alternative methodology to measure common ownership and finding that the impact of common ownership on price and quantities depends on the specification of the model and is "fairly small"); *See also* Kennedy et al, *supra* note 56, at 4, and Dennis et al. *supra* note 56, at 2.

For instance, the literature on network theory has identified a small subset of sectors that impose significant externalities on a wide range of industries. In these markets, a diversified common owner might prefer a *higher* level of competition than a shareholder who only owns stakes in a firm in such market.[61] The reason here is that a lower level of competition would imply higher prices, and a lower level of both input and output.[62] All of these factors would have a negative impact on the firms that operate in connected markets, and such firms are likely to be in the portfolio of a diversified common owner. On the contrary, an undiversified shareholder would reap the benefits of a lower level of competition in the market without having to internalize any of the negative externalities.[63] Consider, for instance, the case of the banking sector. A lower level of competition would entail higher interest rates, which might harm virtually every firm in the economy. An investor that owns shares only in banks might derive a profit, as a lower level of competition is likely to result in extra-competitive profits for the banks. However, a diversified investor who owns shares in companies that are negatively affected by the higher interest rates *ceteris paribus* would find a lower level of competition less desirable.

In other words, the effects of common ownership are more nuanced than imagined by the legal scholars advocating for sweeping reforms, and the exact contours of the problem are hard to identify given the complexity of the issue and the limited availability of data. Therefore, either structural reforms must be much more fine-grained and account for factors such as inter-market effects and the characteristics of the common owners or policymakers should rely on different approaches.

In this Article, we argue that one such approach would be a laissez-faire attitude towards the use of dual class shares. Therefore, we now turn to discussing the literature on such share structures.

C. Dual Class Shares

Dual class shares allow companies to deviate from the standard one share, one vote principle. Generally, companies that adopt dual class shares issue two classes of share. The

[61] Romano, *supra* note 55, at 405-407.
[62] Rock & Rubinfeld, *supra* note 54, at 24.
[63] Romano, *supra* note 55, at 407 (noting that firms have a natural tendency to prefer a lower level of competition, but that only diversified investors internalize a fraction of the externalities that a lower level of competition imposes on connected firms).

first class comes with high voting power—typically ten votes per share—and remain in the hands of founders and key insiders, whereas the second class of shares has lower voting power—typically one vote per share—and are sold to outside investors.[64] Several companies also have a third class of non-voting shares.[65] Thus, dual class shares allow founders and key insiders to control the corporation even when they hold a small fraction of the shares. By decoupling voting and cash flow rights, dual class firms can raise equity capital without being subject to the constraints that the founders' preference for preserving control over the firm would impose.[66] Thus, dual class firms can grow to a size that usually only firms with dispersed ownership can attain.

Dual class structures have been present on the U.S. market since the 19th century, but the number and the importance of corporations listed in the U.S. with a dual class structure has boomed since Google's IPO in 2004.[67] Some of the companies with the highest capitalization of our time have dual class shares, including Alphabet Inc. (formerly Google), Meta (formerly Facebook Inc.), Visa and Berkshire Hathaway.[68] 2016 data show that companies adopting dual class shares have a market capitalization exceeding $3 trillion,[69] or approximately 10% of the U.S. public equity markets.[70] In 2020, 15% of the companies that went public had dual class shares.[71] Moreover, while one-share-one-vote companies still dominate in number, in 2020 dual class companies represented 60% of the IPO market value.[72]

[64] According to the CII "Typically, these companies have two classes of common stock: Class A shares with 10 votes per share for the founders (and sometimes insiders, too) and Class B shares with one vote per share for public shareholders.". *See* Council of Institutional Investors, https://www.cii.org/dualclass_stock (last visited Jan. 17, 2022).

[65] For instance, Alphabet, Liberty Broadband, Under Armour and AppLovin Corporation have three classes of shares, one of which has no voting power. *See* Council of Institutional Investors, *Dual Class Companies List* (2021), https://www.cii.org//Files/issues_and_advocacy/Dual%20Class%20post%206-25-19/Dual%20Class%20Companies%20Webpage%2010-12-21.pdf.

[66] *See* Luca Enriques, *Silence Is Golden: The European Company Statute as a Catalyst for Company Law Arbitrage*, 4 J. CORP. L. STUD. 77, 90-91 (2004) (explaining why firms deviate from the one-share-one-vote principle and noting that, without the possibility to raise equity by issuing non-voting or lower-voting stock, dominant shareholders would be forced to keep the company small).

[67] *See* the list elaborated by the Jay Ritter, *Initial Public Offerings: Dual Class Structure of IPOs Through 2021* (updated Dec. 23, 2021), https://site.warrington.ufl.edu/ritter/files/IPOs-Dual-Class.pdf (listing the number of IPOs each year that have opted for dual class shares from 1980 to 2021).

[68] *See* Council of Institutional Investors, Dual Class Companies List, *supra* note 65.

[69] Lucian A. Bebchuk & Kobi Kastiel, *The Untenable Case for Perpetual Dual-Class Stock*, 103 VA. L. REV. 585, 594 (2017).

[70] At that time, the market capitalization of listed domestic companies in U.S. was $27.35 trillion. *See* WORLD BANK, https://data.worldbank.org/indicator/CM.MKT.LCAP.CD (last visited Jan. 1, 2022).

[71] Council of Institutional Investors, *Dual-Class IPO Snapshot: 2017–2020 Statistics* 1 (2020), https://www.cii.org/files/2020%20IPO%20Update%20Graphs%20.pdf (this percentage excludes FPIs, SPACs, and REITs).

[72] *Id*. at 2.

The most common benign explanation for the adoption of dual class shares is that they isolate the founders from the short-termism of financial markets and the pressures from the market for corporate control.[73] In this vein, by adopting such shares founders are able to pursue their idiosyncratic vision[74] and focus on long-term goals.[75] For instance, investors might believe that Kevin Plank—who controls Under Armour thanks to multiple voting shares[76]—is in the best position to run the company without the distractions of daily share price fluctuations or hostile takeover threats. Relatedly, dual class shares "may increase the willingness of founders to take their companies public,"[77] as founders would be able to retain control even after raising substantial equity on public markets.

A recent article by Dorothy Lund advanced a new rationale for allowing firms to adopt dual class shares. In particular, she argued that dual class shares might even reduce agency costs because nonvoting or low-voting stock allows companies to concentrate voting power among shareholders who are best informed about the company and its performance.[78] Her basic argument was that shares carrying voting rights are more expensive than shares that do not. Hence, investors that do not plan to spend resources to cast informed votes—including, Lund argued, the largest asset managers—would prefer to buy shares without voting power.[79] At the same time, this would improve the incentives of informed investors, because their voting power would be enhanced by the fact that a significant fraction of the shares would no longer have voting power.[80]

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[73] *See, e.g.,* David J. Berger, Steven Davidoff Solomon & Aaron J. Benjamin, *Tenure Voting and the U.S. Public Company*, 72 BUS. LAW. 295, 296 (2017) (noting that dual-class companies "can consider shareholder demands but also avoid actions that would result in short-term increases in their stock prices at the expense of their abilities to create long-term value."). For empirical evidence supporting this claim, *see* Bradford D. Jordan, Soohyung Kim & Mark H. Liu, *Growth Opportunities, Short-Term Market Pressure, and Dual-Class Share Structure*, 41 J. CORP. FIN. 304, 306 (2016) (finding evidence supporting the idea that "dual-class shares help insiders implement long-term projects while avoiding short-term market pressure."). *See* also Snap Inc., Amendment No. 2 to Form S-I Registration Statement, at 167 (Feb. 16, 2017), https://www.sec.gov/Archives/edgar/data/1564408/000119312517045870/d270216ds1a.htm (arguing that the company structure permits the corporation to prioritize long-term goals rather than short-term results).

[74] *See, e.g.,* Zohar Goshen & Assaf Hamdani, *Corporate Control and Idiosyncratic Vision, 125* YALE L.J. 560, 590 (2016) (noting that dual class structures allow entrepreneurs to pursue their idiosyncratic visions).

[75] *See generally* Bernard S. Sharfman, *A Private Ordering Defense of a Company's Right to Use Dual Class Share Structures in IPOs*, 63 VILL. L. REV. 1 (2018).

[76] The current voting structure allows Plank to control 67% of voting powers while owning only 16.8% of total stocks. *See* FDRA, *Under Armour Establishes New Non-Voting Class C Common Stock* (Jun. 17, 2021), https://fdra.org/latest-news/under-armour-establishes-new-non-voting-class-c-common-stock/.

[77] Jill Fisch & Steven Davidoff Solomon, *The Problem of Sunsets*, 99 B.U.L. REV. 1057, 1061 (2019).

