The Journal of FINANCE
The Journal of THE AMERICAN FINANCE ASSOCIATION

THE JOURNAL OF FINANCE • VOL. , NO. 0 • MARCH 2026

The Voting Premium

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ABSTRACT

We develop a unified theory of blockholder governance and the voting premium in a setting without takeovers or controlling shareholders. A voting premium emerges when a minority blockholder can influence shareholder composition by accumulating votes and buying shares from dissenting shareholders. Our theory reconciles conflicting empirical findings by showing that standard measures of the voting premium often misrepresent the true value of voting rights, increased conflicts between the blockholder and small shareholders do not necessarily raise the voting premium, and the voting premium can even turn negative when small shareholders free-ride on the blockholder's trades.

VOTING IS A CENTRAL MECHANISM of corporate governance—it empowers shareholders of publicly traded companies to elect directors, approve major corporate transactions, and decide on environmental, social, and governance (ESG) policies. Most corporations have blockholders that are large enough to influence voting outcomes (La Porta et al. (1999), Edmans and Holderness

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DOI: 10.1111/jofi.70037

(2017), Dasgupta, Fos, and Sautner (2021), and Lewellen and Lewellen (2022)). Blockholders' accumulation of voting power can affect stock prices and give rise to a voting premium.

The asset pricing implications of control rights have been studied extensively. Theoretical literature following Grossman and Hart (1988) and Harris and Raviv (1988) attributes the voting premium almost exclusively to takeovers and control contests. This argument is puzzling, however, in light of a large empirical literature in this area. First, arguably, the most common measure of the voting premium—the dual-class premium—appears to be greatest in economies in which contests for majority control are rare, and it does not disappear when regulation requires equal treatment of nonvoting shares in takeovers.[1] Second, while prior work consistently finds a positive voting premium on *average*, many studies document negative voting premiums for some firms, which is difficult to explain in a model with bidding contests. Third, studies that estimate the voting premium by constructing nonvoting shares synthetically find that it is largest around shareholder meetings compared to other periods (e.g., Kalay, Karakas, and Pant (2014)), which highlights the importance of voting on proposals for the existence of a voting premium. Moreover, recent studies that estimate the voting premium based on fees in equity lending markets or price changes around record dates tend to find negligible values for voting rights, which contrasts with earlier literature and introduces yet another puzzle.

Overall, the gaps and conflicting conclusions above suggest that the theoretical underpinnings of the voting premium remain incomplete. To address these challenges, in this paper, we develop a unified theory of blockholder governance, ownership structure, and the voting premium. We study how and why a voting premium emerges in the absence of takeovers or controlling shareholders, which is the most relevant setting in most major economies.[2]

Specifically, we analyze a model with a continuum of small shareholders and one minority blockholder. The baseline model features one share, one vote. Shareholders first trade in a competitive stock market. Those who own shares after trading then vote on a proposal at a shareholder meeting. Shareholders observe a public signal about the quality of the proposal before they cast a vote, and the proposal is approved if enough votes are cast in favor. Shareholders differ in their attitudes toward the proposal—some are skeptical and need a lot of evidence to vote in favor, while others are more disposed toward the proposal and generally support it. The literature provides ample evidence of shareholder heterogeneity and its impact on voting behavior, which may arise from differences in beliefs or preferences, reflecting variation in, for example, environmental, social, and political ideologies, corporate governance philosophies,

[1] See our extensive discussion of the empirical literature in Section VI.

[2] Our framework also captures cases in which the firm has a controlling shareholder but the corporate governance policy requires the majority of minority shareholders to approve the proposal (Atanasov, Black, and Ciccotello (2011), Gözlügöl (2021)). Our analysis applies to such cases if we think of the shareholder base in our model as comprising all minority shareholders in such a setting.

attitudes toward management, ownership of other firms, investment horizons, tax status, and risk preferences.[3] The pervasive use of customized voting advice and the adoption of pass-through voting testify to the relevance of shareholder heterogeneity for voting decisions (Hu, Malenko, and Zytnick (2025)).[4]

In our framework, the composition of the shareholder base, voting outcomes, and asset prices are all endogenous. In equilibrium, the proposal is approved if the public signal about the proposal's quality exceeds a certain cutoff. Since shareholders are heterogeneous, the proposal is accepted too often from the point of view of some and rejected too often from the perspective of others. We refer to the shareholder who fully agrees with the decision rule implied by the cutoff as the "median voter." The median voter's identity completely characterizes the expected voting outcome. Importantly, the median voter can be either a small shareholder or a blockholder, with his identity determined by the composition of the shareholder base after trading. Hereafter, we use the term "median voter" interchangeably with "expected voting outcome."

The blockholder and small shareholders trade in anticipation of the expected voting outcome and its impact on their valuations. Shareholders' valuations differ because of their heterogeneous beliefs or preferences. Trading reallocates cash flow rights and voting rights across shareholders, since shares are bundles of both. Price-taking small shareholders trade only for cash flow reasons, that is, if the share price differs from their private valuations. By contrast, the blockholder can be pivotal for the voting outcome, so he may also purchase shares to influence it, that is, to push the median voter in his preferred direction.

The equilibrium share price has two components. The first component captures the market-clearing price in the hypothetical scenario in which all shareholders anticipate the decision rule that actually arises, but take it as exogenously given. This price would emerge if the trading of shares did not reallocate voting rights across shareholders, for example, if trade occurred after the record date, or if shares did not have voting rights. The second component of the stock price arises because the trading of shares reallocates voting rights across shareholders, moves the median voter, and thereby changes the value of shares for small shareholders. We refer to this term as the *voting premium* and show that it reflects the blockholder's net marginal payoff from buying one additional voting right.

[3] See Li, Maug, and Schwartz-Ziv (2022) on differences in beliefs, and the following studies on different sources of heterogeneity: Bolton et al. (2020), Bonnefon et al. (2025), and Kim, Ryou, and Yang (2020) on differences in environmental, social, and political ideologies; Bubb and Catan (2022), Matvos and Ostrovsky (2010), and Jackson and Zytnick (2023) on differences in corporate governance philosophies and attitudes toward management; Matvos and Ostrovsky (2008), He, Huang, and Zhao (2019), and Cvijanovic, Dasgupta, and Zachariadis (2016) on differences in portfolio ownership and conflicts of interest; Bushee (1998) and Gaspar, Massa, and Matos (2005) on differences in investor time horizons; Desai and Jin (2011) on differences in tax status. Hayden and Bodie (2008) provide an overview of different sources of shareholder heterogeneity.

[4] BlackRock, 2022, It's all about choice, Available at https://www.blackrock.com/corporate/newsroom/press-releases/article/corporate-one/press-releases/2022-blackrock-voting-choice.

Our theoretical definition of the voting premium has two appealing empirical counterparts. First, it captures the dual-class share premium. In an extension to a dual-class setting, we show that the price differential between voting and nonvoting shares reflects the blockholder's net marginal payoff from buying an additional voting right. Second, the voting premium captures the ex-record date price drop. An extension with a second round of trading shows that the difference between the share prices before and after the record date corresponds to the voting premium. While the expected voting outcome is the same at both moments in time, trading after the record date no longer reallocates voting rights for the next shareholder meeting. Both extensions relate our model to the empirical literature, but our definition of the voting premium is general and applies to single-class firms and to dates other than the record date.

We show that a positive voting premium can arise in equilibrium even though there are no takeovers in our model and the blockholder does not obtain majority control. Intuitively, as the blockholder buys more shares, he moves the median voter closer to himself, which helps align the expected voting outcome with his preferences. If the blockholder accumulates enough shares, he can even become the median voter himself. However, since voting rights are not traded separately from cash flow rights, this accumulation of voting power requires small shareholders to sell some of their shares. Their heterogeneous valuations create an upward-sloping supply function to the blockholder, which results in price impact.

The heterogeneous valuations further imply that those shareholders who disagree more strongly with the blockholder have lower reservation prices and hence sell disproportionally more shares to him. Thus, the blockholder's trades affect the median voter and the composition of the shareholder base in two ways: directly, by the blockholder accumulating more votes, and indirectly, by reducing the weight of small shareholders who are less aligned with him. The indirect effect amplifies the blockholder's impact on the voting outcome.

The blockholder's payoff from buying an additional vote is determined by his benefit from one additional voting right, net of the price impact of this additional purchase. If this price impact is significant, the blockholder optimally limits his accumulation of shares, in which case the net marginal payoff from an additional voting right, and hence the voting premium, is positive. Conversely, if price impact is moderate, the blockholder buys sufficiently many shares to become the median voter. Then, any further purchases would leave the voting outcome unchanged, so the net marginal payoff from an additional voting right, and hence the voting premium, is zero. Our model can therefore explain empirical studies that document a negligible voting premium (e.g., Christoffersen et al. (2007) and Fos and Holderness (2023)).

The case of a zero voting premium illustrates the general principle that the voting premium does not reflect the economic value of voting rights, because it captures only the blockholder's *marginal* value from an additional vote. In contrast, the blockholder's total value of voting rights reflects his *average* willingness to buy votes, which includes all the inframarginal trades from his initial endowment to his equilibrium ownership. In this respect, the voting premium often underestimates the value of voting rights. This observation is important for interpreting empirical findings, since some proxies for the voting premium measure the marginal value of a vote (e.g., dual-class share premium and price drop on record days), whereas others are more closely related to the average value of voting rights (e.g., dual-class tender-offer premium).

For the same reasons, the voting premium is not a good measure of voting power. Voting power is related to the blockholder's likelihood of being pivotal and swinging the voting outcome. However, an increase in the blockholder's voting power decreases his distance from the median voter and in turn his valuation of a marginal vote. Thus, in general, the magnitude of the voting premium is unrelated to the blockholder's voting power, with this relationship even turning negative when the blockholder becomes the median voter himself—at which point his voting power is large and the voting premium is zero. The voting premium therefore emerges not from the blockholder's accumulation of voting power, but rather from his indirect influence on the voting outcome through the composition of the shareholder base.

Our model can also rationalize the negative voting premium documented in some firms in most empirical studies. A negative voting premium may appear puzzling—after all, the benefit of a marginal vote to the blockholder is always positive, since the value of his stake increases if he moves the median voter toward himself. However, if the price impact of buying an additional vote is sufficiently large, the blockholder ends up buying fewer shares compared to a scenario in which shares do not have voting rights and the voting premium becomes negative. To see how this can arise, consider a scenario in which the blockholder opposes a management proposal, but small shareholders are even more strongly biased against this proposal than the blockholder himself. As the blockholder buys more shares, the proposal is less likely to be approved, increasing small shareholders' valuations. The price at which small shareholders supply shares therefore increases, as they free-ride on the blockholder's trades. This price impact can be so large that further purchases would increase the stock price even more than the blockholder's own valuation, inducing the blockholder to limit his purchases and giving rise to a negative voting premium.

The discussion above reflects the more general insight that the voting rights embedded in shares can either amplify or attenuate the price impact of trades. If the blockholder's trades move the median voter in the direction preferred by small shareholders, then his trades increase the price at which shares are supplied to the blockholder, in which case his price impact is amplified compared to a scenario in which shares do not have voting rights. However, if the blockholder is in conflict with small shareholders, then his trades push the median voter away from their desired point and reduce the price at which they are willing to sell, attenuating price impact. Overall, this argument implies that liquidity, if measured by price impact, is endogenous in our setting and generally differs between voting and nonvoting shares. The empirical literature sometimes attributes the negative voting premium noted above to the lower liquidity of superior voting shares.[5] In our model, the differential liquidity of voting and nonvoting shares arises endogenously from the impact of the blockholder's trades on small shareholders' valuations. It can therefore explain how a negative voting premium may arise.

The literature often associates the voting premium with conflicts between blockholders and minority shareholders, and hence sometimes uses it as a measure for private benefits of control. The idea is that a large voting premium may be associated with a lower payoff to small shareholders, since the blockholder uses his voting power to advance his agenda at the expense of others. We show that the relationship between the voting premium and conflicts between shareholders is more nuanced. If the preferences of small shareholders are skewed, or if a supermajority requirement exists, then a higher voting premium is associated with a higher payoff to both the blockholder and small shareholders. As a result, the voting premium is not always positively associated with the severity of conflicts between shareholders, and therefore probably not a good measure of such conflicts.

We extend the model along several dimensions to shed light on additional questions. First, we analyze a setting in which voting rights are traded separately, for example, through share lending, and show that the price of a separately traded vote can be zero even if the voting premium for a share in which voting and cash flow rights are combined is strictly positive. Thus, the price of a traded vote and the voting premium are conceptually different and the former cannot help measure the latter. Second, we allow shareholders to trade after the vote and show that shareholders' concerns about post-vote trading profits can affect the voting premium by affecting voting incentives. Third, we introduce multiple blockholders and show that competition between homogeneous blockholders can decrease the voting premium, while a conflict between heterogeneous blockholders can increase it. Fourth, in an extension incorporating a proxy advisor, we show that the voting premium can become zero if some shareholders blindly follow the proxy advisor's recommendations. Fifth, we consider an alternative decision-making process whereby managers, instead of shareholders, decide on the proposal, and managers consider the preferences of post-trade shareholders. While details differ, the properties of the decision rule, the share price premium, and its decomposition are similar to those in the baseline model, which suggests that our conclusions generalize to decision-making processes other than voting. Finally, we study passive investors, who vote but do not actively trade, and we show that their presence has important effects on the blockholder's ability to change the median voter and, in turn on the voting premium.

After concluding our theoretical analysis, in Section VI, we consider implications of our results for the large number of empirical studies on the

[5] Neumann (2003), Odegaard (2007), and Broussard and Vaihekoski (2022) explain their observations of a negative voting premium by liquidity differences between voting and nonvoting shares. Porras Prado, Saffi, and Sturgess (2016) show that voting shares have higher limits to arbitrage than nonvoting shares.

voting premium. In particular, we distinguish six methodologies used to measure the voting premium and discuss interpretations of the time-series and cross-sectional variation in the voting premium in light of our model.

Overall, our paper makes three contributions. First, it examines trading between small and large shareholders and the ownership structure of the firm in a context in which blockholders affect voting outcomes without majority control. Second, it contributes to our understanding of asset prices by showing how a voting premium emerges when blockholders can increase their influence through securities in which cash flow rights are bundled with voting rights. Third, it provides guidance to the empirical literature by showing how different proxies for the voting premium are related and why they may be different from each other.

This paper is organized as follows. Section I reviews the related literature. Section II presents the model, and Section III solves for the equilibrium. Section IV presents the main results on the voting premium, while Section V considers extensions of the baseline model. Section VI discusses the empirical implications. Section VII concludes.

I. Discussion of the Literature

We contribute a new theory of the value of voting rights. The primary approach in the literature, pioneered by Grossman and Hart (1988) and Harris and Raviv (1988), considers settings with control contests of firms with dual-class shares. In this approach, rival bidders and incumbent managers differ in their ability to generate cash flows that are shared by all shareholders and in their valuation of private benefits from controlling the firm. Bidders compete for control and pay a premium to the holders of the voting shares.[6] Studies in this literature explore a range of alternative settings, including different types of admissible bids, variation in the ability to extract private benefits, settings without a free-rider problem, and frictions from asymmetric information.[7] Moreover, some studies consider deviations from the one share, one vote principle through trading in derivatives rather than in nonvoting shares (e.g., Blair, Golbe, and Gerard (1989), Kalay and Pant (2010), Dekel and Wolinsky (2012), Burkart and Lee (2015)). Independent of the details, a wide range of settings give rise to a voting premium in a bidding contest. Our theory contributes to this literature by showing how a voting premium emerges without takeovers and control contests. The critical point of departure

[6] Burkart and Lee (2008) survey theoretical work on the role of the security-voting structure and the control premium in the context of takeovers.

[7] See Vinaimont and Sercu (2003) and Dekel and Wolinsky (2012) for types of admissible bids. For papers with variation in the party that has private benefits, see Bergström and Rydqvist (1992) (no party), Grossman and Hart (1988) (one party), and Vinaimont and Sercu (2003) and Burkart, Gromb, and Panunzi (1998) (both parties). See Bergström and Rydqvist (1992) for a setting without a free-rider problem and Burkart and Lee (2015) for a setting with asymmetric information. Some empirical contributions also include modeling efforts to motivate specific empirical analyses (e.g., Zingales (1995) and Rydqvist (1996)).

is the way in which the blockholder's (respectively, bidder's) higher willingness to pay translates into a higher stock price. In control contests, competition among bidders or the free-rider problem force bidders to pay a higher price (see Bergström and Rydqvist (1992) and Zingales (1995) for similar observations). However, neither mechanism is present in our model, which does not feature majority control. Instead, in our setting the blockholder's trades move the median voter and shift the upward-sloping supply curve of small shareholders by affecting their reservation prices.[8] This may give rise to a positive voting premium even if the blockholder does not acquire majority control, and a negative voting premium may result if this supply curve is sufficiently steep.