[78] *See* Dorothy Shapiro Lund, *Nonvoting Shares and Efficient Corporate Governance*, 71 STAN. L. REV. 687, 716 (2019).

[79] *Id*. at 719-723.

[80] *Id.*

But legal scholars and market actors have traditionally had a much less positive view of dual class shares.[81] The standard argument against them is that dual class shares ensure controllers' entrenchment while at the same time increasing agency costs between them and outside investors. On the one hand, dual class shares operate as a strong form of takeover defense:[82] even when the insider owns less than a majority of the shares, they make it impossible for outsiders to take over the corporation without the insider's consent. On the other, dual class shares break down the relationship between cash flow rights and voting rights.[83] As a consequence, insiders can gain more than in a one-share-one-vote company when the corporation adopts strategies that maximize their personal utility to the detriment of the company's profitability.[84] In other words, the incentives to engage in value-destroying extraction of private benefits of control become stronger.

Policymakers have also often expressed concerns about dual class shares. For instance, during their term as S.E.C. Commissioners, Kara Stein and Robert Jackson Jr., respectively, described dual class shares as "inherently undemocratic, disconnecting the interests of a company's controlling shareholders from its other shareholders,"[85] and argued that they create

[81] For instance, the Investor Stewardship Group among its Corporate Governance Principles for U.S. Listed Companies includes the idea that "[c]ompanies should adopt a one-share, one-vote standard and avoid adopting share structures that create unequal voting rights among their shareholders." *See* INVESTOR STEWARDSHIP GROUP, CORPORATE GOVERNANCE PRINCIPLES FOR US LISTED COMPANIES (Feb. 20, 2019), https://isgframework.org/corporate-governance-principles/ (last visited Jan. 17, 2022). Among scholars, s*ee, e.g*., Seligman, *supra* note 73, at 724 (arguing that dual class capitalization is inefficient, and therefore that it should be banned for companies that are subject to section 12 of the Securities Exchange Act of 1934).

[82] Paul A. Gompers, Joy Ishii & Andrew Metrick, *Extreme Governance: An Analysis of Dual-Class Firms in The United States*, 23 REV. FIN. STUD. 1051, 1052 (2010) (defining dual class stocks the most extreme example of antitakeover provision.).

[83] *See, e.g.*, Martijn Cremers, Beni Lauterbach & Anete Pajuste, *The Life-Cycle of Dual Class Firm Valuation* 53 (Eur. Corp. Gov. Inst. Working Paper No. 550/2018, 2020), https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=3062895 (discussing the role played by the difference between the voting and equity stakes of the controlling shareholders created by dual class structures).

[84] Lucian A. Bebchuk, Reinier Kraakman & George Triantis, *Stock Pyramids, Cross-Ownership, and Dual Class Equity: The Mechanisms and Agency Costs of Separating Control From Cash-Flow Rights*, *in* CONCENTRATED CORPORATE OWNERSHIP 295, 301-305 (Randall K. Morck ed., 2000) (discussing this issue by focusing on the agency costs created by dual class structures).

[85] Kara M. Stein, Comm'r, Sec. & Exch. Comm'n, Remarks at Stanford University: Mutualism: Reimagining the Role of Shareholders in Modem Corporate Governance (Feb.13, 2018), https://www.sec.gov/news/speech/speech-stein-021318.

"corporate royalty."[86] Ultimately, the empirical evidence on the impact of dual class shares on firm value has been mixed thus far.[87]

In a recent article, despite recognizing the possible advantages brought by dual class shares, Bebchuk and Kastiel claimed that dual class shares should have a mandatory time-based sunset.[88] While acknowledging that insulating innovative founders for a certain period of time might increase firm value, they argued that founders' advantages are bound to decrease over time due to technological evolution and changes in markets: Mark Zuckerberg might have been the best choice for Facebook for much of its history, but he may no longer be today, and even less so tomorrow. In the same vein, the Council of Institutional Investors sent a petition to the New York Stock Exchange and Nasdaq asking them not to list firms that have dual class shares unless they have a mandatory time-based sunset of at most seven years.[89] Former Commissioner Jackson also vehemently attacked perpetual dual class shares, decrying them as inconsistent with American foundational ideals.[90] Recent empirical evidence has provided some support for the idea that dual class shares might add value when the company goes public, but has also shown that this effect then dissipates over time.[91]

As shown by this quick overview of the debate surrounding dual class shares, the literature and policymakers have almost exclusively focused on the consequences of this arrangement in terms of agency costs and the ability of the firm to pursue long-term goals. It has therefore

[86] Speech by Robert J. Jackson, Jr., Commissioner of the Securities and Exchange Commission, Perpetual Dual-Class Stock: The Case Against Corporate Royalty (Feb. 15, 2018), https://www.sec.gov/news/speech/perpetual-dual-class-stock-case-against-corporate-royalty.

[87] Anita Anand, *Governance Complexities in Firms with Dual Class Shares*, 3 ANN. CORP. GOV. 184, 203-207 (2018) (discussing the empirical literature on the effects of dual class shares and concluding that "for virtually every study noting a problem with DCS firms, there is a study either finding a benefit or a neutral effect of DCS on firm value.").

[88] Bebchuk & Kastiel, *supra* note 69, at 585.

[89] John C. Coffee, Jr., *Dual Class Stock: The Shades of Sunset*, THE CLS BLUE SKY BLOG (Nov. 19, 2018), https://clsbluesky.law.columbia.edu/2018/11/19/dual-class-stock-the-shades-of-sunset/. Recently the CII has reiterated this request presenting a draft federal legislation to the House Financial Services Committee. The CII has indicated the need to amend the Exchange Act by introducing a seven-year or less "sunset" on listed issuers having multi-class structures. *See* Council of Institutional Investors, *supra* note 16, at 3.

[90] *See* Jackson, Jr., *supra* note 86. ("I cannot see how to square that with our nation's foundational ideas. In America, we don't inherit power, and we don't hold power forever.").

[91] Cremers, Lauterbach & Pajuste, *supra* note 83, at 550 (noting that "[a]s firms age, the valuation premium dissipates, probably because of agency problems' aggravation at dual class firms driven by the widening of the wedge (difference between voting and equity stakes of controlling shareholders of dual class firms) in the years after the IPO."); Kim Hyunseob & Roni Michaely, *Sticking Around Too Long? Dynamics of the Benefits of Dual-Class Voting Dynamics of the Benefits of Dual-Class Voting* 32 (Eur. Corp. Gov. Inst. Working Paper No. 590/2019, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3145209 (finding evidence that as the dual-class company matures, its valuation and efficiency in innovation and labor productivity declines compared to their single-class counterparts).

focused on the *intra*-firm consequences of dual class shares. But private ordering can significantly mitigate concerns based on intra-firm considerations, given that investors can decide not to buy, or to pay less for, shares of companies with dual class structures. Instead, we focus on *inter*-firm consequences of dual class shares. On the one hand, in Part II, we show that this new focus allows us to uncover a hitherto overlooked advantage of dual class shares, namely that such structures can preserve product market competition despite the growth of common ownership. On the other hand, in Part III, we argue that limitations on dual class shares structures should be tied to firms' ability to impose systemic externalities, and hence to the *inter*-firm consequences of dual class structures.

II. DUAL CLASS SHARES AS A PRO-COMPETITIVE DEVICE

This Part discusses the role that dual class shares can play in mitigating the anticompetitive concerns raised by common ownership and, building on that, sides with the view that mandatory time-based sunsets are undesirable.

A. Dual Class Shares and Competition

The traditional discussion on dual class shares is rooted in a world of FVM shareholders, in which the main concern is ensuring that holders of shares with high voting power do not stir firms away from firm value maximization by extracting private benefits of control. In a world of PVM shareholders, however, dual class shares also serve a distinct function. They create a control structure that increases the likelihood that the firm will pursue FVM rather than PVM shareholders' interests. By issuing dual class shares, the founders signal to the market that the company can be more easily run as a FVM company instead of factoring in the potentially conflicting interests of PVM shareholders. Founders holding dual class shares generally have a significant financial stake in the company they run relative to their overall wealth.[92] Therefore, they have a clear motivation to increase firm value, irrespective of the consequences that this might have on other firms. Admittedly, dual class shares intensify founders'

[92] *See* Dharmapala & Khanna, *supra* note 1, at 38 (reporting the fraction of the wealth that the founders/controllers of some leading corporations have invested in their company).

inclination to extract private benefits of control,[93] but this can be seen as the price that investors pay to invest in founders' idiosyncratic vision without the interference of PVM shareholders.

This perspective is consistent with institutional investors' behavior. In fact, it can explain why, while lobbying to ban such structures, institutions keep buying stakes in companies with dual class shares.[94] Let us assume that an economy has a population of four firms: A, B, C, and D. Assume also that A and B compete in market X, whereas C and D compete in market Y. Lastly, assume that by investing heavily in R&D, firm D could develop innovations that would allow it to take over the entire market Y and also start competing in market X. One pertinent example here is the improvements Google made to its search algorithm that led it to dominate the market for general Internet search services, a position which it later leveraged to expand into comparison shopping services.

Assume now that PVM institutional investors dominate all four firms. Their optimal strategy might be to persuade firm D to drop its plans to compete aggressively and to enter new markets. If they succeed, all their portfolio companies would enjoy extra-competitive profits.

But what if firm D has dual class shares and therefore its management can expand into new markets without worrying about whether institutional investors support its strategy? In this scenario, institutional investors can no longer achieve their first-best outcome, namely a lower level of competition within and across markets. Their decision is now whether to invest in D, but taking as a given that D's controlling shareholders will act as firm value maximizers and try to gain value to the detriment of A, B, and C. If they do buy D shares, they will suffer the losses that D imposes on their portfolio companies, but at least the value of their investment in D will grow. On the contrary, if they only invest in A, B, and C, then they will still suffer losses stemming from D's actions, but without reaping any benefits. Most importantly, the aggressive strategy of D forces A, B and C to compete as well.

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[93] *See, e.g.*, Dov Solomon, Rimona Palas & Amos Baranes, *The Quality of Information Provided by Dual-Class Firms*, 57 AM. BUS. L. J. 443, 446 (2020) (claiming that a dual-class-shares structure allows insiders to extract private benefits at the expense of other investors).

[94] *See, e.g.*, Paresh Dave, *Big Investor T. Rowe Price Challenges Snapchat Founders' Power*, L.A. TIMES (Jan. 19, 2017), https://www.latimes.com/business/technology/la-fi-tn-snapchat-voting-20170119-story.html (reporting that T. Rowe Price "persistently" advocated against dual class shares at Snap, and yet it currently is the largest shareholder of Snap, Inc. See Snap Inc., Institutional ownership, CNN BUS. https://money.cnn.com/quote/shareholders/shareholders.html?symb=SNAP&subView=institutional (last visited Jan. 17, 2022).

In this scenario, the preferences of PVM institutional investors are clear: the first-best strategy is advocating for the elimination of dual class shares. With no dual class companies around, institutional investors can ensure that all firms behave like portfolio value maximizers. However, if they cannot reach the desired policy outcome, their second-best option is to buy stakes in firms controlled by FVM shareholders. This is exactly what we observe, as institutional investors routinely hold significant positions in companies with dual class shares, including through the active funds they manage.[95]

This framework also contributes to explaining why dual class shares structures are especially common in the tech sector.[96] Firms operating in this sector are intrinsically disruptive, as their activity can destroy the business model of companies across many markets.[97] Consequently, founders have stronger reasons to silence PVM shareholders that could constrain their growth when it threatens to disrupt the activity of many of their portfolio firms.

A perfect example of this dynamic is offered by Alphabet's incursions into the pharmaceutical market.[98] Alphabet's recently-created Isomorphic Lab plans to leverage the knowledge in artificial intelligence developed by Deep Mind—another company in Alphabet's portfolio—to "reimagine the entire drug discovery process."[99] In the past, Alphabet had already launched Verily and Calico, which operate in key areas at the frontier of health-related research like surgical robots and overcoming aging.[100] Incidentally, the pharmaceutical industry is one of several markets in which the empirical evidence has shown that common ownership might

[95] *See* supra *note* 94.

[96] *See* Dhruv Aggarwal et al., *The Rise of Dual-Class Stock IPOs* 18 (2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3690670 ("most of the historical increase in dual-class firms stems from [industries, such as software, that heavily rely on Cloud computing technology for data management], where the percentage of dual-class IPOs in 2017-2019 exceeds 50 percent"). Dual class shares are so common in the tech sector that Twitter's decision not to adopt such a structure surprised many observers. *See* Steven Davidoff Solomon, *In Twitter's I.P.O. Filing, Signs of a Start-Up That Has Matured*, N.Y. TIMES: DEALBOOK (Oct. 8, 2013), https://dealbook.nytimes.com/2013/10/08/in-twitters-i-p-o-filing-signs-of-a-start-up-that-has-matured/ (arguing that, by not adopting a dual class shares structure, Twitter surprised many commentators).

[97] *See, e.g.*, Patrick Barwise & Leo Watkins, *The Evolution of Digital Dominance*, 21, in DIGITAL DOMINANCE: THE POWER OF GOOGLE, AMAZON, FACEBOOK, AND APPLE (Martin Moore & Damian Tambini eds. 2018) (describing Google's (now Alphabet) competitive strategy and how it constantly added new services and lines of business to its portfolio). For a tech company without dual class shares acting as a disruptor in multiple markets *see* Lina M. Khan, *Amazon's Antitrust Paradox*, 126 YALE L. J. 710, 746-755 (2016) (describing Amazon business strategy, and in particular how it aggressively expanded to multiple markets).

[98] Cade Metz, *Google's Parent Launches a Company Dedicated to Drug Discovery* N. Y. TIMES (Nov. 4, 2021), https://www.nytimes.com/2021/11/04/business/google-alphabet-drug-discovery.html.

[99] Center for Brains, Minds and Machines, *Introducing Isomorphic Labs* (Nov. 18, 2021), https://cbmm.mit.edu/news-events/news/introducing-isomorphic-labs.

[100] Metz, *supra* note 98.

be having an impact on competition dynamics. For instance, Xie and Gerakos found that common ownership by institutional investors increases the probability that a brand-name manufacturer and a generic manufacturer reach a settlement in which the former pays the latter to delay entry into the market.[101]

The existing evidence is consistent with the idea that dual class companies can limit the anticompetitive effects of common ownership. As Table 1 shows, to date the main studies showing the anticompetitive effects of common ownership have referred to industries in which there are no dual class companies among the main competitors.

Study	Sector	Main Competitors
Azar et al., *Anticompetitive Effects of Common Ownership*, 73 J. FIN. 1513 (2018)	Airline	Delta Air Lines, Southwest Airlines Co., American Airlines, United Continental Holdings, Alaska Air, JetBlue Airways, Spirit Airlines, Allegiant Travel Company, Hawaiian
Azar et al., *Ultimate ownership and bank competition*, FIN. MGMT (2021).	Banking (deposit accounts)	JP Morgan Chase, Bank of America, Citigroup, Wells Fargo, PNC Financial, U.S. Bancorp
Mohammad Torshizi & Jennifer Clapp, *Price Effects of Common Ownership in The Seed Sector*, 66 ANTITRUST BULL. 39 (2021).	Soy, corn, and cotton seeds	Monsanto, Bayer, Dow, DuPont, Syngenta, BASF
Albert Banal-Estañol, et al., *Common Ownership in the U.S. Pharmaceutical Industry: A Network Analysis*, 66 ANTITRUST BULL. 68 (2021); Melissa Newham, Jo Seldeslachts, Albert Banal-Estañol, *Common Ownership*	Pharmaceutical	Johnson & Johnson, Pfizer Inc., AbbVie Inc., Merck & Co Inc., Bristol Myers Squibb Co., Abbott Laboratories, Eli Lilly, Gilead Sciences, Amgen, Viatris[102]

[101] Xie & Gerakos, *supra* note 59, at 572 (2020). *See also* Albert Banal-Estañol, Melissa Newham & Jo Seldeslachts, *Common Ownership in the US Pharmaceutical Industry: A Network Analysis*, 66 ANTITRUST BULL. 68, 98-99 (2021) (studying the ownership network comprising brand firms and generic firms).