A complementary literature analyzes a market in which votes trade separately from shares.[9] While these papers differ significantly in terms of both settings and conclusions, they consistently find that the value of separately traded votes is negligible, because either small shareholders value votes in proportion to their probability of being pivotal (Neeman and Orosel (2006), Brav and Mathews (2011), Speit and Voss (2020), Speit, Voss, and Danis (2023)) or uninformed shareholders would like their votes to be picked up and cast by informed shareholders (Esö, Hansen, and White (2014)).[10] Our extension to a separate market for votes emphasizes that the price of a vote that is traded in conjunction with cash flow rights is different from the price of a vote traded separately—the former can be positive even though the latter is zero. Our focus on the voting premium also distinguishes our paper from a complementary study by Speit, Voss, and Danis (2023), who focus on the decoupling of voting and cash flow rights and show that separating votes from cash flows through equity lending is different from separating votes from the exposure to cash flows through hedging in derivatives markets.

The only approach that has derived a significant voting premium without control contests is that of Rydqvist (1987), who builds on Milnor and Shapley (1978) and introduces the notion of an oceanic Shapley value to the analysis of dual-class shares. The critical step here is that the ocean of atomistic shareholders can *collectively* become pivotal and thus value their voting power. However, this raises the question of how atomistic shareholders resolve their collective action problem. In our setting, each small shareholder maximizes only his individual payoff.

Our paper also contributes to the literature on the equilibrium ownership structure of firms and the analysis of blockholders. The vast majority of this

[8] An upward-sloping supply curve is also present in the takeover models with majority control of Stulz (1988) and Burkart, Gromb, and Panunzi (1998, 2006).

[9] This literature is motivated largely by concerns about the incentives created by decoupling votes from cash flow rights ("empty voting") triggered by Hu and Black (2007, 2015).

[10] These papers focus on vote trading by investors of a company. In the context of dynamic group decision-making, Garlappi, Giammarino, and Lazrak (2017, 2022) analyze how trading of votes (or shares) among group members can alleviate inefficiencies from differences in beliefs. A related literature in political science examines how vote trading allows agents with a higher intensity of preferences to buy votes from those who care about the decision less (e.g., Casella, Llorente-Saguer, and Palfrey (2012)).

literature considers the effects of blockholders through direct interventions ("voice") and trading ("exit").[11] By contrast, in our setting the blockholder exercises influence by affecting the identity of the median voter. This is empirically important because many blockholders—notably, financial institutions—rely on voting to influence firms' policies.[12] Moreover, we emphasize that by trading, the blockholder affects voting outcomes not only by accumulating additional voting rights, but also by changing the composition of the shareholder base as he buys shares from those investors who disagree with him the most.[13] Effectively, the market for voting shares helps shareholders coordinate through trading—a mechanism that can complement explicit coordination, as analyzed by Brav, Dasgupta, and Mathews (2022), Doidge, Dyck, and Yang (2021), and Pi (2020). Dhillon and Rossetto (2015), Bar-Isaac and Shapiro (2020), Meirowitz and Pi (2022), and Pinnington (2023) also consider blockholder models with voting, but distinct from our paper, they do not study the voting premium but instead focus on the effects of blockholders on firm risk-taking or information aggregation. Zwiebel (1995) applies cooperative game theory to study how a blockholder structure emerges endogenously, but does not derive implications for the voting premium.

More broadly, our paper is related to an earlier literature on the existence of equilibrium and the objectives of the firm in a context with incomplete markets and shareholders with heterogeneous preferences.[14] In particular, Drèze (1985) and DeMarzo (1993) develop models with the board of directors as a group of controlling blockholders. We contribute to this literature by analyzing the voting premium and a richer characterization of the interplay between small shareholders and blockholders. This also distinguishes our paper from Levit, Malenko, and Maug (2024), who analyze trading and voting by atomistic shareholders, that is, a setting in which the voting premium does not arise.

II. Model

Consider a publicly traded firm that is initially owned by a continuum of measure one of small shareholders and one large blockholder. We use the assumption of atomistic small shareholders to account not only for retail investors but also for small institutions that likely have no meaningful strategic

[11] See Admati, Pfleiderer, and Zechner (1994), Bolton and von Thadden (1998), Kahn and Winton (1998), and Maug (1998) for earlier contributions to the "voice" literature, and Admati and Pfleiderer (2009), Edmans (2009), and Edmans and Manso (2011) for the "exit" literature. See the surveys of Edmans (2014), Edmans and Holderness (2017), and Dasgupta, Fos, and Sautner (2021) for more recent work and further details.

[12] See McCahery, Sautner, and Starks (2016). Our paper therefore contributes to the broader literature on corporate voting (e.g., Maug and Rydqvist (2009), Levit and Malenko (2011), Van Wesep (2014), Malenko and Malenko (2019) Zachariadis, Cvijanovic, and Groen-Xu (2020)).

[13] In this respect, our paper is also related to Huang and Thakor (2013), who show that managers can use stock repurchases to buy out investors with whom they disagree.

[14] See Gevers (1974), Drèze (1985), DeMarzo (1993), and Kelsey and Milne (1996).

impact on either voting outcomes or stock prices.[15] The blockholder is endowed with $\alpha \in (0, 1)$ shares, and each small shareholder is endowed with $1 - \alpha$ shares, so the total number of outstanding shares is equal to one.[16] In the baseline setting, each share has one vote. There is a proposal on which shareholders vote. The proposal can relate to director elections, mergers and acquisitions (M&As), executive compensation, corporate governance, or social and environmental policies. The proposal can be either approved ($d = 1$) or rejected ($d = 0$).

Preferences. Shareholders' preferences over the proposal depend on two factors, which reflect a common value and private values. The common-value component depends on an unknown state $\theta \in \{-1, 1\}$: if $\theta = -1$ ($\theta = 1$), accepting the proposal is value-decreasing (increasing). In other words, the common value is maximized if the policy matches the state ($d = 1$ if $\theta = 1$), as is commonly assumed in the strategic voting literature (e.g., Austen-Smith and Banks (1996) and Feddersen and Pesendorfer (1996)).

Shareholders also have private values from the proposal, which reflect heterogeneity in their preferences or beliefs, as we discuss below. For simplicity, we refer to these private values as biases and denote them by b. A shareholder with bias $b > 0$ ($b < 0$) receives additional (dis)utility if the proposal is accepted. The distribution of biases b among the initial small shareholders is given by a publicly known, twice-differentiable cumulative distribution function (cdf) G, which has full support with positive density function g on $[-\bar{b}, \bar{b}]$, where $\bar{b} \in (0, 1)$. We offer a more detailed discussion of shareholder heterogeneity at the end of this section.

The value of a share from the perspective of a small shareholder with bias b is

$$v\big(d, \theta, b\big) = v_0 + \big(\theta + b\big)d, \tag{1}$$

where $v_0 > 0$ is large enough to ensure that shareholder value is always nonnegative. Shareholders apply different hurdle rates for accepting the proposal: A shareholder with bias b would like the proposal to be accepted if and only if his expectation of $\theta + b$ is positive. We refer to shareholders with a higher b as being "more activist."

The blockholder's preferences have the same structure as those of small shareholders, except that his bias is $\beta \in [-\bar{b}, \bar{b}]$. Thus, the value of a share from the perspective of a blockholder is $v\left(d, \theta, \beta\right)$.

Timeline. All shareholders are initially uninformed about the state θ and have the same prior about its distribution, which we specify below. Shareholders first trade and then vote on the proposal. This timing allows us to focus on how trading affects the composition of the voter base, which is crucial for the

[15] Lewellen and Lewellen (2022) show that institutional ownership in their sample of U.S. firms over 2015 to 2017 is 73.7% on average, of which 45.3% falls on institutional blocks smaller than 3%, and 31.5% falls on institutional blocks smaller than 1% (see their table 2).

[16] In Section III.M of the Internet Appendix, we show that our main results also hold for $\alpha = 0$. The Internet Appendix is available in the online version of the article on *The Journal of Finance* website.

analysis of the voting premium. At the trading stage, each small shareholder can buy any number of shares x, where $x < 0$ corresponds to the shareholder selling shares. A small shareholder's utility from buying x shares given his endowment $1 - \alpha$ is

$$u\big(d, \theta, b, x; \gamma, 1 - \alpha\big) = (1 - \alpha + x)v\big(d, \theta, b\big) - \frac{\gamma}{2}x^2, \quad (2)$$

where $\gamma > 0$ captures trading frictions, such as illiquidity, transaction costs, or wealth constraints, which limit shareholders' ability to build large positions in the firm (e.g., as in Vives (1993)).[17] Since the mass of investors is finite and $\gamma > 0$, our model features limits to arbitrage. We assume

$$\gamma > \overline{\gamma}, \quad (3)$$

where $\overline{\gamma} < \infty$ is formally defined at the beginning of the Appendix. Assuming that γ is sufficiently large guarantees several useful properties of the model, which we discuss below.

Similarly, the blockholder can trade any number of shares y, and his utility from buying y shares is $u\left(d, \theta, \beta, y; \eta, \alpha\right)$, where $u(\cdot)$ is given by (2) and $\eta \geq 0$ captures the blockholder's trading costs. All results hold for $\eta = 0$. While small shareholders are price takers, the blockholder trades strategically, accounting for his expected price impact. For simplicity, we assume that the blockholder submits his order y first, and small shareholders observe y and submit their orders next. In effect, small shareholders can condition their trades on y, which can be interpreted as these shareholders submitting limit orders.[18]

We denote the market-clearing share price by p. After the market clears, but before voting takes place, all shareholders observe a public signal about the state θ, which may stem from disclosures by management, proxy advisors, or analysts.[19] Let $q = \mathbb{E}[\theta|\text{ public signal}]$ be shareholders' posterior expectation of the state following the signal. For simplicity, we assume that the public signal is q itself, and that q is distributed according to cdf F with mean zero and full support with a positive, twice-differentiable density function f on $[-\Delta, \Delta]$, where $\Delta \in \left(\overline{b}, 1\right)$. Thus, the ex ante expectation of θ is zero. The symmetry of the support of q around zero is not necessary for any of the main results. In what follows, we refer to $H(q^*) \equiv \Pr[q > q^*]$, rather than to the cdf.

After observing the public signal q, each shareholder votes the shares he owns after the trading stage. We therefore assume that the record date, which determines who is eligible to participate in the vote, follows the trading stage.

[17] Since each small investor has zero mass, his trade x and endowment $1 - \alpha$ are infinitesimal quantities. With a slight abuse of notation, $1 - \alpha$ also denotes the total endowment held by small investors.

[18] Equation (35) shows that for γ large enough, the market-clearing price is monotonic in y. Thus, whether the limit order is conditioned on the price or on the blockholder's trade is immaterial for our analysis.

[19] In practice, proxy advisors' recommendations (and management's response) are released on average about one month after the vote record date. See, for example, figure 1 in Li, Maug, and Schwartz-Ziv (2022).

This timeline applies well to important votes, such as votes on M&As, proxy fights, and high-profile shareholder proposals, which are typically known well ahead of the record date. The proposal is accepted if at least fraction $\tau \in (0, 1)$ of all shares are cast in favor; otherwise, the proposal is rejected. We assume that $\alpha < \min\{\tau, 1 - \tau\}$. As we show in Lemma IA.2 of the Internet Appendix, this guarantees that if $\gamma > \overline{\gamma}$, then in equilibrium the blockholder does not have the power to veto or accept the proposal unilaterally. This lemma also shows that if $\gamma > \bar{\gamma}$, then neither small shareholders nor the blockholder find it optimal to short sell in equilibrium.

We analyze subgame perfect Nash equilibria in undominated strategies of the voting game. The restriction to undominated strategies is common in voting games, which usually impose the equivalent restriction that small shareholders vote as if pivotal.[20] This implies that an investor with bias b, whether he is a small shareholder or the blockholder, votes in favor of the proposal if and only if

$$b + q \geq 0. \tag{4}$$

A. Discussion of Assumptions

This section discusses some of the key assumptions of our model and provides microfoundations for them.

On shareholder heterogeneity, our modeling strategy follows prior literature in using heterogeneity to generate a downward-sloping demand function for shares (e.g., Stulz (1988)). This assumption is supported by the empirical literature, which shows that shareholders differ in their beliefs or preferences (see footnote 3) and documents heterogeneity among retail investors (Jackson and Zytnick (2023)), among mutual funds (Bolton et al. (2020), Bubb and Catan (2022)), and between these two groups (Zytnick (2024)). Assuming shareholder heterogeneity is also attractive because it helps explain the large trading volume around shareholder meetings and the disassociation between trading volume and return volatility (Li, Maug, and Schwartz-Ziv (2022)). In Section II of the Internet Appendix, we develop four microfoundations to study some sources of heterogeneity in more detail and show how they can be mapped into our model: (i) differences in beliefs ("sentiment") about the value of the proposal, which shows that our model can accommodate differences of beliefs just as well as differences in preferences, and parameters b and β can be interpreted in both ways; (ii) heterogeneous time horizons, which builds on the literature on short-termism and considers investors who vote between a short-termist activist and a long-termist incumbent manager; (iii) differences arising from private benefits of control, where the blockholder can dilute the assets of the firm if the proposal is approved, which leads him to favor the proposal relative to small shareholders ($\beta > b$); and (iv) differences arising from costly monitoring of management by the blockholder.

[20] See, for example, Baron and Ferejohn (1989) and Austen-Smith and Banks (1996). This restriction helps rule out equilibria in which shareholders are indifferent between voting for or against because they are never pivotal.

Our model abstracts from private information and strategic voting considerations that may arise with a finite number of small shareholders. However, our model of the voting stage can be seen as a limiting case of a model with a finite number of privately informed shareholders. Specifically, Feddersen and Pesendorfer (1997) study strategic voting with finitely many voters, heterogeneous preferences, and private information. They show that the fraction of voters who vote strategically based on their information goes to zero as the number of voters approaches infinity. In the limit, almost all voters ignore their private information and vote based on their preferences, and yet the voting outcome is the same as if all private information were common knowledge. Thus, this limit outcome aligns with the equilibrium outcome of a model with a continuum of voters, heterogeneous preferences, and voters who vote "as if pivotal" based on public information, which is the voting stage of our model.

III. Equilibrium

We begin by showing that for any trading outcome, proposal approval at the voting stage takes the form of a cutoff decision rule.

LEMMA 1: *In any equilibrium, there exists q^* such that the proposal is approved if and only if $q > q^*$.*

The reason is that all shareholders value the proposal more if it is more likely to be value-increasing, that is, if $\theta = 1$ is more likely.

We proceed in several steps. First, for any possible blockholder's trade y, Sections III.A and III.B characterize the trading of small shareholders and the voting stage as a function of y. In Section III.C, we solve for the optimal trade, y^*, and for the equilibrium share price.

A. Trading of Small Shareholders

Given Lemma 1, suppose that small shareholders expect the proposal to be accepted if and only if $q > q_e^*$ for some cutoff q_e^* (we later derive the equilibrium cutoff such that shareholders' expectations are rational). Let $v\left(b, q_e^*\right)$ denote the valuation of a shareholder with bias b prior to the realization of q, as a function of the cutoff q_e^*. Then

$$v\left(b, q_e^*\right) = \mathbb{E}\left[v\left(\mathbf{1}_{q>q_e^*}, \theta, b\right)\right], \tag{5}$$

where the indicator function $\mathbf{1}_{q>q_e^*}$ equals one if $q > q_e^*$ and zero otherwise, and $v\left(d, \theta, b\right)$ is defined by (1). We can rewrite (5) as

$$v\left(b, q_e^*\right) = v_0 + \left(b + \mathbb{E}\left[\theta | q > q_e^*\right]\right) H\left(q_e^*\right), \tag{6}$$

which increases in b. Notice that $v\left(b, q_e^*\right)$ is a hump-shaped function of q_e^* with a maximum at $q_e^* = -b$, that is, the shareholder's valuation decreases in the distance between his bias and the expected decision rule q_e^*.