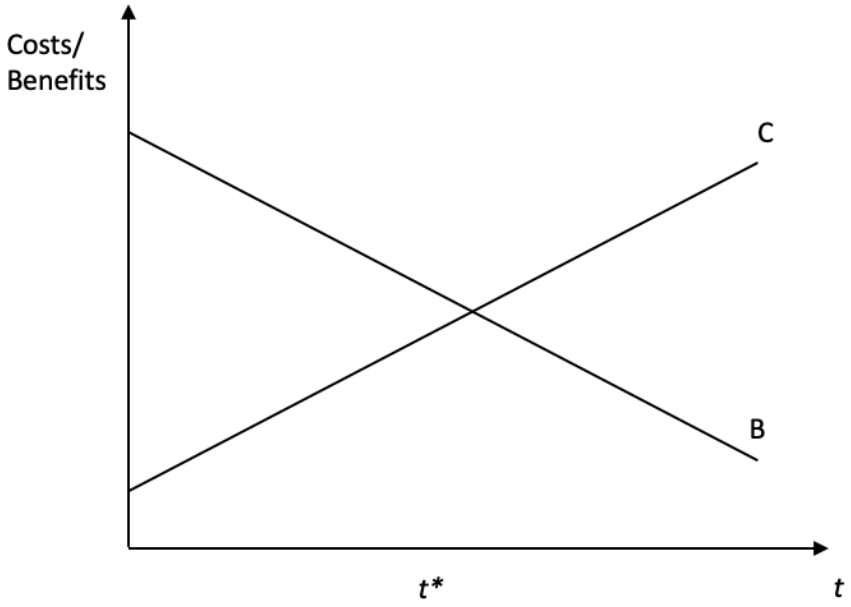
[102] For a complete overview of the ten main U.S. biotech and pharmaceutical competitors, *see* STATISTA, https://www.statista.com/statistics/257436/top-global-biotech-and-pharmaceutical-companies-based-on-revenue/ (last visited Feb. 10, 2022).

and Market Entry: Evidence from the Pharmaceutical Industry 41 *(*DIW Berlin Discussion Paper No. 1738, 2018); Jin Xie & Joseph Gerakos, *The Anticompetitive Effects of Common Ownership: The Case of Paragraph IV Generic Entry*, 110 AM. ECON. ASS. PAPERS & PROCE. 569, 572 (2020)		

Table 1: List of the main studies showing that common ownership leads to higher prices (and the main competitors in the sectors)

B. Dual Class Shares and Mandatory Time-based Sunsets

Both institutional investors and academics have long been advocating for the introduction of a mandatory time-based sunset on dual class shares.[103] Justification for this lies in the prediction that, after a certain time, dual class shares become inefficient because, to put it colorfully, founders will lose their 'magic touch.' Graphically, we present the relationship that supporters of mandatory sunsets hypothesize between the costs (C) and benefits (B) of dual class shares over time (*t*) as follows:



The optimal time-based sunset rule would then set an expiration date equal to t^*.

The current debate on mandatory time-based sunsets has highlighted a basic problem with them, namely that the slope and the intercept of B and C depend on the characteristics of the company and its founders and on how market conditions evolve.[104] As a consequence, they are likely to be different for each corporation. Because a regulator cannot estimate these variables for any individual firm, it also cannot identify t^*. Therefore, policymakers will have to select a duration of the mandatory time-based sunset (let us call it t^l) that is bound to be inefficient for each individual dual class firm. Firms for which $t^* > t^l$ would have to switch prematurely, while for those with $t^* < t^l$ (the inertially non-switching firms), an inefficient structure would remain in place. Admittedly, one could argue that compared to a solution in which there is no expiration date, mandatory time-based sunsets would be an improvement on the status quo for inertially non-switching firms. Yet, there is no way to estimate whether the losses imposed on prematurely switching firms would outweigh the gains for inertially non-switching firms.

[104] *See* Fisch & Solomon, *supra* note 77, at 1057 (claiming that "a one-size-fits-all approach to sunsets – like those proposed by CII or adopted by index providers – does not make sense. The timeframe necessary for realizing a company's goals is likely to vary depending on the company, based on factors like the company's maturity at the IPO stage, the duration of its business model, and the time required to develop its products or services and bring them to market.").

In addition, if one adopts an ex-ante perspective, the benefits of a mandatory time-based sunset provision become dubious even for inertially non-switching firms. If investors believe that founders will extract excessively high private benefits of control or that the duration of the dual class structure is excessive, they will be willing to pay a lower price for shares at the IPO stage.[105] In other words, market forces determine the characteristics of an offering and the price at which the shares are sold. In a situation where a regulator has no way of determining t^* with any accuracy, it is unclear why it would be desirable to displace market forces by tying the hands of *both* potential investors and founders.[106] In fact, it should be noted that firms can already set an expiration date (and quite a few have done so[107]) if they believe that this is a solution that would be rewarded by financial markets.

More generally, a mandatory time-based sunset is built on the idea that the founders' idiosyncratic vision is strictly tied to the time around the IPO and is bound to expire a few years later.[108] However, as eloquently put by Goshen, "there is nothing in the economy, or in life, suggesting that idiosyncratic vision is timed to the IPO moment and tied to the founder. It can come at any time (Steve Jobs invented the iPhone long after the IPO), and it can be gained by non-founders (Tim Cook created more value after Steve Jobs had gone)."[109]

Lastly, time-based sunset provisions also create a well-known moral hazard problem.[110] A sunset clause artificially introduces a sharp cliff because the insider will lose control of the corporation from one day to the next.[111] Consequently, the insider might have strong incentives to engage in excessive short-termism or rent-seeking.[112]

In the current setting where FVM and PVM shareholders co-exist, a mandatory time-based sunset clause effectively hands over (some degree of) control to PVM shareholders. But by

[105] *See* Ronald J. Gilson, *Evaluating Dual Class Common Stock: The Relevance of Substitutes*, 73 VA. L. REV. 807, 808-809 (1987) (noting that shares' lower voting rights will affect their market prices, "so that the company's owners at the time it goes public, and not the purchasers, bear the cost.").

[106] *See also* Fisch & Solomon, *supra* note 77, at 1063 ("it is unclear how a bright-line time limit that does not reflect company-specific needs makes sense.").

[107] Council of Institutional Investors, *Companies with Time-Based Sunsets on Dual-Class Stock* (2021), https://www.cii.org//Files/issues_and_advocacy/DualClassStock/7-22-21%20Time-based%20Sunsets.pdf (providing a list of 58 dual class companies that have a time-based sunset).

[108] Zohar Goshen, *Against Mandatory Sunset for Dual Class Firms*, THE CLS BLUE SKY BLOG (Jan. 2, 2019), https://clsbluesky.law.columbia.edu/2019/01/02/against-mandatory-sunset-for-dual-class-firms/.

[109] *Id.*

[110] Fisch & Solomon, *supra* note 77, at 1083-84.

[111] Coffee, *supra* note 89.

[112] Fisch & Solomon, *supra* note 77, at 1083. *See also* Coffee, *supra* note 89 (arguing that "[a] sunset that goes sharply from day to night may have perverse effects.").

definition in some instances PVM shareholders will prefer strategies that do not maximize firm value. Thus, a mandatory time-based sunset might have a negative impact on the firm's profitability.

From a social welfare perspective, a mandatory sunset has the additional disadvantage of enhancing the voice of PVM common owners, which are likely to prefer a lower level of competition in the market in which the firm operates. In turn, this will have a negative impact on final consumers, and on social welfare in general.

Bebchuk and Kastiel—who are the main proponents of mandatory time-based sunsets—implicitly acknowledge that regulators cannot identify t^* and in fact concede that shareholders unaffiliated with the controller should have the right to extend t^l.[113] One problem with this proposal is that, as noted by Bebchuk, Cohen and Hirst, large PVM shareholders have limited incentives to invest resources in learning about a given portfolio firm, as they would appropriate a small fraction of any increase in value.[114] For this reason, they are unlikely to have the very specific knowledge that would be necessary to assess the remaining value of a founder's idiosyncratic vision.

Worse still, our framework sheds light on how allowing shareholders to vote on a possible extension of the dual class structure would, in all likelihood, be pointless. In a world in which most shareholders are PVM, such shareholders can be expected to vote against dual class shares, regardless of whether that is in the best interests of the individual company. In fact, by voting against dual class shares, PVM shareholders increase their influence on the firm's strategies, thus increasing the likelihood that the firm's conduct falls into line with their preferences. As diversified PVM shareholders are generally common owners, this might have a negative impact on the level of competition in the relevant markets.

III. DUAL CLASS SHARES AND SYSTEMICALLY IMPORTANT FIRMS

We have argued that in a world dominated by PVM investors dual class companies can invigorate competition despite the rise of common owners. By silencing PVM shareholders who might prefer a lower level of competition, dual class shares give FVM insiders the power

[113] Bebchuk & Kastiel, *supra* note 69, at 624-25.

[114] Lucian A. Bebchuk, Alma Cohen & Scott Hirst, *The Agency Problems of Institutional Investors*, 31 J. ECON. PERSP. 89, 96-97 (2017) (discussing a simplified example based on realistic figures in which an institutional investor only appropriates $1,200 for an increase in value of its portfolio company of $1,000,000).

to engage in aggressive competition. But silencing PVM shareholders to the advantage of FVM shareholders may not be optimal across the board.

This Part starts by noting that societies currently face serious economy-wide threats, such as climate change and macroeconomic shocks. We then show how in both the case of climate change and in that of macroeconomic risk, a small subset of firms is playing a disproportionately large role in creating negative systemic externalities. Allowing FVM insiders that are oblivious to such externalities to have permanent control over these companies thanks to dual class shares could have negative consequences for both the climate and the stability of the economy. Instead, PVM shareholders internalize a larger fraction of systemic externalities via their other portfolio firms, and hence at the margin have more incentives than FVM shareholders to internalize such externalities.[115] For these reasons, we suggest imposing limitations on the freedom of these key firms to adopt dual class shares and explain in detail how such limitations should be tailored according to firms' propensity to impose systemic externalities. A possible objection to our proposal is that corporate governance is not the right tool to target systemic externalities. We address this objection in section IV.B.1.