Small shareholders are price takers, so for any price p, a small shareholder solves

$$\max_x \left\{(1-\alpha+x)v\left(b,q_e^*\right)-xp-\frac{\gamma}{2}x^2\right\} \tag{7}$$

and optimally chooses

$$x\left(b,q_e^*,p\right)=\frac{v\left(b,q_e^*\right)-p}{\gamma}. \tag{8}$$

Thus, shareholder b buys shares if his valuation exceeds the market price, $v\left(b,q_e^*\right)>p$, sells shares if $v\left(b,q_e^*\right)<p$, and does not trade otherwise. Given the blockholder's order y, the market clears if and only if

$$\int_{-\bar{b}}^{\bar{b}} x\left(b,q_e^*,p\right)g\left(b\right)db+y=0, \tag{9}$$

which gives the market-clearing price

$$p^*\left(y,q_e^*\right)=\gamma y+v\left(\mathbb{E}\left[b\right],q_e^*\right). \tag{10}$$

The equilibrium share price increases in y, and the price impact of the blockholder's trade increases in γ. We can therefore interpret γ as measuring the illiquidity of the market, that is, the inverse of γ reflects market depth. In addition, the share price (10) increases in the valuation of the average small shareholder. Intuitively, if small shareholders' valuations (conditional on q_e^*) are higher, they are willing to supply shares to the blockholder only at a higher price.

From (6), (8), and (10), small shareholders' demand as a function of the blockholder's trade can be written as

$$x\left(b,y,q_e^*\right)=\frac{1}{\gamma}\left(b-\mathbb{E}\left[b\right]\right)H\left(q_e^*\right)-y. \tag{11}$$

The Post-Trade Ownership Structure. After the trading stage, the blockholder owns $\alpha+y$ shares, a small shareholder with bias b owns $1-\alpha+x\left(b,y,q_e^*\right)$ shares, and all small shareholders collectively own $1-\alpha-y$ shares. Thus, the proportion of shares owned post-trade by small shareholders with bias b, conditional on the expected decision rule q_e^* and blockholder's trade y, is given by

$$r\left(b;y,q_e^*\right)\equiv g\left(b\right)\frac{1-\alpha+x\left(b,y,q_e^*\right)}{1-\alpha-y}. \tag{12}$$

Note that $r\left(b;y,q_e^*\right)$ is a density function, that is, $\int_{-\bar{b}}^{\bar{b}} r\left(b;y,q_e^*\right)db=1$. Thus, the post-trade preferences of small shareholders are distributed according to cdf $R\left(b; y, q_e^*\right)$ given by

$$R\left(b'; y, q_e^*\right) = \int_{-\bar{b}}^{b'} r\left(b; y, q_e^*\right) db$$
$$= G\left(b'\right)\left(1 - \frac{\mathbb{E}\left[b\right] - \mathbb{E}\left[b|b < b'\right]}{\gamma} \frac{H\left(q_e^*\right)}{1 - \alpha - y}\right), \tag{13}$$

where the second equality follows from (11) and (12). The cdf R characterizes the post-trade small-shareholder base, whereas G characterizes the pre-trade small-shareholder base. Note that $R\left(b\right) < G\left(b\right)$ for any b, that is, R dominates G in the sense of first-order stochastic dominance. Hence, trading shifts the shareholder base in such a way that more activist shareholders own a larger proportion of the firm after trading. Moreover, $R\left(b'; y, q_e^*\right)$ increases in q_e^*, and thus a more activist decision rule (lower q_e^*) makes the post-trade shareholder base more activist. Intuitively, shareholders' heterogeneous attitudes toward the proposal create gains from trade, so the shareholder base moves in the direction of the expected outcome.

B. Voting

The composition of the post-trade shareholder base determines the voting outcome. We first analyze the votes of small shareholders. Denote by $s\left(q; y, q_e^*\right)$ the number of votes cast by small shareholders in favor of the proposal if signal q is realized, the blockholder traded y shares, and the expected decision rule is q_e^*. Then

$$s\left(q; y, q_e^*\right) \equiv (1 - \alpha - y)\left(1 - R\left(-q; y, q_e^*\right)\right), \tag{14}$$

which is the number of shares held by small shareholders, $1 - \alpha - y$, multiplied by the proportion of small shareholders for whom $b > -q$.

The blockholder is pivotal for the outcome when his vote sways the decision on the proposal, which only happens if at least $\tau - (\alpha + y)$ but no more than τ small shareholders vote to support the proposal, that is, if and only if

$$\tau - (\alpha + y) \leq s\left(q; y, q_e^*\right) < \tau. \tag{15}$$

Otherwise, if $s\left(q; y, q_e^*\right) < \tau - (\alpha + y)$ ($s\left(q; y, q_e^*\right) \geq \tau$), the proposal fails (succeeds) independently of the vote of the blockholder. From (14), the support of small shareholders is increasing in the signal q. Define the bounds $\underline{q} \equiv s^{-1}\left(\tau - \alpha - y; y, q_e^*\right)$ and $\overline{q} \equiv s^{-1}\left(\tau; y, q_e^*\right)$. Then the blockholder is pivotal if and only if the signal is in the intermediate range, $q \in [\underline{q}, \overline{q})$. If $q < \underline{q}$ ($q \geq \overline{q}$), small shareholders' support for the proposal is so low (high) that the proposal fails (succeeds) even if the blockholder supports (rejects) it.

We describe the voting outcome by characterizing the identity of the *median voter*, who we define as the shareholder whose individual vote coincides with the collective decision on the proposal for every possible realization of the

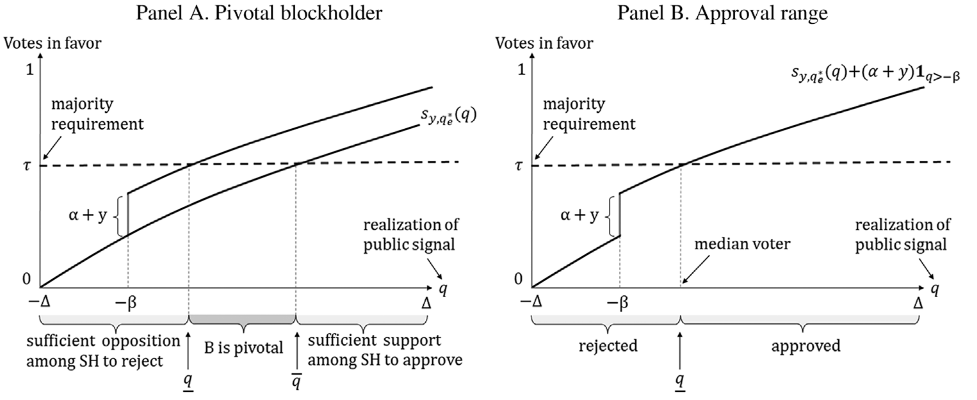

Figure 1. The median voter.

signal q. In other words, whenever the median voter votes in favor (against), the proposal is accepted (rejected).

Let $b_{MV}\left(\beta, y, q_e^*\right)$ denote the bias of the median voter if the expected decision rule is q_e^*, the blockholder traded y shares, and his bias is β. There are three possible cases, which together define $b_{MV}\left(\beta, y, q_e^*\right)$.

- (i) If $\beta \geq -\underline{q}$, the blockholder is strongly activist and supports the proposal whenever he is pivotal. The proposal is accepted if and only if $s\left(q; y, q_e^*\right) + \alpha + y \geq \tau$, that is, whenever $q \geq \underline{q}$. Hence, the proposal passes if and only if the small shareholder with bias $b = -\underline{q}$ votes in favor. This shareholder is then the median voter, that is, $b_{MV}\left(\beta, y, q_e^*\right) = -\underline{q}$.
- (ii) If $\beta \leq -\overline{q}$, the blockholder has a large bias against the proposal and votes against whenever he is pivotal. The proposal is accepted if and only if $s\left(q; y, q_e^*\right) \geq \tau$, that is, whenever $q \geq \overline{q}$. Hence, it passes if and only if the small shareholder with bias $b = -\overline{q}$ votes in favor. This shareholder is then the median voter, that is, $b_{MV}\left(\beta, y, q_e^*\right) = -\overline{q}$.
- (iii) If $-\bar{q} < \beta < -\underline{q}$, the blockholder is pivotal if $q \in [\underline{q}, \overline{q})$ and votes in favor if and only if $q \geq -\beta$. The proposal is therefore accepted if and only if the blockholder votes in favor, so the blockholder is the median voter, that is, $b_{MV}\left(\beta, y, q_e^*\right) = \beta$.

We conclude that if shareholders anticipate decision rule q_e^* when trading, then the decision rule at the voting stage is characterized by the three cases above. The first case is illustrated in Figure 1, which plots the number of votes in favor of the proposal as a function of the signal q. Panel A indicates the range in which the blockholder is pivotal; Panel B indicates the approval range and the location of the median voter. Note that while a small shareholder is never pivotal in our setting since he is atomistic, he can often be the median voter.

For example, in Figure 1, the blockholder is extreme and the median voter is a small shareholder closer to the center of the distribution.

In equilibrium, shareholders' expectations q_e^* must be consistent with the actual decision rule. Hence, an equilibrium can be found as a fixed point of q_e^*, such that $-b_{MV}\left(\beta, y, q_e^*\right) = q_e^*$, where $b_{MV}\left(\beta, y, q_e^*\right)$ is defined by the three cases above. Using this logic, the equilibrium at the voting stage is characterized as follows.

PROPOSITION1 (Voting stage): *If the blockholder trades y shares, then the proposal is approved if and only if $q > q^*(y)$, where $q^*(y)$ solves*

$$-b_{MV}\left(\beta, y, q^*\right) = q^*. \tag{16}$$

If $\gamma > \overline{\gamma}$, the solution of (16) is unique. In this case, there exists $\overline{y}$ such that if $y \geq \overline{y}$, the median voter is the blockholder ($-q^*(y) = \beta$), whereas if $y < \overline{y}$, the median voter is a small shareholder with bias $-q^*(y) \neq \beta$, and $|\beta + q^*(y)|$ decreases in y.

In general, there can be multiple solutions to (16), and hence multiple equilibria at the voting stage. This is because for small γ, shifts in the shareholder base are sensitive to the expected decision rule q_e^*, which can give rise to self-fulfilling expectations. [21] However, if γ is large enough, then small shareholders trade less aggressively, the distribution of the post-trade shareholder base is less sensitive to q_e^*, and the equilibrium is unique.

Importantly, Proposition 1 shows that the blockholder can change the identity of the median voter, $-q^*(y)$, and thus the vote outcome, with his trades y. By buying more shares, the blockholder moves the bias of the median voter closer to β, which is captured by the result that $|\beta + q^*(y)|$ decreases. This can be seen in the left panel of Figure 2, which shows that a larger y pushes $-q^*(y)$ to the left, closer to $-\beta$. Once the blockholder buys enough shares ($y \geq \overline{y}$), the vote outcome exactly coincides with the blockholder's own voting rule, so the blockholder becomes the median voter (see the right panel in Figure 2). The accumulation of shares beyond $\bar{y}$ increases the probability of the blockholder being pivotal, but it does not change the expected vote outcome, that is, the identity of the median voter.

There are two complementary reasons why the accumulation of shares by the blockholder moves the median voter closer to him. First, more shares give the blockholder more voting rights. Second, as the blockholder buys more, the composition of the small shareholder base changes toward those who are more aligned with the blockholder. For example, if the blockholder is very activist, then small shareholders who hold the firm after trading are more activist. (Recall that $R\left(b'; y, q_e^*\right)$ increases in q_e^* in (13).)

[21] In particular, the cdf of the post-trade shareholder base, given by (13), increases in q_e^*, and hence a more activist *expected* decision rule (lower q_e^*) makes the post-trade shareholder base more activist. A more activist shareholder base, in turn, is more likely to approve the proposal for any given signal, leading to a lower *realized* cutoff for approving the proposal, confirming the ex ante expectations.

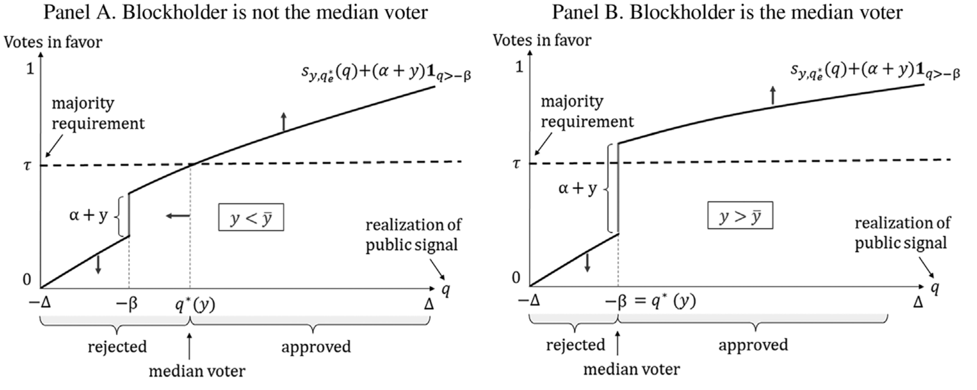

Figure 2. The effect of the blockholder's trade on the equilibrium median voter.

C. Blockholder Trading

Given the blockholder's trade y, all shareholders correctly anticipate that the decision rule at the voting stage will be $q^*(y)$, as given by (16), and that the market-clearing price will be

$$p^*(y) = \gamma y + v\big(\mathbb{E}\big[b\big], q^*(y)\big) \tag{17}$$

from (10). In equilibrium, the blockholder chooses y to maximize

$$\Pi(y) \equiv (\alpha + y)v\big(\beta, q^*(y)\big) - yp^*(y) - \frac{\eta}{2}y^2. \tag{18}$$

The marginal effect of buying additional shares on the blockholder's expected payoff is

$$\frac{d\Pi(y)}{dy} = \underbrace{\frac{\partial\Pi(y)}{\partial y}}_{MPC(y)} + \underbrace{\frac{\partial\Pi(y)}{\partial(-q^*(y))}\frac{\partial(-q^*(y))}{\partial y}}_{MPV(y)} = MPC(y) + MPV(y). \tag{19}$$

The term $MPC(y)$ is the *marginal payoff from buying cash flow rights*. It can be thought of as the blockholder's marginal payoff from trading in the hypothetical scenario in which the decision rule is set exogenously at the level $q^*(y)$ and is not affected by the blockholder's trades. This term equals

$$MPC(y) = \big(\beta - \mathbb{E}\big[b\big]\big)H\big(q^*(y)\big) - (2\gamma + \eta)y. \tag{20}$$

Intuitively, if $\beta > \mathbb{E}\big[b\big]$ ($\beta < \mathbb{E}\big[b\big]$), the blockholder values shares more (less) than the average small shareholder, which creates gains from trade. The term $MPV(y)$ is the *marginal payoff from buying voting rights*. [22] It captures the

[22] The derivative $\frac{\partial\Pi(y)}{\partial(-q^*(y))}\frac{\partial(-q^*(y))}{\partial y}$ exists for all y except $\bar{y}$. If $y = \bar{y}$, we define $MPV(y)$ as the left derivative: $\lim_{y\nearrow\bar{y}} \frac{\partial\Pi(y)}{\partial(-q^*(y))}\frac{\partial(-q^*(y))}{\partial y}$.

blockholder's additional incentives to trade in order to change the decision rule, that is, to shift the median voter $-q^*(y)$. In Section IV below, we show that $MPV(y)$ is closely related to the voting premium.

The next proposition characterizes the equilibrium, including the blockholder's optimal trading strategy.

PROPOSITION2 (Equilibrium): *The equilibrium exists and is unique. In equilibrium:*

(*i*) *The blockholder trades y^* shares, where y^* is the unique solution of*

$$y^* = \frac{1}{2\gamma+\eta}(\beta - \mathbb{E}[b])H(q^*(y^*)) + \frac{1}{2\gamma+\eta}\sigma(\beta)MPV(y^*). \tag{21}$$

A small shareholder with bias b trades $x^*(b)$ shares, where

$$x^*(b) = \frac{1}{\gamma}(b - b^*)H(q^*(y^*)) - \frac{1}{2\gamma+\eta}\sigma(\beta)MPV(y^*). \tag{22}$$

Parameter b^* is defined as

$$b^* = \frac{\gamma}{2\gamma+\eta}\beta + \left(1 - \frac{\gamma}{2\gamma+\eta}\right)\mathbb{E}[b], \tag{23}$$

and $\sigma(\beta) \in [0, 1]$ is defined by equation (A48) in the Appendix.

(*ii*) *The share price is*

$$p^* = v(b^*, q^*(y^*)) + \frac{\gamma}{2\gamma+\eta}\sigma(\beta)MPV(y^*). \tag{24}$$

(*iii*) *The bias of the median voter is $-q^*(y^*)$, where $q^*(\cdot)$ is defined in Proposition 1.*

The blockholder's optimal trade y^* consists of two terms, which are related to decomposition (19). The first term reflects trading for cash flow reasons: The blockholder has an incentive to buy shares if and only if his valuation is higher than that of the average small shareholder, $\beta > \mathbb{E}[b]$. In particular, cash flow considerations can motivate the blockholder to sell shares to small shareholders, thereby giving up his influence over the voting outcome. Thus, the tension between exit and voice (e.g., Hirschman (1970)) exists in our model as well (see Section III.A of the Internet Appendix for details).

The second term in (21) reflects the additional trading of voting shares because of the embedded voting rights and is proportional to $MPV(y^*)$.[23] The expression for small shareholders' trades $x^*(b)$ follows directly from (11). Intuitively, trading shifts the small-shareholder base toward the expected outcome (see the discussion after equation (13) above), and their combined supply of shares equals the blockholder's demand. If $MPV(y^*) = 0$, then the

[23] The function $\sigma(\beta)$ is equal to one everywhere, except for a small interval that shrinks to zero as $\gamma \to \infty$. See Proposition 3 and Section III.L in the Internet Appendix for more details.

shareholder with bias b^* can be interpreted as the marginal trader who is indifferent between buying and selling shares at the equilibrium share price; in this scenario, all shareholders with a b higher (lower) than b^* buy (sell) shares. Finally, the equilibrium stock price consists of two terms; we focus on this decomposition and its properties in the next section.

IV. The Voting Premium

This section presents our main results. We proceed in several steps. We first define the voting premium in Section IV.A and clarify its determinants in Section IV.B. In Section IV.C, we characterize the equilibrium properties of the voting premium. In Section IV.D, we discuss the novel implications about the voting premium that emerge from our analysis, and in Section IV.E, we formally analyze several empirical measures of the voting premium.

A. Defining the Voting Premium

We start by defining the voting premium and relating it to MPV. Consider again the hypothetical scenario in which the voting rule is set exogenously at $q^*(y^*)$. Such a scenario may reflect cases in which trading does not reallocate voting rights, for example, as in trading of nonvoting shares, so that the median voter is unaffected.[24] Since the voting rule is exogenous in this hypothetical scenario, we have $\frac{\partial(-q^*(y^*))}{\partial y} = 0$, $MPV(y^*) = 0$, and the blockholder's first-order condition (19) reduces to $MPC(y^*) = 0$. A corollary of Proposition 2 is that the share price in this scenario reflects the valuation of the shareholder with bias b^*, defined by (23).

COROLLARY 1: *If the voting rule is set exogenously at $q^*(y^*)$, the equilibrium share price is*

$$p_{CF}\big(q^*(y^*)\big) = v\big(b^*, q^*(y^*)\big). \tag{25}$$

Equation (25) can be interpreted as the price of a share without voting rights. We next define the *voting premium* as

$$VP(y^*) \equiv p^* - p_{CF}\big(q^*(y^*)\big), \tag{26}$$

that is, the difference between the share price (24) that arises when the voting rule is determined endogenously by the post-trade shareholder base and the share price in the hypothetical scenario when the voting rule is set exogenously at the same level $q^*(y^*)$. Proposition 2 and Corollary 1 imply that the voting premium is proportional to the blockholder's marginal payoff from

[24] This hypothetical scenario also captures cases in which the company's board and management have decision rights over the proposal and implement a decision rule $q^*(y^*)$ that is exogenous to the composition of the shareholder base.

buying voting rights,

$$VP(y^*) = \frac{\gamma\sigma(\beta)}{2\gamma + \eta} MPV(y^*). \tag{27}$$

Hence, the voting premium reflects the additional component of the stock price that arises from the blockholder's incentive to influence the voting outcome. There are two empirical counterparts of our definition of the voting premium, namely, the dual-class premium and the ex-record date price drop (see Section IV.E for a more extensive discussion).

B. Determinants of the Voting Premium

To understand the determinants of the voting premium, we use (19) to rewrite (27), as

$$VP(y) = \underbrace{\frac{\partial(-q^*(y))}{\partial y}}_{\text{ability to move median voter}} \times \underbrace{\left[\underbrace{(\alpha + y)\frac{\partial v(\beta, q^*(y))}{\partial(-q^*)}}_{\text{marginal benefit of a vote}} - \underbrace{y\,\frac{\partial p^*(y)}{\partial(-q^*)}}_{\text{price impact of a vote}}\right]}_{\text{incentives to move median voter } = \frac{\partial \Pi(y)}{\partial(-q^*(y))}} \times \frac{\gamma\sigma(\beta)}{2\gamma + \eta}. \tag{28}$$

Thus, the voting premium can be decomposed into the blockholder's *ability* to influence the identity of the median voter and his *incentives* to do so. The ability of the blockholder to influence the median voter depends on how his trades y affect $-q^*(y)$. According to Proposition 1, there exists a threshold $\bar{y}$ such that if $y \geq \bar{y}$, then the blockholder is the median voter and the accumulation of additional shares does not change the decision rule. Therefore, if $y \geq \bar{y}$, then $\frac{\partial(-q^*(y))}{\partial y} = 0$ and the blockholder cannot change the voting outcome even if he had the incentives to do so. According to (28), the voting premium is then zero. Intuitively, since the blockholder's trades have no impact on the voting outcome, he would not be willing to pay a premium for additional voting rights.

Proposition 1 also shows that if $y < \bar{y}$, then $\frac{\partial(-q^*(y))}{\partial y} \neq 0$ and the blockholder's trades change the identity of the median voter. In this case, the voting premium also depends on the incentives of the blockholder to move the median voter. Based on (28), these incentives consist of two components. The first component captures how a marginal change in the median voter affects the blockholder's valuation of his post-trade stake in the firm, $\alpha + y$, which we refer to as the *marginal benefit of a vote*. From (6) and (28),

$$\textit{Marginal benefit of a vote} = (\alpha + y)\frac{\partial v(\beta, q^*(y))}{\partial(-q^*)} = (\alpha + y)\big(\beta + q^*(y)\big) f\big(q^*(y)\big). \tag{29}$$

By buying additional shares, the blockholder moves the median voter $-q^*(y)$ closer to his own bias β (see Proposition 1), which increases the blockholder's valuation of his stake. Thus, the marginal benefit of a vote is always positive because the blockholder always values a marginal vote for its impact on his own stake.[25]

The second component captures how the incentives of the blockholder to move the median voter depend on the *price impact* of his trades. The market-clearing stock price is the reservation price at which small shareholders are willing to supply one additional share. From (17), the effect of a marginal change in the median voter $-q^*$ on the stock price is

$$\textit{Price impact of a vote} = \frac{\partial p^*(y)}{\partial(-q^*)} = \left(\mathbb{E}\left[b\right] + q^*(y)\right) f\left(q^*(y)\right). \qquad (30)$$

The sign and magnitude of the price impact of a vote depend on whether the resulting change in the median voter benefits or hurts small shareholders, that is, whether the distance between the bias of the average small shareholder, $\mathbb{E}\left[b\right]$, and the median voter, $-q^*(y)$, decreases or increases. We explore this issue further in Section IV.D.4.

C. Properties of the Voting Premium

The discussion in Section IV.B highlights that a key determinant of the voting premium is the location of the median voter. The next result characterizes the equilibrium median voter and the voting premium as functions of the blockholder's bias β.

PROPOSITION 3: *There exist cutoffs $\beta^L_{non\text{-}mv} < \beta^L_{mv} < \beta^H_{mv} < \beta^H_{non\text{-}mv}$, all in the interval $\left(-\bar{b}, \bar{b}\right)$, such that:*

- (*i*) *If $\beta \in [\beta^L_{mv}, \beta^H_{mv}]$, then the median voter is the blockholder, the voting premium is zero, and $\sigma(\beta) = 1$.*
- (*ii*) *If $\beta > \beta^H_{non\text{-}mv}$ ($\beta < \beta^L_{non\text{-}mv}$), then the median voter is a small shareholder with a smaller (larger) bias toward the proposal than the blockholder, that is, $-q^*(y^*) < \beta$ ($-q^*(y^*) > \beta$), the voting premium is strictly positive and increases (decreases) in β, and $\sigma(\beta) = 1$.*

There are two cases to consider. First, if the blockholder is moderate, $\beta \in [\beta^L_{\text{mv}}, \beta^H_{\text{mv}}]$, then he becomes the median voter himself (hence we use subscripts "mv" for these cutoffs) and does not need to trade aggressively to achieve this. Since the blockholder is the median voter, he cannot further move the median voter at the margin, and thus the equilibrium voting premium is zero. This observation highlights that the voting premium does not reflect the blockholder's voting power. Indeed, if the blockholder's stake is large enough, he is likely to be the median voter, with an associated voting premium of zero.

[25] This discussion simplifies by focusing on the case in which the blockholder is sufficiently activist, such that $\beta > -q^*(y)$ and (29) is positive. In the opposite case in which $\beta < -q^*(y)$ and (29) is negative, the derivative $\frac{\partial(-q^*(y))}{\partial y}$ turns negative as well, so that the product of both expressions in (28) remains positive: The marginal benefit of a vote is always positive. Hence, this simplification is inconsequential.

Second, if the blockholder's bias is extreme, $\beta > \beta^H_{\text{non-mv}}$ (or $\beta < \beta^L_{\text{non-mv}}$), then the blockholder does not become the median voter (hence we use subscripts "non-mv" for these cutoffs), as this would require buying too many additional shares. The median voter is then a small shareholder with a smaller (larger) bias toward the proposal than the blockholder. Now the blockholder does have the ability to move the median voter, and he benefits more from doing so the further he is from the median voter (see equation (29)). Accordingly, the net marginal payoff from an additional voting right, and hence the voting premium, is positive and increases as β becomes more extreme. Importantly, even though the blockholder's marginal benefit of a vote is positive in equilibrium, he refrains from buying more voting shares because he also considers the cost from his own price impact.

Proposition 3 does not characterize the voting premium and the median voter if $\beta \in [\beta^L_{\text{non-mv}}, \beta^L_{\text{mv}})$ or $\beta \in (\beta^H_{\text{mv}}, \beta^H_{\text{non-mv}}]$. In these regions, the median voter can switch back and forth between the blockholder and small shareholders. In Proposition 5, we provide a partial characterization and show that the voting premium can be negative in the interval $[\beta^L_{\text{non-mv}}, \beta^L_{\text{mv}})$.

D. Implications

In this section, we discuss the key implications of our analysis of the voting premium.

D.1. Voting Premium Versus Total Value of Voting Rights

Our analysis highlights that the voting premium is likely to *underestimate* the overall value of voting rights. A zero voting premium does not imply that the blockholder does not value voting rights, or that he would not benefit from further influencing the voting outcome. Indeed, the incentives to move the median voter, captured by $\frac{\partial \Pi(y)}{\partial(-q^*)}$, will generally differ from zero even if the blockholder is already the median voter.[26] Instead, a zero voting premium only implies that the blockholder cannot influence the position of the median voter through additional trades.

Furthermore, the blockholder's overall benefits from accumulating voting rights can be positive even if his marginal benefits are zero, because these marginal benefits are evaluated at the blockholder's equilibrium trade y^*. By contrast, the overall benefits from owning voting rights also come from the blockholder's inframarginal trades. These inframarginal trades affect the voting outcome ($q^*(y^*) \neq q^*(0)$) even if the equilibrium voting premium is zero. Hence, empirical measures of the voting premium that measure the value of

[26] To see this, note from (28) to (30) that if $-q^*(y) = \beta$, then $\frac{\partial \Pi(y)}{\partial(-q^*)} = y\left(\beta - \mathbb{E}\left[b\right]\right) f\left(-\beta\right)$, which generally differs from zero. Intuitively, by changing the median voter further, the blockholder affects his gains from trade with small shareholders since the effect of the median voter on their valuations differs from the effect of the median voter on his own valuation (see Section IV.D.4 for a more in-depth discussion).

a marginal vote, such as the dual-class premium or the ex-record date price drop, are likely to underestimate the overall value of voting rights.

D.2. Direct Versus Indirect Influence on the Voting Outcome

The voting premium emerges because the blockholder pays for his influence on the voting outcome by affecting the composition of the shareholder base. This influence results not only directly from the increased weight of the blockholder in the shareholder base, but also indirectly, because he buys disproportionally more shares from those small shareholders whose preferences are furthest from his own. This reduces the weight of shareholders who are least aligned with him, so the indirect effect amplifies the impact of the blockholder on the voting outcome. Accordingly, the blockholder does not pay a voting premium for being directly in control of the voting outcome. Instead, he pays the voting premium for influencing the identity of the shareholder who is the median voter, and this influence comes from the direct and indirect effects noted above.

As such, the voting premium is generally unrelated, or can even be negatively related, to measures of voting power. If the blockholder's voting power is large, he is the median voter himself, so the voting premium is zero. In contrast, if the blockholder's voting power is small, his marginal payoff from moving the median voter is strictly positive. He thus has both the ability to move the median voter and, under the conditions of Proposition 3(ii), the incentives to do so. Accordingly, the voting premium is positive as well.

D.3. Conflicts of Interest and the Voting Premium

Divergence Between the Blockholder and Small Shareholders: The literature often relates the voting premium to conflicts between blockholders and minority shareholders. The idea is that a higher voting premium may indicate a lower payoff of minority shareholders, since the blockholder exploits his voting power to extract private benefits and advance his own agenda at the expense of others. This section shows that this intuition is not always correct.[27]

We start by defining the aggregate equilibrium payoff of small shareholders as

$$W^* \equiv \int_{-\bar{b}}^{\bar{b}} u^*(b) g(b) db, \tag{31}$$

where $u^*(b)$ is the expected payoff of a small shareholder with bias b,

$$u^*(b) = (1 - \alpha + x^*(b)) v(b, q^*(y^*)) - x^*(b) p^* - \frac{\gamma}{2} x^*(b)^2, \tag{32}$$

[27] A related observation regarding the suitability of the block premium for estimating private benefits emanates from the analysis in Burkart, Gromb, and Panunzi (2000), Nicodano and Sembenelli (2004), and Albuquerque and Schroth (2010). However, the mechanisms in these papers are different from ours.

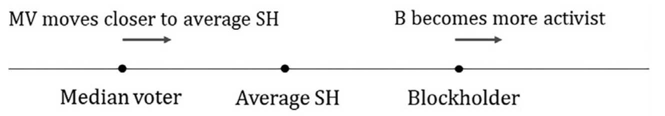

Figure 3. Small shareholders' welfare and voting premium move in the same direction.

and $x^*(b)$, $q^*(y^*)$, and p^* are defined in Proposition 2. From (5), (22), and (24), W^* can be rewritten as

$$W^* = (1-\alpha)v(\mathbb{E}[b], q^*) + \frac{1}{2\gamma}\mathbb{E}\Big[\big(v(b, q^*) - p^*\big)^2\Big]. \tag{33}$$

The first term in (33) is small shareholders' aggregate payoff from their endowment, which increases if the median voter $(-q^*)$ moves closer to the average small shareholder, $\mathbb{E}[b]$.[28] The second term reflects the aggregate trading profits of small shareholders, from trades both among themselves and with the blockholder.

Our main result in this section shows that a larger voting premium does not necessarily indicate a greater conflict between the blockholder and small shareholders.

PROPOSITION 4: *If*

$$G^{-1}\left(\frac{1-\tau}{1-\alpha}\right) < \mathbb{E}[b] < \beta, \tag{34}$$

then both W^* and the voting premium strictly increase in β.

The intuition is illustrated in Figure 3. Condition (34) implies that β is high enough, so that the median voter is a small shareholder who is less activist than the blockholder.[29] Then, as β increases and the blockholder becomes even more activist, his incentives to change the median voter become stronger, which increases the voting premium from Proposition 3. However, the payoff W^* of small shareholders increases at the same time. To see why, note that absent trading, $G^{-1}(\frac{1-\tau}{1-\alpha})$ is the median voter, so condition $G^{-1}(\frac{1-\tau}{1-\alpha}) < \mathbb{E}[b]$ implies that the median voter is less activist than the average small shareholder prior to trading. If γ is large enough, the same relationship also holds after trading, as shown in Figure 3. Then, the trades of a more activist blockholder make the median voter more activist, which moves the median voter closer to the average of the small shareholders, thereby increasing their

[28] Formally, $\frac{\partial v(\mathbb{E}[b], q^*)}{\partial(-q^*)} = (\mathbb{E}[b] + q^*) f(q^*)$, so $v(\mathbb{E}[b], q^*)$ is maximized when the median voter's bias is $\mathbb{E}[b]$.

[29] In particular, as we show in the Appendix, (34) implies that $\beta > \beta^H_{\text{non-mv}}$ as defined in Proposition 3.

payoff.[30] As a result, the aggregate payoff of small shareholders and the voting premium move in the same direction.