A. Climate Change

According to the 2021 IPCC Report "[i]t is unequivocal that human influence has warmed the atmosphere, ocean and land."[116] Fossil fuels, intensive farming, deforestation and soil impoverishment have led to an enormous increase in the concentration of greenhouse gases (GHGs) like CO_2 and methane (CH_4) in the atmosphere.[117] The higher concentration of GHGs has resulted in the global average temperature rising at an unprecedented rate.[118]

[115] Enriques & Romano *supra* note 29, at 79-83 (discussing under which conditions the voice of portfolio value maximizing shareholders should be enhanced).

[116] Valérie Masson-Delmotte et al., *Summary for Policymakers, Climate Change 2021: The Physical Science Basis*, Intergovermental Panel on Climate Change, (2021), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf [hereinafter IPCC Report], at 4.

[117] *See* Global Monitoring Laboratory, *Trends in Atmospheric Carbon Dioxide*, (Last visited, Jan. 26, 2022), https://gml.noaa.gov/ccgg/trends/global.html (reporting data on the increase in CO_2 concentration from 1980); Global Monitoring Laboratory, *Trends in Atmospheric Methane*, (Last visited, Jan. 26, 2022), https://gml.noaa.gov/ccgg/trends_ch4/ (reporting data on the increase in CH_4 concentration from 1980).

[118] *See* IPCC Report, *supra* note 116, at 6.

This dynamic has potentially catastrophic consequences, which include droughts,[119] heavy precipitation,[120] extreme heatwaves,[121] as well as loss of biodiversity.[122] In addition, climate change has important economic implications. The World Economic Forum in its Global Risk Report 2021 identified climate change as the most impactful long-term risk for the economy,[123] while the Financial Stability Oversight Council issued a formal warning defining climate change as an "emerging threat" for the U.S. financial system.[124]

Scientists are attempting to persuade governments to take drastic actions to reduce GHG emissions and to prevent such catastrophic consequences.[125] But what actions should be taken? To answer this question, one must ask who is responsible for GHG emissions. Compelling evidence suggests that a small subset of "carbon majors" is playing a very significant role in accelerating global warming. For instance, a recent and widely-cited study has shown that almost two-thirds of CO_2 and CH_4 emissions between 1854 and 2010 can be attributed to 90 entities, many of which are among the largest corporations on the planet.[126] Five U.S. corporations alone—Chevron, ExxonMobil, ConocoPhillips, Peabody Energy and Consol Energy—are responsible for 9.39% of global emissions during that period.[127] Turning to more recent data, a list of the top 100 U.S. polluters reveals that in 2019 five corporations—Vistra Energy, Duke Energy, Southern Company, Berkshire Hathaway (a dual class company) and American Electric Power—caused 6.4% of U.S. GHG emissions.[128]

Against this background, we suggest that corporate governance should be among the tools aimed at climate change mitigation. The use of governance-based legal strategies has two advantages. First, they would directly affect the incentives of corporate decisionmakers at

[119] *Id.* at 10, 18.
[120] *Id.* at 8, 10.
[121] *Id.* at 8, 10.
[122] Sarahi Nunez et al., *Assessing the Impacts of Climate Change on Biodiversity: Is Below 2° C Enough?*, 154.3 CLIMATIC CHANGE 351, 352 (2019) (explaining why climate change poses a threat for biodiversity).
[123] *See* World Econ. F., Global Risks 2021: Fractured Future, (2021), http://reports.weforum.org/global-risks-report-2021/global-risks-2021-fractured-future/.
[124] Alan Rappeport, *Climate Change an 'Emerging Threat' to U.S. Financial Stability, Regulators Say,* N. Y. TIMES (Dec. 17, 2021), https://www.nytimes.com/2021/12/17/us/politics/climate-change-us-financial-threat.html.
[125] *See* Jeff Tollefson, *IPCC Says Limiting Global Warming to 1.5 °C Will Require Drastic Action*, 562 NATURE 172, 173 (2018) (summing up 2014 IPCC's main findings and reporting researchers' concern about the revised carbon budgets estimated by the IPCC released in 2014).
[126] Richard Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854–2010*, 122 CLIMATIC CHANGE 229, 236, 238 (2014).
[127] *Id.* at 237.
[128] *See* Political Economy Research Institute of University of Massachusetts Amherst, *supra* note 21.

carbon majors. This is especially important, given the disproportionate role that carbon majors play in accelerating global warming. Second, by targeting insiders' incentives, governance-based strategies could leverage upon the disaggregated information held by the insiders. While policymakers have an informational advantage when it comes to assessing the consequences of GHGs emissions, corporate insiders have superior information about their corporations, and hence can best decide which courses of action can mitigate the environmental impact of their company without jeopardizing profitability.

B. Macroeconomic Risk and Corporate Governance

Macroeconomic shocks are another impending threat for interconnected economies. Modern macroeconomics acknowledges that some key firms and sectors have a disproportionate impact on the level of macroeconomic risk to which the economy is exposed.[129] To put it differently, dual class companies have the ability to impose systemic externalities: think of the centrality, each in its own way, of Alphabet and Visa.

For instance, Acemoglu and co-authors highlight that sectoral shocks can generate sizable macroeconomic fluctuations when some industries are significantly more interconnected than others,[130] while Atalay find that "sectoral shocks are the primary source of GDP fluctuations."[131] The results of these studies are confirmed by Baqaee and Farhi, whose work shows that in the presence of input-output intersectoral linkages shocks to critical sectors can result in significant macroeconomic consequences.[132]

Many of these works build on an important concept, namely centrality.[133] In qualitative terms, centrality aims at capturing the importance of a node within a network, and hence in this case of a firm or sector within an economy. In mathematical terms there are many ways to calculate centrality, and thus its precise meaning depends on the formulation adopted. The most

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[129] *See, e.g.*, Xavier Gabaix, *The Granular Origins of Aggregate Fluctuations*, 79 ECONOMETRICA 733, 736 (2011) (showing that idiosyncratic shocks hitting the top 100 firms account for one third of GDP aggregate fluctuations).

[130] Daron Acemoglu et al., *The Network Origins of Aggregate Fluctuations*, 80 ECONOMETRICA 1977, 2004 (2012) (finding that "sizable aggregate fluctuations may originate from microeconomic shocks only if there are significant asymmetries in the roles that sectors play as direct or indirect suppliers to others.").

[131] Enghin Atalay, *How Important are Sectoral Shocks?*, 9 AM. ECON. J.: MACROECON. 254, 276 (2017).

[132] David Rezza Baqaee & Emmanuel Farhi, *The Macroeconomic Impact of Microeconomic Shocks: Beyond Hulten's Theorem*, 87 ECONOMETRICA 1155, 1156 (2019) (arguing and then proving that shocks to more connected sectors are likely to produce more serious aggregate consequences.).

[133] SANJEEV GOYAL, CONNECTIONS: AN INTRODUCTION TO THE ECONOMICS OF NETWORKS 16-20 (2012) (introducing various measures of centrality).

intuitive measure of the importance of a given node within a network is degree centrality.[134] The degree of a node indicates the number of connections that it has with other nodes. Thus, a sector with many direct connections—generally defined in terms of input-output relationships—with other sectors has a high degree centrality. However, this measure is not always sufficient to accurately describe a complex economy, and therefore economists usually rely on indicators that also account for indirect connections. From this perspective, a node is more central if it is connected with nodes that have more connections.[135] One of the most widely used centrality measures with this characteristic is eigenvector centrality.[136]

Ample empirical evidence confirms that sectors with higher eigenvector centrality cause larger spillovers onto other firms,[137] and are more likely to trigger macroeconomic fluctuations.[138] We suggest that corporate governance rules can play an important role also in this context. The first-best solution would certainly be having an omniscient and benevolent regulator to determine each corporation's optimal level of risk-taking via ex-ante regulation. However, regulators clearly lack the necessary information to craft such detailed and tailored regulations. Thus, a second-best solution is giving voice to corporate insiders who have incentives that are less misaligned with those of society at large.

C. Limits on Dual Class Shares for Key Firms

As noted in the two previous sections, shocks at some key firms can produce systemic consequences. A small number of carbon majors is having a disproportionate impact on climate change,[139] while some macroeconomic-central firms are responsible for a significant fraction of aggregate fluctuations.[140] Granting FVM founders the ability to control these systemically relevant firms, even with small stakes, might thus have obvious consequences for social welfare.[141] Therefore, we suggest that at these firms there should be some limitations on dual

[134] ID. at 16.