Two scenarios can lead to condition (34) and the situation described in Figure 3. First, suppose that there is a simple majority requirement but the distribution of small shareholders' preferences is right-skewed. This means that more activist small shareholders favor the proposal much more strongly than their less activist peers. The median voter does not reflect this asymmetric intensity of preferences and is less activist than the average small shareholder, but the intensity of preferences is relevant for shareholders' aggregate payoff W^*, which is based on the average and not the median payoff. Second, suppose that the distribution of preferences is symmetric, but the proposal is subject to a supermajority requirement ($\tau > 0.5$). The supermajority requirement introduces a conservative bias into the voting process and thereby reduces the bias of the median voter relative to the average shareholder.

In both scenarios, the voting rule is too conservative from the perspective of an average small shareholder: The median voter in Figure 3 is to the left of the average small shareholder. A more activist blockholder then becomes a countervailing force against this conservative bias and increases the aggregate payoff of small shareholders. Notably, this happens even though the distance between the blockholder and the average small shareholder increases with β. Hence, what ultimately matters for small shareholders is not whether the blockholder is closer to them, but whether he moves the median voter closer to them.

Divergence among Small Shareholders: A positive voting premium emerges in our setting only if the blockholder is able to move the median voter. The next result shows that this can happen only if there is some heterogeneity among small shareholders.

COROLLARY 2: *Suppose that all small shareholders have the same bias b, which differs from that of the blockholder, $b \neq \beta$. Then the voting premium is zero.*

The situation described in Corollary 2 could arise in a setting in which all small shareholders have the same valuation of cash flows and the blockholder can reduce these cash flows by diluting the assets of the firm if the proposal is accepted. Then all small shareholders have the same b and $b < \beta$, since the blockholder benefits more from the proposal. This scenario, as well as the opposite case with $b > \beta$, are discussed in more detail in Sections II.C and II.D of the Internet Appendix. The key point is that in our setting, the blockholder does not acquire majority control. If small shareholders are homogeneous, the median voter is always a small shareholder and the blockholder does not have the ability to change his bias. Corollary 2 has an important empirical implication: Any aspect of shareholder preferences that is common to all small

[30] This discussion abstracts from the welfare effects of trading profits (the second term in (33)). The condition $\mathbb{E}\left[b\right] < \beta$ in (34) guarantees that the trading profits of small shareholders also increase in β.

shareholders and only creates a conflict between them and the blockholder (e.g., monitoring, private control benefits) is unlikely to lead to a voting premium. By contrast, other aspects of preferences (e.g., environmental and social ideologies or tax status), which differ across small shareholders, also give rise to a voting premium.

In Section III.B of the Internet Appendix, we generalize Corollary 2 and provide sufficient conditions under which the voting premium rises as small shareholders become more heterogeneous. Intuitively, greater heterogeneity increases the impact of blockholder trades on the median voter. In addition, greater heterogeneity makes the median voter more moderate and moves him further from the biased blockholder, which strengthens the blockholder's incentive to move the median voter. Together, these two forces—increased ability and incentives to change the median voter—raise the voting premium.

D.4. Liquidity of Voting versus Nonvoting Shares

Price impact is often used as a measure of liquidity. Liquidity measured in this way is endogenous in our setting and arises because voting rights are bundled with cash flow rights in voting shares. Recall that the value of a nonvoting share in our model is given by (25), which assumes that the decision is exogenous so that trades cannot move the median voter, that is, $\frac{\partial(-q^*)}{\partial y} = 0$. To see how voting rights affect liquidity, note from (17) that the total price impact of the blockholder's trade in a voting share is

$$\frac{dp^*}{dy} = \gamma + \frac{\partial p^*}{\partial(-q^*)}\frac{\partial(-q^*(y))}{\partial y} = \gamma + \underbrace{\left(\mathbb{E}\left[b\right] + q^*\right) f\left(q^*\right)}_{\textit{price impact of a vote}} \frac{\partial(-q^*(y))}{\partial y}. \tag{35}$$

The first term, γ, reflects small shareholders' trading costs and would be present even for nonvoting shares. The second term reflects the indirect effect through the influence of the blockholder's trades on the median voter, $-q^*(y)$, and is proportional to the price impact of a vote in equation (30). The sign of the indirect effect depends on whether the resulting change in the median voter benefits or hurts small shareholders.

If the blockholder's and the average small shareholder's interests are aligned (e.g., $-q^*(y^*) < \min\{\beta, \mathbb{E}\left[b\right]\}$, as in Figure 3), then the blockholder's trades move the median voter in the direction preferred by both (see Section IV.D.3 for a discussion of two scenarios in which this can occur). This increases the price at which small shareholders supply additional shares; accordingly, the price impact of a vote (30) is positive. As a result, the liquidity of a voting share is smaller compared to that of a nonvoting share. Essentially, small shareholders *free-ride* on the blockholder's trades.

By contrast, if the blockholder's and small shareholders' interests are in conflict (e.g., $\mathbb{E}\left[b\right] < -q^*(y^*) < \beta$), then the blockholder's trades move the median voter away from small shareholders. This hurts small shareholders and reduces the price at which they are willing to supply shares, so the price impact of a vote is negative. Accordingly, the supply function is flatter, and the liquidity of a voting share is now greater than that of a nonvoting share.

D.5. Price Impact and the Sign of the Voting Premium

Based on the decomposition of the voting premium in (28), the incentive part of the voting premium is a combination of the marginal benefit of a vote (29) and the price impact of a vote (30). Hence, the voting premium is positive only if moving the median voter increases the value of the blockholder's stake by more than it increases the costs of his trades. This argument has important implications for the sign of the voting premium.

Conflict and a Positive Voting Premium: If the blockholder's trades move the median voter in the direction that hurts small shareholders, the voting premium is positive. This is because in this case, moving the median voter toward the blockholder not only increases the value of the blockholder's stake, but also reduces the price he has to pay to small shareholders for their shares. Interestingly, this also implies that the voting rights embedded in the shares have opposite effects on the *price* of the shares and the *price impact* of trades: The embedded voting rights increase the share price but decrease the price impact of trades.

Free-Riding and a Negative Voting Premium: If the blockholder's trades move the median voter in the direction that benefits small shareholders, small shareholders free-ride on the blockholder's trades and increase the price at which they are willing to sell shares. As a result, the blockholder's incentives to move the median voter (28), and hence the voting premium, decrease. Proposition 3 shows that if $\beta < \beta^L_{\text{non-mv}}$ or $\beta > \beta^H_{\text{non-mv}}$, this force is not strong enough to prevent a positive voting premium. Intuitively, if the blockholder's bias is extreme, then moving the median voter in his preferred direction, and thus the marginal benefit of a vote, is significantly more important for him than price impact considerations. However, if the blockholder's bias is not extreme, a negative voting premium can arise.

PROPOSITION 5: *There exist cutoffs $\underline{\beta}_{neg}$ and $\overline{\beta}_{neg}$, satisfying $\beta^L_{non\text{-}mv} < \underline{\beta}_{neg} < \overline{\beta}_{neg} < \beta^L_{mv}$, such that if*

$$\mathbb{E}\big[b\big] < G^{-1}(1 - \frac{\tau}{1-\alpha}) \text{ and } \beta \in (\underline{\beta}_{neg}, \overline{\beta}_{neg}), \tag{36}$$

then the blockholder buys shares ($y^* > 0$) and the voting premium is strictly negative: $p^* < p_{CF}(q^*(y^*))$ in (26).

The intuition is illustrated in Figure 4. The first condition in (36), $\mathbb{E}\left[b\right] < G^{-1}(1 - \frac{\tau}{1-\alpha})$, ensures that for large enough γ, the average small shareholder is less activist than the median voter. The second condition, $\beta \in (\underline{\beta}_{\text{neg}}, \overline{\beta}_{\text{neg}})$, guarantees that the blockholder is more activist than the average small shareholder but less activist than the median voter, as in Figure 4. For example,

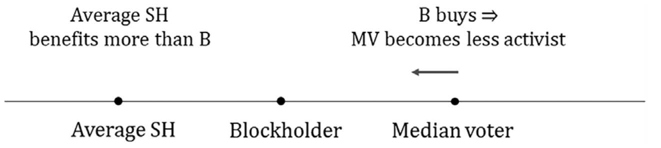

Figure 4. Negative voting premium.

such a situation can occur if the blockholder is more reluctant to support a certain management proposal than a typical small shareholder, but a fraction of small shareholders are very strongly opposed to the proposal, even more strongly than the blockholder himself (i.e., the distribution of small shareholders' preferences is left-skewed). In this scenario, purchases of the blockholder make the median voter less activist and closer to his own preferences. However, since small shareholders are on average even less activist than the blockholder, they benefit even more from this change in the median voter than the blockholder himself. Thus, the change in the median voter affects the valuation of small shareholders and in turn the stock price more than it affects the valuation of the blockholder. Hence, the trading profits for the blockholder from buying shares are negative, since the price at which he buys increases by more than his own valuation. This negative effect on the blockholder's trading profits dominates the positive benefits from an increased valuation of his endowment α as long as α is not too large. (Note that the first condition in (36) implies an upper bound on α.) As a result, the blockholder buys fewer shares than he would if he could buy cash flow rights separately, without the attached voting rights. Thus, free-riding by small shareholders results in a negative voting premium.[31]

The negative voting premium is directly related to the differential liquidity of voting and nonvoting shares discussed in Section IV.D.4. If the price impact of trading voting shares is much stronger than the price impact of trading nonvoting shares (the second term in (35) is large), then the blockholder's demand for voting shares can be smaller than his demand for nonvoting shares, even though he values the voting rights per se. This results in a negative premium on the price of voting shares, that is, in some sense, an illiquidity discount from the attached voting rights.

E. Measurement

In this section, we relate our model to three methods used to measure the value of voting rights in the empirical literature: the dual-class share premium, the ex-record date price drop, and the value of separately traded votes.

[31] Proposition IA.3 in the Internet Appendix shows that a negative voting premium can also emerge when the blockholder has no endowment, $\alpha = 0$. Intuitively, if $\alpha = 0$, the blockholder's marginal benefit of a vote is also small (see (29)), so the price impact considerations can dominate and result in a negative voting premium.

Dual-Class Share Premium: The empirical literature commonly measures the voting premium using firms with a dual-class share structure, by comparing the price of a share with superior voting rights to the price of a share with inferior voting rights (e.g., Zingales (1995) and Nenova (2003)). Our definition of the voting premium is more general and applies to firms with only one class of shares, but it is closely related to the dual-class premium. To see this, we develop an extension with voting and nonvoting shares in Section IV.A of the Internet Appendix. There, we show that the model gives rise to a dual-class premium,

$$p^*_{voting} - p^*_{nonvoting} = \frac{\gamma\sigma(\beta)}{2\gamma + \eta} MPV\left(y^*, \hat{y}^*\right), \tag{37}$$

where $\hat{y}^*$ is the blockholder's equilibrium trade of nonvoting shares and $MPV\,(y, \hat{y})$ is the analog of $MPV\,(y)$.[32] Note that the dual-class premium (37) parallels (27) for the baseline model. It has the same structure, can be decomposed into the same components, and therefore has the same properties as the voting premium with a single class of shares. Our analysis also implies that whenever the dual-class premium is positive (negative), small shareholders have a larger (smaller) demand for nonvoting shares than for more (less) expensive voting shares. Moreover, (37) shows that the dual-class premium exists only if there are trading frictions ($\gamma > 0$). Such limits to arbitrage are necessary for a voting premium to emerge.

Note also that the dual-class voting premium depends on $\hat{y}^*$, the trading volume in the market for nonvoting shares. This spillover effect is absent in the model with only a single class of shares. Intuitively, the blockholder's position in nonvoting shares gives him additional incentives to affect the value of the voting shares by shifting the median voter. Moreover, this shift changes small shareholders' valuations and thus the price that the blockholder has to pay for both voting and nonvoting shares.

Ex-Record Date Price Drop: Our baseline model is static, featuring only one round of trade prior to the record date. In Section IV.B.1 of the Internet Appendix, we show that our results hold in a dynamic setting with a second round of trade that occurs after the record date and before the realization of the public signal. The difference in the share price between the two rounds of trade can be interpreted as the ex-record date price drop used to measure the value of voting rights (e.g., Fos and Holderness (2023))—in both rounds, the expected vote outcome is the same, but trading after the record date no longer reallocates voting rights across shareholders. The difference between the two share prices then becomes

$$p^*_{pre-record} - p^*_{post-record} = \frac{\gamma\hat{\sigma}(\beta)}{2\gamma + \eta} \widehat{MPV}\left(y^*_{pre}\right), \tag{38}$$

[32] The expression for $MPV\,(y, \hat{y})$ is given by (IA.66) in the Internet Appendix, which shows that it is analogous to expression (28) for $MPV\,(y)$ in the baseline model.

where y^*_{pre} is the blockholder's trade pre-record date. Hence, the ex-record date price drop (38) captures the voting premium (27) from the baseline model and $\widehat{MPV}\left(y^*_{pre}\right)$ is the analog of $MPV\left(y^*\right)$.[33] As in (28), the voting premium can be decomposed into the blockholder's ability and incentives to move the median voter, where the incentives component reflects both the marginal benefit and the price impact of a vote. However, the incentives component now also includes the effect of the median voter on the expected gains from post-record date trading. This effect is absent from the baseline model and raises the voting premium if aligning the median voter more closely with the blockholder increases post-record date disagreement among shareholders, thereby enhancing gains from trade.[34]

Prior literature concludes that post-record-date trading affects voting outcomes by changing investors' voting incentives (e.g., by altering their economic exposure, as in Brav and Mathews (2011)). In our model, it affects voting outcomes through a novel channel: Concerns about post-record-date trading profits change the blockholder's incentives to accumulate voting power, thereby reshaping the composition of the shareholder base eligible to participate in the vote.

In Section IV.B.2 of the Internet Appendix, we show that the same conclusions apply if post-record date trading occurs after the public signal q is revealed. In this latter case, trading volume and share prices are more volatile, since they incorporate the newly revealed information. Importantly, the public signal reveals information not only about firm value conditional on the vote outcome, but also about the vote outcome itself, and thus it affects how investors trade. Specifically, trading activity is larger and varies more across investors when the expected vote outcome based on the newly revealed information induces more disagreement among investors. If one interprets the public signal as a proxy advisor's recommendation, this predicts higher aggregate trading volume when the proxy advisor supports an activist's proposal.

Vote Trading: In our baseline model and in the extensions to dual-class shares and post-record date trading, voting rights are bundled with cash flow rights. In practice, votes can be traded separately from cash flow rights, for example, through share lending. In Section IV.C of the Internet Appendix, we extend the model by adding a separate market for voting rights. The price of a vote is zero in this setting, since small shareholders are never pivotal for the voting outcome and thus willing to supply their votes for an arbitrarily small price. However, the voting premium can still be strictly positive as long as the blockholder's ability to accumulate voting power through the market for votes is limited. Thus, the price of a separately traded vote is conceptually different from the voting premium for a share in which cash flow and voting rights are

[33] The expression for $\widehat{MPV}\left(y\right)$ is given by (IA.72) in the Internet Appendix, showing that it is analogous to expression (28) for $MPV\left(y\right)$ in the baseline model.

[34] In our model, disagreement among shareholders is larger when the activist's proposal is approved.

bundled. This is so because small heterogeneous shareholders value only cash flow rights, and the bundling gives rise to an upward-sloping supply function.

V. Extensions

In this section, we discuss several extensions of the baseline model.

Trading after the Vote: In Section IV.B.3 of the Internet Appendix, we analyze a dynamic trading extension where the first round of trade occurs before the record date, as in the baseline model, and the second round occurs after the vote. This extension shares many features of the setting described in Section IV.E, where the second round of trade occurs after the record date but before the vote. In particular, the voting premium can be decomposed similarly to the baseline model, supporting our key insights. However, it also reveals several new insights. First, if the proposal is approved, shareholders who like (dislike) it are more likely to buy (sell) shares, consistent with Li, Maug, and Schwartz-Ziv (2022), who find that mutual funds reduce their holdings if their votes opposed the voting outcome. Second, the possibility of trade after the vote affects voting incentives: Investors tend to vote in favor of outcomes that boost their post-vote trading profits. This force is related to that in Meirowitz and Pi (2022), where post-vote trading changes investors' voting incentives, but occurs through a different mechanism—heterogeneous preferences, as opposed to private information. Interestingly, the possibility of post-vote trading implies that even investors who dislike the proposal may nevertheless support it, anticipating profits from selling their shares at a premium to investors who like the proposal. This distortion in voting incentives depends on investors' pre-vote holdings, which in turn are influenced by trading prior to the vote. Thus, the blockholder's ability to shift the median voter through his trades is now affected by this new distortion, adding a new aspect to the decomposition of the voting premium and complementing the results in the baseline model.

Multiple Blockholders: Section IV.D of the Internet Appendix generalizes our model to the case with multiple blockholders. It shows that the voting premium can be decomposed in exactly the same way as in our baseline model, and therefore our main conclusions extend to this setting as well. Moreover, the magnitude of the voting premium depends on whether the blockholders' preferences are aligned or not. If blockholders are sufficiently heterogeneous, their trades pull the median voter in opposite directions. Then, as the blockholders' biases become more extreme, each blockholder tries harder to gain influence over the voting outcome, which results in a higher voting premium. In contrast, if the blockholders are homogeneous, Cournot competition between them drives up the share price and reduces their incentives to build up large stakes (e.g., Kyle (1989) and Edmans and Manso (2011)). With small stakes, blockholders can still influence the identity of the median voter, but no blockholder has incentives to do so in equilibrium. For this reason, the voting premium vanishes if blockholders are homogeneous and their number becomes sufficiently large.

Proxy Advisors: Small institutions often follow proxy advisors' recommendations. This aspect is not necessarily in conflict with the assumption that they vote based on their own beliefs or preferences. In recent years, the role of proxy advisors has evolved from providing benchmark recommendations, which are identical for all shareholders, to custom recommendations tailored to individual shareholders' views.[35] For example, according to Hu, Malenko, and Zytnick (2025), 80% of Glass Lewis' fund clients receive customized advice. The strategy of voting according to (4) can be interpreted as following such custom recommendations: We can conceptualize the proxy advisor as producing signal q and combining it with the client's ideology b to form a custom recommendation—vote for if $b + q \geq 0$.

In Section IV.E of the Internet Appendix, we explore an extension with two groups of shareholders: one voting as in the baseline model, and the other influenced by the proxy advisor's benchmark recommendation, which depends on the proxy advisor's ideology b_{PA}. While our main conclusions hold, the proxy advisor's presence has interesting implications for vote dynamics. The key determinant of whether the proxy advisor's presence benefits or hurts the blockholder is not the proximity of their ideologies (i.e., $|b_{PA} - \beta|$), but rather the firm's ownership structure—specifically, whether the median voter's ideology lies between that of the proxy advisor and the blockholder, or whether the median voter is more (or less) activist than both. The accumulation of shares by the blockholder not only makes him more influential, but can also change the effective influence of the proxy advisor by moving the median voter. The proxy advisor's presence also impacts the voting premium, for example, if the advisor coordinates the small shareholders. If a fraction of shareholders blindly follow the proxy advisor, then the voting premium can be zero even if the blockholder is not the median voter—this happens when the blockholder trades up to the point where the proxy advisor becomes the median voter. Generally, the proxy advisor's influence has an ambiguous effect on the voting premium, as it can affect the marginal benefit and price impact of a vote in the same direction.

Passive Shareholders: The baseline model assumes that all shareholders trade. In Section IV.F in the Internet Appendix, we consider the case in which only a fraction of small shareholders trade, whereas the other small shareholders are passive investors who vote but do not trade. If passive and actively trading investors have the same distribution of preferences, the only effect of passive investors is to increase the blockholder's trading costs, since fewer shareholders are willing to trade with the blockholder, reducing liquidity. However, if the preferences of passive and actively trading shareholders differ, there is an additional force. As in the baseline model, the blockholder's trades affect the composition of the shareholder base both directly (by changing his own weight) and indirectly (by changing the composition of small shareholders). But unlike the baseline model, where these two effects always align, they

[35] ISS, Institutional Shareholder Services, 2023, Testimony of Steven Friedman, general counsel at ISS, available at https://corpgov.law.harvard.edu/2023/07/19/testimony-at-the-committee-on-financial-servicess-hearing-oversight-of-the-proxy-advisory-industry/.

can have opposite signs when some investors are passive. For example, if the blockholder is more activist than the actively trading shareholders, and these are in turn more activist than the passive investors, then the blockholder's purchases from the active traders make the average small shareholder more conservative. This indirect effect mitigates the direct effect; however, it can never overturn it.

We also show that if some or all of the passive shareholders are blockholders, there are more situations in which the voting premium is zero. The reason is that passive blockholders with moderate preferences may become median voters, so that a small trade by the active blockholder cannot move the median voter anymore. Generally, we should expect that a more concentrated ownership base with moderate blockholders, either active or passive, leads to more situations in which the voting premium is zero.

Uncertainty About Biases: In the baseline model, the blockholder knows the distribution G of small shareholders' biases. In practice, small institutional investors and individual shareholders do not need to disclose their holdings, so their preferences may be unknown. In Section IV.H of the Internet Appendix, we consider an extension in which the distribution of small shareholders' biases depends on an unknown state and thus the blockholder cannot predict exactly how much he needs to buy to become the median voter. The main implication is that when there is such uncertainty, it is less likely that the voting premium is exactly zero.

Influencing Management: Blockholders can exert influence through channels other than voting if they can influence management. In Section IV.H of the Internet Appendix, we analyze a version of the model in which decisions are made by management rather than by a vote, and management puts some weight on the welfare of post-trade shareholders. The blockholder's trades then influence decisions by changing the shareholder base and in turn the choices of management. The decision rule can again be described by the preferences of a specific representative shareholder, whose identity moves with the blockholder's trades. This gives rise to a premium in the share price that can be decomposed in the same way as the voting premium in the baseline model and has similar properties. Hence, many of our implications extend to settings in which voting rights have an indirect influence on corporate outcomes.

Shareholder Participation: We assume that small shareholders participate in the vote despite their low probability of influencing the outcome. This assumption aligns with observed practices of small institutional investors (see footnote 15), who rarely abstain due to regulatory pressure (e.g., SEC Release No. IA-5325 and Brav, Cain, and Zytnick (2022)). It may not be entirely realistic to assume that retail investors always participate in the vote (Brav, Cain, and Zytnick (2022)). Rather, we expect retail investors with stronger opinions about the proposal (i.e., larger $|b|$) to participate with a higher probability (Zachariadis, Cvijanovic, and Groen-Xu (2020)). In Section IV.I of the

Table I

Empirical Estimates of the Voting Premium

The table summarizes the results of 40 studies, described in Tables IA.I and IA.II in Section I of the Internet Appendix, which together employ six methodologies to estimate the voting premium. We first take the average estimate of the voting premium for each study and then calculate the averages, medians, minimums, and maximums of these estimates across all studies using a given methodology. We report these numbers (in percent of the stock price) in columns Avg., Median, Min, and Max, respectively. Of the seven studies that present evidence on dual-class tender offers (Table IA.II), this table uses only the five studies that report at least one dual-class tender offer in their sample (two others report zero tender offers in their samples). Several studies report results on more than one method, so the number of studies (# studies) sums to more than 40. The last column (# with neg.) reports the number of studies within each methodology that document a negative voting premium for at least some firms in their sample.

Methodology	Avg.	Median	Min	Max	# Studies	# with Neg.
Dual-class shares	22.68	13.58	4.07	81.50	23	18
Block trades	20.27	16.81	6.79	46.96	6	4
Dual-class tender offers	42.16	26.59	12.27	130.7	5	0
Option replication	0.20	0.16	0.09	0.37	5	5
Equity lending	0.02	0.02	0.01	0.02	3	0
Record-day trading	0.75	0.75	0.09	1.40	2	0

Internet Appendix, we illustrate how such selective participation can be incorporated into our analysis without affecting our conclusions.

VI. Empirical Implications

In this section, we shed more light on the empirical discussion of the voting premium by exploring the implications of our model, and we locate the model in the context of the empirical literature. Based on our review of 40 empirical studies that cover data from a broad range of countries between 1940 and 2018, the literature employs six distinct strategies to estimate the value of a vote. We summarize these six strategies in Table I. We describe the 40 empirical studies that we review in more detail in Tables IA.I and IA.II of the Internet Appendix (we do not attempt a systematic survey here, but instead focus on key patterns that emerge from these studies).[36]

The most salient feature of the estimates in Table I is their divergence, both across methodologies and within-methodology. We next discuss why estimates of the voting premium may vary across methodologies (Section VI.A) and firms (Section VI.B).

A. Methodological Differences across Studies

Our model offers several ways to interpret the differences in estimates across methodologies. Our comparison is only suggestive, since the samples differ across studies.

[36] For surveys of this literature, see Rydqvist (1992) on earlier studies on dual-class shares and Dittmann (2004), Adams and Ferreira (2008), and Kind and Poltera (2013) for more recent work.

Marginal Values versus Block Values: The methods based on the dual-class share premium, option replication, equity lending, and record-day trading all measure the value of a *marginal* vote. In contrast, in block trades and dual-class tender offers, blockholders purchase an entire block of shares, which is related to the *average* value of a vote. Based on our theoretical argument, we expect this average value to be larger. To see this and relate the estimates in Table I to our model, let p_B be the price paid for the average voting share, in either a block trade or a tender offer. Then the block premium can be expressed as $p_B - p^*$, the difference between the price in an entire block of voting shares, which reflects their *average* valuation, and the price of a *marginal* voting share.[37] The average block premium is 20.27%, which shows that the difference between the average and marginal values of a vote is substantial.

By contrast, the dual-class premium is $p^* - p_{CF}$ in our notation, the difference between the price of a *marginal voting share* and the price of a *marginal nonvoting share* in the stock market. Note that our model does not predict any relationship between the dual-class premium and the block premium. Finally, the dual-class tender-offer premium is $p_B - p_{CF}$, the difference between the price for an average *voting share* and the price of a *nonvoting share*. Table I shows that the dual-class tender-offer premium (42.16%) significantly exceeds the dual-class premium (22.68%). This is consistent with our framework, as the latter is the premium only for a marginal vote, whereas the former also includes the additional value if shares are purchased in a block. Our model therefore helps clarify the conceptual differences between methods to measure the voting premium, and in turn improves our understanding of systematic differences in the estimates.

Separate versus Joint Trading of Cash Flow and Voting Rights: Another important difference between the methodologies is whether they estimate the price of the vote that is traded separately, as in the equity lending market, or the price of the vote that is traded in conjunction with cash flow rights, as in the estimates derived from comparing the price of a stock with superior voting rights to the price of a stock with inferior (or no) voting rights. Our analysis emphasizes that estimates from these methodologies could be very different. Indeed, our extension to a separate market for votes shows that the premium on the price of voting shares could be strictly positive even if the price of a separately traded vote is zero, consistent with the equity lending methodology producing the smallest estimates.

Capitalized Voting Premiums: Table I shows that studies using dual-class shares, dual-class tender offers, and block trades obtain much larger estimates than studies using the three other methods. We attribute this at least in part to the fact that the first three methods capitalize the value of voting rights over longer time horizons, which span potentially infinitely many future

[37] We ignore the fact that empirical studies express premiums as percentages by normalizing them by the share price. This difference is inconsequential for our qualitative assessment.

shareholder meetings, while the three other methods estimate the value of voting rights over a period of one year or less.

B. The Cross-Sectional Variation in the Voting Premium

Negative Values of the Voting Premium: Of the 40 studies we review, no less than 27 provide evidence of a negative voting premium for some firms in their sample (see Table I and Table IA.I in the Internet Appendix for details). Many researchers note that these findings are puzzling, since they are difficult to interpret in the context of extant theories. Empirical studies often explain a negative voting premium by pointing out that voting shares may suffer from a liquidity discount relative to nonvoting shares.[38] By contrast, a negative voting premium emerges naturally in our model because of the free-rider effect and the possibly substantial price impact of the blockholder's trades (see Proposition 5 and the related discussion). Moreover, our explanation also captures the liquidity difference between voting and nonvoting shares, if we define liquidity as price impact: The voting premium becomes negative in our model only if trading has a stronger price impact on voting shares than on nonvoting shares.

Voting Premiums, Takeovers, and Shareholder Meetings: A standard explanation for how the blockholder's willingness to pay for voting control is translated into higher prices for voting shares is the takeover mechanism, and several empirical studies find support for this explanation.[39] However, this theory has some limitations. First, since the 1990s, many countries have enacted coattail provisions, which mandate equal treatment of all classes of shares in control changes, yet the voting premium remains positive after such regulatory changes (e.g., Maynes (1996) and Nenova (2003)).[40] Second, in Table IA.II of the Internet Appendix we survey seven studies that provide evidence on the dual-class premium and the premium paid to superior-voting shares in dual-class tender offers. There, the dual-class tender-offer premium refers to the premium paid in actual tender offers, whereas the ex ante premium weighs the dual-class tender-offer premium by the in-sample frequency with which dual-class firms are acquired, which should provide a reasonable approximation to the ex ante expected tender-offer premium.[41] We also provide

[38] See the introduction. Domowitz, Glen, and Madhavan (1997) and Gardiol, Gibson-Asner, and Tuchschmid (1997) are among the first to show how liquidity differences between classes of stock differentiated by ownership and voting restrictions lead to price differentials.

[39] See Section I for details on these theories. For empirical evidence, see Bergström and Rydqvist (1992), Zingales (1995), Rydqvist (1996), and Smith and Amoako-Adu (1995).

[40] Maynes (1996) performs an event study of such coattail implementations and shows that a dual-class premium of 8.22% declines by about two percentage points (see her tables 2 and 3). Hence, about one-quarter of the voting premium could arguably be attributed to preferential treatment in takeovers.

[41] This is obviously a back-of-the-envelope calculation. Our calculations may overestimate the true ex ante voting premium because we neglect discounting, or underestimate it because we do not account for right-censoring of the data as acquisitions may occur after the sample period. We know of no study that provides rigorous estimates of the ex ante voting premium.

estimates of the premium paid for superior voting shares in the market, that is, the dual-class premium. The average ex ante voting premium accounts for only about one-quarter of the dual-class premium (6.08% compared to 22.49%). Hence, the takeover explanation probably explains only part of market premiums on voting shares.

In contrast to the takeover argument, our paper shows how the voting premium can arise without contests for majority control, and solely as a result of blockholders' desire to influence voting outcomes at shareholder meetings. This idea is consistent with the findings of the recent literature, which analyzes the time-series variation and finds that the voting premium is largest around shareholder meetings compared to other times of the year (Kind and Poltera (2013), Kalay, Karakas, and Pant (2014), Kind and Poltera (2017), and Fos and Holderness (2023)).

Voting Premiums and Ownership Structure: Studies on the relationship between the voting premium and ownership concentration show that it is often nonmonotonic: The value of voting rights is small both if ownership is very dispersed and if it is very concentrated with one blockholder who has majority control Kind and Poltera (2013).[42] Moreover, Smith and Amoako-Adu (1995) show that block ownership (the presence of blockholders with more than 10% ownership of the votes) reduces the voting premium (see their table 6, p. 237). Our analysis of multiple blockholders suggests a new empirical direction by showing that it is not only the concentration of ownership that matters, but also the preferences of blockholders. Specifically, if blockholders have similar preferences, then ownership concentration is positively correlated with the voting premium, while if blockholders disagree with each other, the voting premium increases the more they disagree (see Section IV.D of the Internet Appendix).

VII. Conclusion

We develop a unified theory of blockholder governance, ownership structure, and the voting premium. In equilibrium, the voting premium reflects the blockholder's marginal willingness to pay for a voting share and to change the preferences of the median voter. By trading, the blockholder affects the median voter both directly, by accumulating additional voting rights, and indirectly, by buying shares from investors who disagree with him the most.

Our analysis has several important implications for theoretical and empirical work in this area. First, a positive voting premium arises even in the absence of takeovers and acquisitions of controlling stakes, so future studies should pay more attention to voting at shareholder meetings. Second, a small voting premium does not necessarily imply that voting rights are worthless;

[42] Commonly analyzed characteristics of the ownership structure are the prevalence and size of the first- and the second-largest blockholders, oceanic Shapley values (following Rydqvist (1987)), and insider ownership. Of the 40 studies we review, at least 18 provide evidence for the relevance of one of the indicators of ownership for the respective measure of the voting premium.

instead, it can indicate that the accumulated voting block is relatively large. Third, the voting premium is not a good proxy for conflicts of interest between blockholders and small shareholders. Fourth, the value of votes when they are bundled with cash flow rights is different from the value of votes when they are traded separately. Last, the voting premium can be negative—this happens when the liquidity of voting shares is endogenously lower than that of nonvoting shares because of small shareholders free-riding on the blockholder's trades.

Acknowledgment

Open access funding enabled and organized by Projekt DEAL.

Initial submission: November 15, 2023; Accepted: January 12, 2025
Editors: Antoinette Schoar, Urban Jermann, Leonid Kogan, Jonathan Lewellen, and Thomas Philippon

Appendix: Proofs

Our proofs rely on γ being finite but large enough. In particular, in the proof of each result below, we formally define a separate (finite) cutoff on γ such that if γ exceeds this cutoff, the statement of the result holds. Since the proofs of subsequent results build on the proofs of earlier results, in each subsequent proof we assume that γ is above the cutoffs defined in the previous proofs. We next define $\bar{\gamma}$ (introduced in equation (3)) as the maximum of the cutoffs in each of the proofs below. Then, for any finite $\gamma > \bar{\gamma}$, all the results hold.