[135] Vasco M. Carvalho, *From Micro to Macro Via Production Networks*, 28 J. ECON. PERSP. 23, 36 (2014).

[136] *Id.* at 37 (discussing eigenvector centrality and some of its most popular variants like Google's PageRank algorithm).

[137] Daniel Aobdia, Judson Caskey, & N. Bugra Ozel, *Inter-Industry Network Structure and the Cross-Predictability of Earnings and Stock Return*, 19 REV. ACCOUNTING STUD. 1191, 1193 (2014) ("the association between central industries' ROA [Returns On Assets] changes and ROA changes of the industries they trade with is over two times greater than that of noncentral industries.").

[138] *See* Acemoglu, *supra* note 130, at 2004.

[139] *See supra* note 126-128 and accompanying text.

[140] *See supra* note 130-132 and accompanying text.

[141] To be sure, it would be the same or even worse if founders controlled these firms with larger cash-flow stakes, as they would be even more incentivised to maximize firm value. The point is that they could never retain

class shares which should reflect the degree of systemic relevance of the given dual class firm. In this Part, we discuss how this tailored regime could be implemented.

1. Carbon Majors

Relatively few firms are responsible for most emissions.[142] FVM shareholders have obvious incentives to be almost entirely oblivious about these externalities, whereas PVM shareholders have relatively strong incentives to mitigate the negative impact of carbon majors on the environment.[143] Thus, we suggest that the voting power of insiders with high voting shares should decrease when the firm is responsible for significant emissions.[144]

To understand how this should be done, consider that the current way of determining the voting power of the $i-th$ insider holding multiple voting shares in the $j-th$ firm is:

$$P_{i,j} = \frac{S_{i,j} * V}{T_j} \quad (1).$$

$P_{i,j}$ indicates the voting power of the insider, $S_{i,j}$ is the number of shares the $i-th$ insider holds in the $j-th$ firm, V is the votes per share[145] and T_j is the total number of votes that can be cast by all shareholders of that firm.

For instance, assume that an insider holds shares that carry 10 votes each, that she holds 10 shares, and that the total votes that can be cast (including the insider's) are 150, as there are 50 other shares with one vote each. Then, while the insider only holds 16.7% of the shares, according to (1) her voting power is 66.7%.

We argue that, for carbon majors, the formula should be corrected as follows:

control were they to go public without a dual class share structure: unless, that is, they keep the company small and therefore peripheral. *See supra* note 66 and accompanying text.

[142] *See supra* note 126-128 and accompanying text. *See* also Anna Christie, *The Agency Costs of Sustainable Capitalism*, 55 UC DAVIS L. REV. 875, 891 (2021) (reporting that a small number of corporations can be regarded as the "key corporate perpetrators of global warming")

[143] This is of course not to say that they have optimal incentives to internalize all climate externalities. *See* Roberto Tallarita, *The Limits of Portfolio Primacy*, 48 (August 9, 2021) https://ssrn.com/abstract=3912977 (noting that institutional investors' portfolio companies only internalize a fraction of climate externalities given that their effective impact would be limited on a global scale).

[144] To prevent that major emitters have incentives to remain private, a similar rule could be extended also to private companies who cause outsized emissions.

[145] The vast majority of dual class firms have a class of shares with one vote per share and a class of high voting shares with ten votes per share. *See supra* note 64-65.

$$P_{i,j} = \frac{S_{i,j} * V}{T_j * \left(1 + \alpha E_j\right)} \quad (2).$$

Here, E_j are the $j - th$ firm's CO_2 emissions divided by the total U.S. emissions of CO_2 and α is a parameter that allows the policymaker to decide at which rate the firm's emissions affect insiders' voting power. Note that this formula would apply *only* to the shares with extra voting power. For all other shares, the standard one share, one vote rule would apply.

Suppose that there are two companies, A and B, with insiders' shares and voting rights the same as in the example preceding formula (2). A is a major polluter,[146] so that $E_A = 0.012$, whereas B is an environmentally-friendly firm so that $E_A = 0.00001$. Suppose also that the regulator sets $\alpha = 200$. By applying formula (2) to the numbers in this example, we obtain that the voting power of the insider in A will be 19.6%. Instead, the voting power of the insider in B will not decrease by much as a consequence of our rule (66.5%).

In other words, this formula ensures that only insiders of firms that cause massive externalities (in the form of GHGs emissions) will have their voting power curbed. On the one hand, this ensures that PVM shareholders have a greater voice at these firms. On the other hand, this rule gives insiders incentives to curb emissions if they want to retain control over the corporation.

2. Macroeconomic-Central Firms

As noted in section IV.B, a number of empirical studies show that eigenvector centrality is a proxy for a firm's or a sector's ability to impose externalities and to have a systemic impact.[147] For this reason, we suggest that eigenvector centrality should be used to scale the voting power of insiders. Higher values of eigenvector centrality imply that the firm can impose larger externalities, and hence the voting power of FVM founders should be *ceteris paribus* smaller. Conversely, lower values of eigenvector centrality imply that a firm can only impose smaller externalities, and hence the voting power of FVM founders should be *ceteris paribus* larger in this case.

[146] An example of major emitter with dual class shares is Berkshire Hathaway, as it is the fourth company in U.S. in terms of CO_2 emissions (74,960,726 CO_2 equivalent metric tons or 1.1% of 2019 GHG emissions). *See* Political Economy Research Institute of University of Massachusetts Amherst, *supra* note 21.

[147] *See supra* note 129.

We suggest that formula (1) should be adapted for eigenvector-central firms as follows:

$$P_{i,j} = \frac{S_{i,j} * V}{T_j * \left(1 + \beta NE_j\right)}, \qquad (3)$$

where NE_j is the eigenvector centrality of the $j - th$ firm and β is a parameter that allows the regulator to decide at which rate firm centrality should affect voting power.[148] Like (2), this formula would apply *only* to the shares with extra voting power. For all other shares, the standard one share, one vote rule will apply.

The properties of (3) mirror those of (2). The more central the firm is in the economy, the more equity an insider needs to hold in order to retain control over it. Building on the previous example, consider the case of two firms, A and B. Assume that the regulator set $\beta = 1$, that A is peripheral, so that, e.g., $NE_A = 0.01$, whereas B is more central, so that $NE_B = 0.7$. The voting power of the insider in firm A would be equal to 60.6%. Because the firm is peripheral, and hence negative externalities are not a serious concern, the voting power of the insiders is not significantly constrained by our rule. In B the voting power of the insider would instead be equal to 39%. In this case, the voting power of the insider is drastically reduced, and she would no longer be able to cast the absolute majority of available votes. This would be because, due to its higher centrality, B can impose more relevant systemic externalities.

To be sure, for a number of peripheral firms a rule of this kind would also, at the margin, discourage FVM shareholders from controlling them because it would reduce their voting power as the firm becomes relatively more central. While we note that the effect is minimal because NE will approach zero for peripheral firms, a policymaker aiming to prevent this issue can identify a centrality threshold below which the proposed rule would not apply.

C. Combining Climate and Macroeconomic Externalities

The two approaches presented in section IV.C.1 and section IV.C.2 can be combined as follows:

[148] Note that if the goal is also not to discourage FVM shareholders from controlling peripheral firms, this formula should only apply to firms with a NE above a certain threshold.

$$P_{i,j} = \frac{S_{i,j} * V}{T_j * \left(1 + \alpha E_j\right) * \left(1 + \beta N E_j\right)}. \quad (4)$$

Therefore, a policymaker concerned about both climate change and macroeconomic risk can implement (4). By choosing the values of α and β, it can decide which goals to prioritize.

For instance, a policymaker that is particularly concerned with climate change will choose high values of α, while a policymaker interested in ensuring the stability of the economy will pick high values of β. Importantly, the values of α and β will also depend on the perceived severity of the anticompetitive problems allegedly caused by common ownership. A policymaker who prioritizes aggressive competition by firms led by FVM shareholders will choose lower values of α and β, whereas a policymaker who believes that common ownership is not negatively affecting the level of competition in product markets will select higher values.

IV. ADVANTAGES AND ANTICIPATED OBJECTIONS

In this Part, we discuss the possible advantages of our proposal and counter some objections that could be raised against it.

A. Advantages of our Proposal

The proposed solution presents a number of advantages. First, it can be tailored to the corporations' ability to impose systemic externalities. This ensures that there are limitations on private ordering only for those firms that externalize a large fraction of the costs associated with their activity and for which, hence, private ordering is bound to fail.

Second, our rule can be seen as a precious complement to public regulation. We have proposed targeting climate change and macroeconomic risk because they are massively consequential threats for which public regulation is clearly insufficient. Importantly, the scope of the rules we suggest can be either restricted—for instance, by excluding the climate change multiplier if an effective carbon tax is passed—or expanded to cover other systemic threats.