Proof of Lemma 1: Given the realization of q, a shareholder with bias b votes for the proposal if and only if $q > -b$. Denote the fraction of post-trade shares voted in favor by $\Lambda(q)$, and note that $\Lambda(q)$ is weakly increasing. There are three cases. (i) If $\Lambda(\Delta) \leq \tau$ for the highest possible $q = \Delta$, then q^* in the statement of the lemma equals Δ. (ii) If $\Lambda(-\Delta) > \tau$ for the lowest possible $q = -\Delta$, then q^* in the statement of the lemma equals $-\Delta$. (iii) Finally, if $\Lambda(-\Delta) \leq \tau < \Lambda(\Delta)$, there exists $q^* \in [-\Delta, \Delta)$ such that the fraction of votes in favor of the proposal exceeds τ if and only if $q > q^*$, so the proposal is approved if and only if $q > q^*$.

Proof of Proposition 1: Recall that $\underline{q} = s^{-1}\left(\tau - \alpha - y; y, q_e^*\right)$ and $\overline{q} = s^{-1}\left(\tau; y, q_e^*\right)$, and denote the corresponding functions by $\underline{q}\left(y, q_e^*\right)$ and $\overline{q}\left(y, q_e^*\right)$. By the arguments in the main text prior to the proposition, the proposal is approved if and only if $q > -b_{MV}\left(\beta, y, q_e^*\right)$, where

$$b_{MV}\left(\beta, y, q_e^*\right) = \begin{cases} -\overline{q}\left(y, q_e^*\right) & \text{if } \beta < -\overline{q}\left(y, q_e^*\right) \\ \beta & \text{if } -\overline{q}\left(y, q_e^*\right) \leq \beta \leq -\underline{q}\left(y, q_e^*\right) \\ -\underline{q}\left(y, q_e^*\right) & \text{if } -\underline{q}\left(y, q_e^*\right) < \beta \end{cases} \tag{A1}$$

is the bias of the median voter.

Since shareholders' expectations q_e^* at the trading stage have to be consistent with the actual decision rule at the voting stage, the equilibrium at the voting stage can be characterized as follows: The proposal is approved if and only if $q > q^*(y)$, where

$$-q^*(y) = \begin{cases} \beta_L(y) & \text{if } \beta < \beta_L(y) \\ \beta & \text{if } \beta_L(y) \le \beta \le \beta_H(y) \\ \beta_H(y) & \text{if } \beta_H(y) < \beta \end{cases} \tag{A2}$$

is the bias of the median voter, and $\beta_L(y)$ and $\beta_H(y)$ are the solutions of

$$\beta_L(y) = -\overline{q}(y, -\beta_L) \Leftrightarrow s(-\beta_L; y, -\beta_L) = \tau, \tag{A3}$$

$$\beta_H(y) = -\underline{q}(y, -\beta_H) \Leftrightarrow s(-\beta_H; y, -\beta_H) = \tau - \alpha - y. \tag{A4}$$

Using (14), conditions (A3) and (A4) can be rewritten as

$$R(\beta_L; y, -\beta_L) = 1 - \frac{\tau}{1-\alpha-y}, \tag{A5}$$

$$R(\beta_H; y, -\beta_H) = 1 - \frac{\tau-\alpha-y}{1-\alpha-y}. \tag{A6}$$

From (13), $R\left(b'; y, q^*\right)$ is a cdf, lies in the unit interval, and

$$\lim_{\beta \to -\overline{b}} R(\beta; y, -\beta) = 0 \text{ and } \lim_{\beta \to \overline{b}} R(\beta; y, -\beta) = 1. \tag{A7}$$

According to Lemma IA.2 in the Internet Appendix, there exists $\bar{\gamma}_1$ such that for any $\gamma > \bar{\gamma}_1$, no shareholder short sells and the blockholder's optimal trade satisfies $1 - \alpha - y > \tau$ and $\alpha + y < \tau$. Hence, for such γ, we can restrict attention to y satisfying these properties. The right-hand sides of both (A5) and (A6) then lie in $(0, 1)$, and since R is continuous, (A7) implies that solutions to (A5) and (A6), and therefore, to (A3) and (A4), exist. Note that the function R does not depend on β, and hence these solutions do not depend on β either. Using (13) and simplifying, we can show that the derivative of $R(\beta; y, -\beta)$ with respect to β is

$$\frac{\partial R(\beta; y, -\beta)}{\partial \beta} = g(\beta)\left(1 + \frac{\beta - \mathbb{E}[b]}{\gamma}\frac{H(-\beta)}{1-\alpha-y}\right) - G(\beta)\frac{f(-\beta)}{1-\alpha-y}\frac{\mathbb{E}[b] - \mathbb{E}[b|b<\beta]}{\gamma}. \tag{A8}$$

From (11) and (12), the first term in (A8) equals $r(\beta; y, -\beta) > 0$. Since $\mathbb{E}\left[b\right] > \mathbb{E}\left[b|b<\beta\right]$, $R(\beta; y, -\beta)$ may be nonmonotonic in β. From (A8), $\frac{\partial R(\beta; y, -\beta)}{\partial \beta} > 0$ if and only if

$$\frac{\frac{G(\beta)}{g(\beta)} f(-\beta)\left(\mathbb{E}[b] - \mathbb{E}[b|b<\beta]\right) + H(-\beta)\left(\mathbb{E}[b] - \beta\right)}{1-\alpha-y} < \gamma. \tag{A9}$$

Since $g(\beta)$ is positive, (A9) implies that there exists $\overline{\gamma} > \bar{\gamma}_1$ such that if $\gamma > \overline{\gamma}$, then $\frac{\partial R(\beta;y,-\beta)}{\partial \beta} > 0$ for all $y \geq -\alpha$ and all $\beta \in \left[-\bar{b}, \bar{b}\right]$. In this case, (A7) implies that the solutions to (A3) and (A4) exist, are unique, and lie in $\left(-\bar{b}, \bar{b}\right)$; as noted above, they do not depend on β.

Suppose $\gamma > \overline{\gamma}$, such that $\beta_L(y)$ and $\beta_H(y)$ exist and are unique. For $y = -\alpha$ (when the blockholder sells his entire endowment), the right-hand sides of (A5) and (A6) are identical, so we can define

$$\beta^* \equiv \beta_H(-\alpha) = \beta_L(-\alpha), \tag{A10}$$

or equivalently, $R(\beta^*; y, -\beta^*) = 1 - \tau$. Auxiliary Lemma IA.1 in the Internet Appendix shows that $\beta_L(y)$ is decreasing in y, $\lim_{y \nearrow 1-\tau-\alpha} \beta_L(y) = -\overline{b}$, $\beta_H(y)$ is increasing in y, and $\lim_{y \nearrow \tau-\alpha} \beta_H(y) = \overline{b}$. Using these properties, there are two cases to consider.

Case 1: $\beta \in (\beta^*, \overline{b}]$. Then $\beta > \beta_L(y)$ for all y, and there exists y_H such that $\beta_H(y) \geq \beta$ if and only if $y \geq y_H$, where from (A6),

$$y_H = 1 - \alpha - \frac{1-\tau}{G(\beta)} - \frac{1}{\gamma}\left(\mathbb{E}\left[b\right] - \mathbb{E}\left[b|b < \beta\right]\right)H(-\beta). \tag{A11}$$

Equation (A2) then implies that if $y \geq y_H$, the median voter is the blockholder (i.e., $-q^*(y) = \beta$), and if $y < y_H$, the median voter is a small shareholder with bias $\beta_H(y)$. Suppose $y < y_H$. Since $\beta_H(y)$ is increasing in y and $\beta > \beta_H(y)$, then $|\beta + q^*(y)| = \beta - \beta_H(y)$ decreases in y.

Case 2: $\beta \in [-\overline{b}, \beta^*)$. Then $\beta < \beta_H(y)$ for all y, and there exists y_L such that $\beta_L(y) > \beta$ if and only if $y < y_L$, where from (A5),

$$y_L = 1 - \alpha - \frac{\tau}{1 - G(\beta)} + \frac{1}{\gamma}\frac{G(\beta)}{1 - G(\beta)}\left(\mathbb{E}\left[b\right] - \mathbb{E}\left[b|b < \beta\right]\right)H(-\beta). \tag{A12}$$

Equation (A2) then implies that if $y \geq y_L$, the median voter is the blockholder (i.e., $-q^*(y) = \beta$), and if $y < y_L$, the median voter is a small shareholder with bias $\beta_L(y)$. Suppose $y < y_L$. Since $\beta_L(y)$ is decreasing in y and $\beta < \beta_L(y)$, then $|\beta + q^*(y)| = \beta_L(y) - \beta$ decreases in y.

Setting $\bar{y}$ as y_H if $\beta \in (\beta^*, \overline{b}]$ and as y_L if $\beta \in [-\overline{b}, \beta^*)$ completes the proof. Section III.D in the Internet Appendix visualizes the functions $\beta_L(y)$ and $\beta_H(y)$.

Proof of Proposition 2: Throughout the proof, we assume that γ is large enough, $\gamma > \bar{\gamma}$, where $\bar{\gamma}$ does not depend on β. In particular, we use the assumption of large γ in several places, defining several cutoffs on γ that do not depend on β (all formally defined below), above which our derivations hold. The overall cutoff $\bar{\gamma}$ is the maximum among these cutoffs.

By Lemma IA.2 in the Internet Appendix, there exists $\overline{\gamma}_1$ such that if $\gamma > \overline{\gamma}_1$, then for all β, the blockholder's trade y lies in the interval $[-\varepsilon, \varepsilon] \subset (-\alpha, \min\{\tau - \alpha, 1 - \tau - \alpha\})$ for some $\varepsilon > 0$. Given (5), (10), and (18), we have

$$\Pi(y,\beta) = \alpha v(\beta, q^*(y)) + y\big(\beta - \mathbb{E}[b]\big)H(q^*) - (\gamma + 0.5\eta)y^2$$
$$= \alpha v_0 + \alpha\mathbb{E}[\theta|q > q^*(y)]H(q^*) + \big((\alpha+y)\beta - y\mathbb{E}[b]\big)H(q^*) - (\gamma+0.5\eta)y^2, \tag{A13}$$

$$\frac{\partial\Pi(y,\beta)}{\partial y} = (\beta - \mathbb{E}[b])H(q^*(y)) - (2\gamma+\eta)y + \frac{\partial(-q^*(y))}{\partial y}\big[\alpha\big(q^*(y)+\beta\big) + y(\beta - \mathbb{E}[b])\big]f(q^*(y)), \tag{A14}$$

where $q^*(y)$ is given by (A2). Both $\frac{\partial(-q^*(y))}{\partial y}$ and $\frac{\partial\Pi(y,\beta)}{\partial y}$ do not exist when $y \in \{y_L(\beta), y_H(\beta)\}$, where $y_L(\beta)$ and $y_H(\beta)$ are the trades above which the blockholder becomes the median voter if $\beta < \beta^*$ and if $\beta > \beta^*$, respectively; they are defined by (A12) and (A11) and depicted in Figure IA.1 in the Internet Appendix.

By Proposition 1, there exists $\overline{\gamma}_2 > \overline{\gamma}_1$, which does not depend on β, such that if $\gamma > \overline{\gamma}_2$, then $\beta_L(y)$ and $\beta_H(y)$ are well-defined continuous functions of y; these functions do not depend on β. Then $\Pi(y,\beta)$ is a continuous function of y, and the optimal y lies in $[-\varepsilon,\varepsilon]$. Hence, $\Pi(y,\beta)$ has a maximum on $[-\varepsilon,\varepsilon]$, although its maximizer is not necessarily unique. Recall from (A10) that $\beta^* = \beta_H(-\alpha) = \beta_L(-\alpha)$, and that by Lemma IA.1, $\lim_{\gamma\to\infty}\beta^* = G^{-1}(1-\tau) \in \left(-\overline{b}, \overline{b}\right)$. Consider three cases: $\beta < \beta^*$, $\beta = \beta^*$, and $\beta > \beta^*$.

First, suppose $\beta \in [-\overline{b}, \beta^*)$. Since $\beta^* = \beta_L(-\alpha) = \beta_H(-\alpha) \le \beta_H(y)$ for all y, we have $\beta < \beta_H(y)$ for all y. Based on (A2),

$$-q^*(y) = \begin{cases} \beta_L(y) & \text{if } \beta < \beta_L(y) \\ \beta & \text{if } \beta_L(y) \le \beta, \end{cases} \tag{A15}$$

and $\beta < \beta_L(y) \Leftrightarrow y < y_L$, where y_L is given by (A12). We define it as a function of β: $y_L(\beta)$.

By Lemma IA.1, $\beta_L'(y) < 0$, and hence $y_L'(\beta) < 0$. Define

$$\Pi_{\text{mv}}(y,\beta) \equiv \alpha v(\beta, -\beta) + y\big(\beta - \mathbb{E}[b]\big)H(-\beta) - (\gamma+0.5\eta)y^2, \tag{A16}$$

$$\Pi^L_{\text{non-mv}}(y,\beta) \equiv \alpha v(\beta, -\beta_L(y)) + y\big(\beta - \mathbb{E}[b]\big)H(-\beta_L(y)) - (\gamma+0.5\eta)y^2, \tag{A17}$$

which are the payoff functions of the blockholder if he becomes the median voter ($q^* = -\beta$) and if he does not become the median voter ($q^* = -\beta_L(y)$), respectively. Notice that

$$\Pi(y,\beta) = \begin{cases} \Pi^L_{\text{non-mv}}(y,\beta) & \text{if } y < y_L(\beta) \\ \Pi_{\text{mv}}(y,\beta) & \text{if } y \ge y_L(\beta). \end{cases} \tag{A18}$$

Both functions are continuous. Since $\Pi_{\text{mv}}(y_L(\beta),\beta) = \Pi^L_{\text{non-mv}}(y_L(\beta),\beta)$, it follows that $\Pi(y,\beta)$ is also continuous. In addition, Lemma IA.2 and Lemma IA.3 in the Internet Appendix imply that there exists $\overline{\gamma}_3 > \overline{\gamma}_2$ such that if $\gamma > \overline{\gamma}_3$, then for any β, the maximizers of $\Pi^L_{\text{non-mv}}(y,\beta)$, $\Pi_{\text{mv}}(y,\beta)$, and $\Pi^H_{\text{non-mv}}(y,\beta)$ (defined below by (A33)) lie in some interval $[-\varepsilon,\varepsilon] \subset (-\alpha, \min\{\tau-\alpha, 1-\tau-\alpha\})$

and all three functions are concave. Consider such γ. Then $\Pi_{\text{mv}}(y,\beta)$ has a unique maximizer, which solves the first-order condition

$$y_{\text{mv}}(\beta) \equiv \frac{1}{2\gamma+\eta}\big(\beta - \mathbb{E}[b]\big)H(-\beta). \tag{A19}$$

Similarly, the unique maximizer of $\Pi^L_{\text{non-mv}}(y,\beta)$ is $y^L_{\text{non-mv}}(\beta)$, which is the unique solution of

$$y = \frac{1}{2\gamma+\eta}\big(\beta - \mathbb{E}[b]\big)H(-\beta_L(y)) + \frac{1}{2\gamma+\eta}MPV^L(y,\beta), \tag{A20}$$

where from (A14),

$$MPV^L(y,\beta) \equiv \frac{\partial \beta_L(y)}{\partial y} f(-\beta_L(y))[\alpha(\beta - \beta_L(y)) + y\big(\beta - \mathbb{E}[b]\big)]. \tag{A21}$$

Thus, the maximizer of $\Pi(y,\beta)$ lies in the set $\{y_{\text{mv}}(\beta), y^L_{\text{non-mv}}(\beta), y_L(\beta)\}$. Note that $y^L_{\text{non-mv}}(\beta)$ could be potentially larger than $y_L(\beta)$ (in which case it is not the maximizer), and similarly, $y_{\text{mv}}(\beta)$ could be smaller than $y_L(\beta)$ (in which case it is not the maximizer).