Third, our rule does not create a sharp cliff—and the associated moral hazard problem[149]—because marginal changes in the firm's ability to cause externalities go hand-in-hand with marginal changes in the insider's voting power.[150]

Fourth, our rule does not artificially tie the time-based sunset to the time of the IPO. Therefore, insiders of carbon majors like Warren Buffett, who want to retain control of the corporation because they believe in the value of their idiosyncratic vision, can do so by either lowering their company's emissions or by keeping the wedge between the equity voting and the voting interest below a certain threshold. Instead, insiders of macroeconomically central firms like Sergey Brin and Larry Page have limited control over the eigenvector centrality of their company because this indicator depends also on the interconnectedness of the firms to which their corporation is connected. Hence, insiders of firms who become increasingly central can only reduce the voting wedge in order to retain control of their corporation.

B. Possible Counterarguments

We now turn to the possible objections, starting with the view that corporate governance should not be one of the tools to tackle systemic externalities like climate change or macroeconomic risk.

1. "Corporate governance is not the right tool to tackle systemic externalities"

Beginning with climate change, our claim that corporate law should be among the tools to mitigate climate change rests on the following three pillars: (*i*) because no single measure in isolation can tackle climate change, a range of policy instruments all skewing the incentives of key decisionmakers towards greener policies is needed; (*ii*) even if some policies are in principle effective to some extent, policymakers have insufficient incentives to pass them, or to structure them optimally; and (*iii*) passing incremental green policies can help build social norms that favor the implementation of further policies aimed at mitigating climate change.

[149] *Supra* notes 110-112 and accompanying text.

[150] An alternative way of framing this difference is that time-based sunsets are "bumpy" because small (time) differences result in completely different legal outcomes. At the expiration date the insider will suddenly and totally lose control of the company. By contrast, our rule is "smooth," as marginal changes in circumstances only produce marginal changes in legal outcomes. For a discussion of bumpy and smooth rules, and the advantages of the latter *see* Adam J. Kolber, *Smooth and Bumpy Laws*, 102 CALIF. L. REV. 655, 657 (2014) (introducing the idea of "bumpy" laws), and Luca Enriques, Alessandro Romano & Thom Wetzer, *Network-Sensitive Financial Regulation*, 45 J. CORP. L. 351, 389-390 (2019) (discussing the disadvantages of bumpy rules in financial regulation).

Moreover, as we mention in section III.A, corporate law is uniquely situated to target precisely the incentives of decisionmakers at major polluters.

To begin with, thus far devised policies have shared two common traits: they are hard to pass and they are imperfect. Environmental protection and climate change mitigation are social norms that have not been internalized by a large fraction of the U.S. population,[151] and thus policymakers have limited incentives to pass effective and comprehensive reforms. Furthermore, a country implementing policies that cut emissions bears their full costs, but will only internalize a small fraction of the benefits.[152] Similarly, a significant share of the benefits of such policies will be enjoyed by future generations, while the costs are borne by present-day voters.[153] For these reasons, policymakers have suboptimal incentives to pass comprehensive policies that can curb GHG emissions. Political inertia thus stands in the way of effective regulatory solutions.[154]

But even putting the politics aside, global warming is a complex issue for which no policy can be a silver bullet. For the sake of brevity, we illustrate this point with reference to carbon pricing, a tool that has been heralded as an "indispensable" instrument to fight climate change.[155] Let us start here with carbon taxes, which is a form of carbon pricing particularly popular within policy circles.[156]

A carbon tax sets a price on carbon emissions "by defining a tax rate on greenhouse gas emissions or—more commonly—on the carbon content of fossil fuels."[157] Therefore, carbon

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[151] According to a recent survey by Yale and George Mason, only 58% of Americans are either concerned or alarmed about climate change. The rest of the population is either dismissive, doubtful, disengaged or cautious. *See* George Mason University Center for Climate Change Communication, *Global Warming's Six Americas: September 2021* (Jan. 12, 2022), https://www.climatechangecommunication.org/all/global-warming-six-americas-2021/.

[152] William D. Nordhaus, *Climate Change: The Ultimate Challenge for Economics*, 109 AM. ECON. REV. 1991, 2007 (2019) ("No single country has an incentive to cut its emissions sharply. Suppose that when country A spends $100 on abatement, global damages decline by $200. However, country A might get only $20 of the benefits, so it would tend to decline the responsibility.").

[153] *Id.* at 2007 (noting that "[t]here is a tendency for the current generation to ride free by pushing the costs of dealing with climate change onto future generations.").

[154] *See* also Anna Christie, *The Agency Costs of Sustainable Capitalism*, 55 UC DAVIS L. REV. 875, 897 (2021) (underlining the global political inertia to adequately tackle climate change and suggesting that "any progress that investors can make to mitigate corporate climate change damage would in itself be a valuable contribution to society")

[155] *See, e.g.*, High-Level Commission on Carbon Pricing, Report of the High Level Commission on Carbon Prices, 9-14 (2017), https://static1.squarespace.com/static/54ff9c5ce4b0a53decccfb4c/t/59b7f2409f8dce5316811916/1505227332748/CarbonPricing_FullReport.pdf (discussing the importance of carbon pricing and defining it "indispensable.").

[156] *See, e.g.*, Coral Davenport, *Carbon pricing becomes a cause for the World Bank and I.M.F.*, N. Y. TIMES (Apr. 24, 2016), https://www.nytimes.com/2016/04/24/us/politics/carbon-pricingbecomes-a-cause-for-the-world-bank-and-imf.html (reporting that the World Bank and the International Monetary Fund are asking governments to introduce carbon taxes).

[157] *See* WORLD BANK, https://www.worldbank.org/en/programs/pricing-carbon (last visited Jan. 1, 2022).

taxes increase the cost of carbon-intensive activities and products,[158] incentivizing both consumers and producers to shift toward more sustainable options.[159] Yet despite their virtues, carbon taxes also display the two traits described above. First, there has never been sufficient political momentum to implement this kind of device at a federal or state level.[160] And even the proposal currently under the consideration by the Biden administration would set a price way below the one suggested by leading studies on this issue.[161] Second, even if a carbon tax were to be passed, it would be no magic wand. Calculating the optimal value of the tax is complex,[162] and mistakes have serious consequences.[163] Excessively low values would induce insufficient reductions in emissions, whereas overly high values would have significant negative consequences in terms of resources allocation within the economy. Additionally, carbon taxes are likely to be regressive, as they hit the poorest households relatively more than the richest households.[164] To be sure, carbon taxes remain a valuable tool against global warming, but they cannot be expected to solve the problem alone.

Similar considerations also apply to the other form of carbon pricing, namely, cap-and-trade systems, which are not the ultimate solution either.[165] In a cap-and-trade system, the

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[158] LAWRENCE GOULDER & MARC HAFSTEAD, CONFRONTING THE CLIMATE CHALLENGE, 81 (2017) (comparing two different approaches to carbon pricing – carbon tax and cap-and-trade system – and arguing that a carbon tax will decrease consumers' demand by increasing the prices of carbon intensive products).

[159] *See* Gilbert E. Metcalf, *Designing a Carbon Tax to Reduce US Greenhouse Gas Emissions*, 3 REV. ENV'T. ECON. & POL'Y 63, 75-76 (2009) (claiming that "setting a clear price on emissions provides the impetus for emitters to begin to reduce emissions through process changes and investment" and that firms would set emissions "to the point where the marginal cost of emissions equals marginal abatement costs."). *See also* William D. Nordhaus, *To Tax or Not to Tax: Alternative Approaches to Slowing Global Warming*, 1 REV. ENV'T. ECON. & POL'Y 26, 30 (2007) (underlining that "[u]nder a price approach, the level of emissions is determined indirectly by the level of the tax or penalty levied on carbon emissions.").

[160] For a complete overview of carbon pricing methods adopted around the world and in the U.S. WORLD BANK, State and Trends of Carbon Pricing, 22 (2021), https://openknowledge.worldbank.org/handle/10986/35620 (last visited Jan. 1, 2022) (providing an up-to-date overview of worldwide available carbon pricing tools).

[161] Jennifer A. Dlouhy, *White House-Backed carbon Tax in Sight for Biden's Climate Bill*, BLOOMBERG (Nov. 6, 2021) https://www.bloomberg.com/news/articles/2021-11-06/white-house-backed-carbon-tax-in-sight-for-biden-s-climate-bill (reporting that "[t]he White House […] support[s] a proposal to impose an almost $20 per-ton fee on carbon as part of President Joe Biden's climate-and-spending legislation").

[162] *See* Nicholas Stern & Joseph E. Stiglitz, *The Social Cost of Carbon, Risk Distribution, Market Failures: An Alternative Approach* 7 (Nat'l Bureau Econ. Rsch., Working Paper No. 28472, 2021), https://www.nber.org/system/files/working_papers/w28472/w28472.pdf. (suggesting that standard methodologies used to assess the cost of carbon "may result in systematic bias, downplaying the importance of strong action on climate change and underestimating the social cost of carbon.").

[163] *Id.* at 1 (arguing that it is "extraordinarily important" that the social cost of carbon is calculated correctly).

[164] Tim Callan et al., *The Distributional Implications of a Carbon Tax in Ireland*, *37* ENERGY POL'Y 407, 407 (2009 (estimating that a carbon tax of [euro]20/tCO_2 would cost the poorest households less than [euro]3/week and the richest households more than [euro]4/week); *See* Metcalf, *supra* note 159, at 69-73 (discussing a mechanism that would neutralize the regressive effects of a carbon tax).

[165] For an overview of the most important environmental cap-and-trade regulations in U.S. *see* Richard Schmalensee & Robert N. Stavins, *The Design Of Environmental Markets: What Have We Learned From Experience With Cap And Trade*, 33.4 OXFORD REV. ECON. POL'Y 572, 573-581 (2017): (discussing six important environmental cap-and-trade regulations).

authority assigns emission allowances to each economic actor which it targets[166] and firms that reduce carbon emissions more efficiently are allowed to sell the spared amount—in the form of permits—to firms that cannot as easily reduce emissions.[167] Despite the potential appeal of this tool, cap-and-trade systems are very difficult to administer and present a heightened risk of fraud.[168] For instance, in 2011 the European Union Commission noted that $40 million in allowances had been stolen across various countries.[169] Most importantly, caps-and-trade systems remain confined to limited areas and sectors, having thus far had a limited impact.[170]

Accordingly, waiting for *the* optimal policy solution to climate change is like waiting for Godot,[171] and means foregoing the possibility of achieving significant reductions in GHG emissions in the meantime.[172] Additionally, passing smaller reforms can help shift norms on climate change. In fact, "hard pushes," that is, high-impact reforms, in addition to being harder to pass, are known to often backfire.[173] Conversely, "gentle nudges," or lower-impact reforms, can gradually produce a change in social norms, which in turn allows policymakers to pass more effective and comprehensive reforms.[174] Professor Dan Kahan gives a compelling example of this dynamic with respect to smoking. Over a few decades, smoking has gone from being unregulated and bearing connotations of "sophistication and virility,"[175] to becoming a heavily regulated "disgusting habit that onlookers should not be expected to tolerate."[176] This shift in social norms was favored by a series of incremental regulations, which gradually

[166] Lawrence H. Goulder, *Markets for Pollution Allowances: What are the (New) Lessons?*, 27 J. ECON. PERSP. 87, 87 (2013) (describing the development of cap-and-trade methods).

[167] LAWRENCE & HAFSTEAD, *supra* note 158, at 80. For an updated list of cap-and-trade mechanisms adopted on state level *see* Jason Ye, *U.S. State Carbon Pricing Policies* (last updated May 2021) https://www.c2es.org/document/us-state-carbon-pricing-policies/.

[168] Gilbert E. Metcalf, *On the Economics of a Carbon Tax for the United States*, 1 BROOKINGS PAPERS ON ECONOMIC ACTIVITY 405, 412 (2019) (noting that "[f]raud is a particularly significant problem in a system that is creating brand-new assets (emission allowances) worth billions of dollars).

[169] *Id*. at 413.

[170] Jessica F. Green, *Does Carbon Pricing Reduce Emissions? A Review of Ex-Post Analyses*, 16 ENV. RES. LETTERS 043004, 5 (2021) (surveying the literature on the effectiveness of carbon pricing and reporting that studies find a "quite small" effect ranging between zero and two percent for both carbon taxes and caps and trade).

[171] The colloquial expression "Waiting for Godot" originates from Samuel Beckett's play ("Waiting for Godot"), where the main characters, Vladimir and Estragon, wait for the arrival of someone named Godot, who is supposed to enlighten them about the meaning of life but eventually never comes.

[172] Elinor Ostrom, *Nested Externalities and Polycentric Institutions: Must We Wait for Global Solutions to Climate Change Before Taking Actions at Other Scales?*, 49 ECON. THEORY 353, 354 (2012) ("continuing to wait without investing in efforts at multiple scales may defeat the possibilities of significant abatements and mitigations in enough time to prevent tragic disasters.").

[173] Dan M. Kahan, *Gentle Nudges vs. Hard Shoves: Solving the Sticky Norms Problem*, 67 U. CHI. L. REV. 607, 609 (2000) (arguing that hard shoves are likely to prove a dead letter and could even backfire).

[174] *Id*. at 610-11 (detailing in a formal model how gentle nudges will reinforce themselves and slowly change social norms, which in turn allows to implement more ambitious gentle nudges).

[175] *Id.* at 626.

[176] *Id.* at 626.

implemented restrictions on smoking.[177] As noted by Kahan, had lawmakers attempted to pass a single comprehensive regulation including all these limitations they would have encountered enormous resistance, which might have produced unintended consequences.[178]

The situation with climate change is similar. Social norms on climate mitigation have not been fully internalized by populations at large. Hence sudden pushes for high-impact climate reforms could be ineffective and further polarize the discussion on climate change. On the contrary, gentle nudges can help shape social norms.

The case for using corporate governance to mitigate macroeconomic risk is even more straightforward. On the one hand, decisions on corporate risk-taking are arguably the core expertise of corporate insiders, and hence leveraging their knowledge by ensuring they have the right incentives is clearly desirable. On the other hand, crafting optimal regulations to mitigate risk taking by central firms is impossible. Central firms like Google are complex institutions operating across a wide range of markets. Hence policymakers do not have the degree of specialization that is required to intervene in their strategies without jeopardizing profitability. As a result, any regulation is bound to be imperfect, which is why giving voice to PVM shareholders who have incentives to internalize at least part of the systemic externalities might be the only viable solution.

2. Other Counterarguments

Another possible counterargument to our proposal is that it might give insiders incentives to "game" the indicator of macroeconomic centrality in order to preserve their voting power. For climate-central firms this is clearly not a concern because the only way to game the formula is by lowering emissions, which is exactly the intended goal of the rule. For macroeconomic-central firms gaming the indicator is far from easy. On the one hand, eigenvector centrality depends also on the extent of the connectedness of the firms to which the corporation is connected. Hence the insider has limited ability to manipulate this indicator. On the other hand, to the extent that an insider can game this indicator, it would have to artificially reduce the connections that the corporation has with its business partners. Such a strategy might have a

[177] *Id.* at 625-28.
[178] *Id.* at 626.

significant negative impact on the value of the corporation, and hence on the value of the insider's shares.

A more serious objection is that our rule is characterized by discretion and arbitrariness, just like mandatory time-based sunsets, because policymakers can arbitrarily set the values of α and β. While it is undeniable that policymakers have discretion in applying the rule we propose, such discretion pertains to factors on which policymakers have better information than firms' insiders. In fact, the values of α and β depend on the perceived severity of the threats posed by global warming, macroeconomic risk and common ownership. Policymakers are certainly in a much better position than firms' insiders to assess the consequences of global warming. Similarly, specialized regulators like the Federal Reserve and the Financial Stability Oversight Council are better informed about macroeconomic threats than firms' insiders.

On the contrary, the optimal length of mandatory time-based sunset rules depends on the specific characteristics of the firm, the market in which it operates, and on the residual value of the idiosyncratic vision of the insiders. It is extremely unlikely that policymakers will have better information than insiders on any of these factors. In other words, while our proposed rule also grants policymakers discretion, it does so on dimensions in regard to which they are likely to have an informational advantage over corporate insiders.

V. CONCLUSION

The debate on the pros and cons of dual class shares has always centered on the trade-off between allowing insiders to pursue their idiosyncratic vision and agency costs, and hence on within-firm dynamics. In this Article, we argue that there is more at stake once the importance of inter-firm dynamics is acknowledged. On the one hand, dual class companies can help mitigate the anticompetitive effects of common ownership, which provides a new justification for preserving the ability of firms to go public with dual class shares. On the other hand, some firms are capable of imposing systemic externalities that can contribute to global warming or macroeconomic risks. Dual class shares allow FVM shareholders that are oblivious to such externalities to leverage on the disproportionate voting power created by dual class shares in their favor and thus control much larger, and hence more likely systemically relevant, firms. Limitations on dual class shares can be justified to prevent such firms from inflicting systemic externalities. With this in mind, we have detailed a policy proposal that allows policymakers

to tailor the limits on dual class shares according to the specific ability of a given firm to impose systemic externalities.

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