We next define the right and left derivatives of the blockholder's payoff function at $y_L(\beta)$:

$$\begin{aligned}\Delta^L_r(\beta) &\equiv \frac{\partial \Pi(y,\beta)}{\partial y}\Big|_{y\searrow y_L(\beta)} = \frac{\partial \Pi_{\text{mv}}(y,\beta)}{\partial y}\Big|_{y=y_L(\beta)} \\ &= \big(\beta - \mathbb{E}[b]\big)H(-\beta) - (2\gamma+\eta)y_L(\beta);\end{aligned} \tag{A22}$$

$$\begin{aligned}\Delta^L_l(\beta) &\equiv \frac{\partial \Pi(y,\beta)}{\partial y}\Big|_{y\nearrow y_L(\beta)} = \frac{\partial \Pi^L_{\text{non-mv}}(y,\beta)}{\partial y}\Big|_{y=y_L(\beta)} \\ &= \Delta^L_r(\beta) + \frac{\partial \beta_L(y)}{\partial y}\Big|_{y=y_L(\beta)} y_L(\beta)\big(\beta - \mathbb{E}[b]\big)f(-\beta),\end{aligned} \tag{A23}$$

where we use $\beta_L(y_L(\beta)) = \beta$ and $\frac{\partial v(\beta,q^*(y))}{\partial(-q^*)}\big|_{y=y_L(\beta)} = (\beta + q^*(y))\, f(q^*(y))\,|_{y=y_L(\beta)} = 0$.

In Section III.G.3 of the Internet Appendix, we show that there exists a cutoff $\overline{\gamma}_4 > \overline{\gamma}_3$ such that if $\gamma > \overline{\gamma}_4$, then for all $\beta \in [-\overline{b}, \beta^*)$, we have $\frac{\partial \Delta^L_r(\beta)}{\partial \beta} > 0$, $\frac{\partial \Delta^L_l(\beta)}{\partial \beta} > 0$, $\Delta^L_r(\beta^*) > 0$, and $\Delta^L_l(\beta^*) > 0$. Consider such γ, and define κ^L_r and κ^L_l as solutions to

$$\Delta^L_r\big(\kappa^L_r\big) = 0, \tag{A24}$$

$$\Delta^L_l\big(\kappa^L_l\big) = 0. \tag{A25}$$

Since Δ^L_r and Δ^L_l are increasing and $\Delta^L_r(\beta^*) > 0$, $\Delta^L_l(\beta^*) > 0$, these solutions, if they exist, are unique and are strictly smaller than β^*. In Section III.G.4 of the Internet Appendix, we show that if $\gamma > \bar{\gamma}_4$, then $-\overline{b} < \kappa^L_r \le \kappa^L_l < \beta^*$,

$$\min\big\{\beta_L(0), \mathbb{E}[b]\big\} \le \kappa^L_r \le \kappa^L_l \le \max\big\{\beta_L(0), \mathbb{E}[b]\big\}, \tag{A26}$$

and $\kappa_r^L < \kappa_l^L$ if and only if $\beta_L(0) \neq \mathbb{E}[b]$. We next consider three cases.

(i) If $\beta \in [-\overline{b}, \kappa_r^L)$, then $\Delta_l^L(\beta) < 0$, $\Delta_r^L(\beta) < 0$, so both the left and the right derivative of $\Pi(y, \beta)$ are negative at $y_L(\beta)$, and since $\Pi(y, \beta)$ is continuous at $y_L(\beta)$, the optimal trade $y^* < y_L(\beta)$. In particular, $\Delta_l^L(\beta) < 0$ implies that in this case $y^L_{\text{non-mv}}(\beta)$ is smaller than $y_L(\beta)$, and hence $y^* = y^L_{\text{non-mv}}(\beta)$.

(ii) If $\beta \in [\kappa_r^L, \kappa_l^L)$, then $\Delta_l^L(\beta) < 0 \leq \Delta_r^L(\beta)$. Hence, $y_L(\beta)$ cannot be the maximizer, and $y^* \in \{y_{\text{mv}}(\beta), y^L_{\text{non-mv}}(\beta)\}$. Note that if $\beta = \kappa_r^L$, then $\Delta_l^L(\beta) < 0 = \Delta_r^L(\beta)$. Hence, $y_{\text{mv}}(\beta) = y_L(\beta)$ and $\Pi^L_{\text{non-mv}}(y^L_{\text{non-mv}}(\beta), \beta) > \Pi_{\text{mv}}(y_{\text{mv}}(\beta), \beta)$. If $\beta = \kappa_l^L$, then $\Delta_l^L(\beta) = 0 < \Delta_r^L(\beta)$. Hence, $y^L_{\text{non-mv}}(\beta) = y_L(\beta)$ and $\Pi^L_{\text{non-mv}}(y^L_{\text{non-mv}}(\beta), \beta) < \Pi_{\text{mv}}(y_{\text{mv}}(\beta), \beta)$. From the continuity of $\Pi^L_{\text{non-mv}}(y^L_{\text{non-mv}}(\beta), \beta)$ and $\Pi_{\text{mv}}(y_{\text{mv}}(\beta), \beta)$ in β, there exist $b^L_{\text{non-mv}}$ and b^L_{mv} that satisfy

$$\kappa_r^L < b^L_{\text{non-mv}} \leq b^L_{\text{mv}} < \kappa_l^L, \tag{A27}$$

such that if $\beta \in [\kappa_r^L, b^L_{\text{non-mv}})$, then $\Pi^L_{\text{non-mv}}(y^L_{\text{non-mv}}(\beta), \beta) > \Pi_{\text{mv}}(y_{\text{mv}}(\beta), \beta)$, and if $\beta \in (b^L_{\text{mv}}, \kappa_l^L]$, then $\Pi^L_{\text{non-mv}}(y^L_{\text{non-mv}}(\beta), \beta) < \Pi_{\text{mv}}(y_{\text{mv}}(\beta), \beta)$. Thus, $y^* = y^L_{\text{non-mv}}(\beta)$ for $\beta \in [\kappa_r^L, b^L_{\text{non-mv}})$, and $y^* = y^L_{\text{mv}}(\beta)$ for $\beta \in (b^L_{\text{mv}}, \kappa_l^L]$. If $\beta \in (b^L_{\text{non-mv}}, b^L_{\text{mv}})$, then y^* is either $y_{\text{mv}}(\beta)$ or $y^L_{\text{non-mv}}(\beta)$, depending on the sign of $\Pi^L_{\text{non-mv}}(y^L_{\text{non-mv}}(\beta), \beta) - \Pi_{\text{mv}}(y_{\text{mv}}(\beta), \beta)$. From (A26), notice that the interval $[\kappa_r^L, \kappa_l^L]$, and hence $[b^L_{\text{non-mv}}, b^L_{\text{mv}}]$, collapses to a single point if $\beta_L(0) = \mathbb{E}[b]$.

(iii) If $\beta \in [\kappa_l^L, \beta^*)$, then $\Delta_r^L(\beta) > 0$, $\Delta_l^L(\beta) \geq 0$, and since $\Pi(y, \beta)$ is continuous at $y_L(\beta)$, the optimal trade $y^* \geq y_L(\beta)$. In particular, since $\frac{\partial \Pi_{\text{mv}}(y,\beta)}{\partial y}|_{y=y_L(\beta)} = \Delta_r^L(\beta)$, then $\Delta_r^L(\beta) > 0$ implies that in this case $y_{\text{mv}}(\beta)$ is larger than $y_L(\beta)$, so $y^* = y_{\text{mv}}(\beta)$.

Combining the three cases above, we conclude that $y^* = y_{\text{mv}}(\beta)$ if $\beta \in [b^L_{\text{mv}}, \beta^*)$, $y^* = y_{\text{non-mv}}(\beta)$ if $\beta \leq [-\bar{b}, b^L_{\text{non-mv}}]$, and y^* is either $y_{\text{mv}}(\beta)$ or $y_{\text{non-mv}}(\beta)$ in $(b^L_{\text{non-mv}}, b^L_{\text{mv}})$, where

$$\kappa_r^L < b^L_{\text{non-mv}} \leq b^L_{\text{mv}} < \kappa_l^L. \tag{A28}$$

Overall, there are two cases.

(i) If $y^* = y_{\text{mv}}(\beta)$, then $q^*(y^*) = -\beta$. Using the definition of $MPV(y)$ in (19), we get that in this region, $MPV(y^*) = \frac{\partial \Pi(y)}{\partial(-q^*(y))}\frac{\partial(-q^*(y))}{\partial y} = 0$. Next, based on (17),

$$\begin{aligned}
p^*(y^*) &= \gamma y_{\text{mv}}(\beta) + v(\mathbb{E}[b], -\beta) \qquad \text{(A29)}\\
&= v_0 + \left(\frac{\gamma}{2\gamma + \eta}\beta + \left(1 - \frac{\gamma}{2\gamma + \eta}\right)\mathbb{E}[b] + \mathbb{E}[\theta | q > -\beta]\right)H(-\beta)\\
&= v(b^*, -\beta) = v(b^*, q^*(y^*)),
\end{aligned}$$

where b^* is given by (23). Together, this gives (21) and (24) if we set $\sigma(\beta) = 1$ in this region.

(ii) If $y^* = y^L_{\text{non-mv}}(\beta)$, then $q^*(y^*) = -\beta_L(y^*) < -\beta$. Using the definition of $MPV(y)$ in (19), $MPV(y^*) = \frac{\partial \Pi(y)}{\partial(-q^*(y))}\frac{\partial(-q^*(y))}{\partial y} = MPV^L(y^L_{\text{non-mv}}(\beta), \beta)$. Next, based on (17),

$$p^*(y^*) = \gamma y^L_{\text{non-mv}}(\beta) + v(\mathbb{E}[b], -\beta_L(y^L_{\text{non-mv}}(\beta))) = \frac{\gamma}{2\gamma+\eta}(\beta - \mathbb{E}[b])H(-\beta_L(y^L_{\text{non-mv}}(\beta)))$$

$$+\frac{\gamma}{2\gamma+\eta}MPV^L(y^L_{\text{non-mv}}(\beta), \beta) + v(\mathbb{E}[b], -\beta_L(y^L_{\text{non-mv}}(\beta)))$$

$$= v(b^*, -\beta_L(y^L_{\text{non-mv}}(\beta))) + \frac{\gamma}{2\gamma+\eta}MPV^L(y^L_{\text{non-mv}}(\beta), \beta) = v(b^*, q^*(y^*))$$

$$+\frac{\gamma}{2\gamma+\eta}MPV(y^*). \tag{A30}$$

This gives (21) and (24) if we set $\sigma(\beta) = 1$ in this region. This concludes the case $\beta < \beta^*$.

Second, suppose $\beta = \beta^*$. Then, for any $y > -\alpha$, we have $\beta_L(y) < \beta_L(-\alpha) = \beta = \beta_H(-\alpha) < \beta_H(y)$, and hence by (A2), $-q^*(y) = \beta$ for all y. Hence, the blockholder maximizes $\Pi_{\text{mv}}(y, \beta)$, so his optimal trade is $y^* = y_{\text{mv}}(\beta^*)$. Thus, as in region (i) of the first case, $p^*(y^*) = v(b^*, q^*(y^*))$ and $MPV(y^*) = 0$, which gives (21) and (24) if we set $\sigma(\beta) = 1$ in this region. Combined with the first case, we get $y^* = y_{\text{mv}}(\beta)$, $q^*(y^*) = -\beta$ for all $\beta \in [b^L_{\text{mv}}, \beta^*]$.

Third, suppose $\beta \in (\beta^*, \bar{b}]$. Since $\beta^* = \beta_H(-\alpha) = \beta_L(-\alpha) > \beta_L(y)$ for all y, we have $\beta > \beta_L(y)$ for all y. Based on (A2),

$$-q^*(y) = \begin{cases} \beta & \text{if } \beta \le \beta_H(y) \\ \beta_H(y) & \text{if } \beta_H(y) < \beta, \end{cases} \tag{A31}$$

and $\beta > \beta_H(y) \Leftrightarrow y < y_H$, where y_H is given by (A11). We define it as a function of β: $y_H(\beta)$.

By Lemma IA.1, $\beta'_H(y) > 0$, and hence $y'_H(\beta) > 0$. Note that

$$\Pi(y, \beta) = \begin{cases} \Pi^H_{\text{non-mv}}(y, \beta) & \text{if } y < y_H(\beta) \\ \Pi_{\text{mv}}(y, \beta) & \text{if } y \ge y_H(\beta), \end{cases} \tag{A32}$$

where $\Pi_{\text{mv}}(y, \beta)$ is defined as before (by (A16)), and

$$\Pi^H_{\text{non-mv}}(y, \beta) \equiv \alpha v(\beta, -\beta_H(y)) + y(\beta - \mathbb{E}[b])H(-\beta_H(y)) - (\gamma + 0.5\eta)y^2. \tag{A33}$$

Both functions are continuous. Since $\Pi_{\text{mv}}(y_H(\beta), \beta) = \Pi^H_{\text{non-mv}}(y_H(\beta), \beta)$, $\Pi(y, \beta)$ is also continuous. The unique maximizer of $\Pi_{\text{mv}}(y, \beta)$ is the same as before ($y_{\text{mv}}(\beta)$, given by (A19)), and the unique maximizer of $\Pi^H_{\text{non-mv}}(y, \beta)$ is $y^H_{\text{non-mv}}(\beta)$, which is the unique solution of

$$y = \frac{1}{2\gamma+\eta}(\beta - \mathbb{E}[b])H(-\beta_H(y)) + \frac{1}{2\gamma+\eta}MPV^H(y, \beta), \tag{A34}$$

where

$$MPV^H(y, \beta) \equiv \frac{\partial \beta_H(y)}{\partial y} f(-\beta_H(y))[\alpha(\beta - \beta_H(y)) + y(\beta - \mathbb{E}[b])]. \tag{A35}$$

Thus, the maximizer of $\Pi(y, \beta)$ is in the set $\{y_{\text{mv}}(\beta), y^H_{\text{non-mv}}(\beta), y_H(\beta)\}$. Note that $y^H_{\text{non-mv}}(\beta)$ could potentially be larger than $y_H(\beta)$ (in which case it is not the maximizer), and similarly, $y_{\text{mv}}(\beta)$ could be smaller than $y_H(\beta)$ (in which case it is not the maximizer).

We next calculate the right and left derivatives of the blockholder's payoff function at $y_H(\beta)$:

$$\Delta_r^H(\beta) \equiv \frac{\partial \Pi(y,\beta)}{\partial y}|_{y\searrow y_H(\beta)} = \frac{\partial \Pi_{\text{mv}}(y,\beta)}{\partial y}|_{y=y_H(\beta)} \tag{A36}$$
$$= \big(\beta - \mathbb{E}[b]\big)H(-\beta) - (2\gamma+\eta)y_H(\beta);$$
$$\Delta_l^H(\beta) \equiv \frac{\partial \Pi(y,\beta)}{\partial y}|_{y\nearrow y_H(\beta)} = \frac{\partial \Pi^H_{\text{non-mv}}(y,\beta)}{\partial y}|_{y=y_H(\beta)} \tag{A37}$$
$$= \Delta_r^H(\beta) + \frac{\partial \beta_H(y)}{\partial y}|_{y=y_H(\beta)} y_H(\beta)\big(\beta - \mathbb{E}[b]\big)f(-\beta).$$

In Section III.G.3 of the Internet Appendix, we show that there exists a cutoff $\overline{\gamma}_5 > \bar{\gamma}_4$ such that if $\gamma > \overline{\gamma}_5$, then $\frac{\partial \Delta_r^H(\beta)}{\partial \beta} < 0$, $\frac{\partial \Delta_l^H(\beta)}{\partial \beta} < 0$, $\Delta_r^H(\beta^*) > 0$, $\Delta_l^H(\beta^*) > 0$, $\Delta_r^H(\bar{b}) < 0$, and $\Delta_l^H(\bar{b}) < 0$. Consider such γ, and define κ_r^H and κ_l^H as solutions to

$$\Delta_r^H\big(\kappa_r^H\big) = 0, \tag{A38}$$
$$\Delta_l^H\big(\kappa_l^H\big) = 0. \tag{A39}$$

Since Δ_r^H and Δ_l^H are decreasing and take opposite signs at β^* and $\bar{b}$, these solutions exist, are unique, and lie in $\big(\beta^*, \bar{b}\big)$. In Section III.G.4 of the Internet Appendix, we show that for $\gamma > \bar{\gamma}_5$, we have

$$\beta^* < \kappa_r^H \le \kappa_l^H < \bar{b}, \tag{A40}$$

either $\mathbb{E}\left[b\right] \le \beta_H(0) \le \kappa_r^H \le \kappa_l^H < \bar{b}$ or $\beta^* < \kappa_r^H \le \kappa_l^H < \beta_H(0) < \mathbb{E}\left[b\right]$, and $\kappa_r^H < \kappa_l^H$ if and only if $\beta_H(0) \neq \mathbb{E}\left[b\right]$. Consider three cases:

(i) If $\beta \in (\beta^*, \kappa_r^H)$, then $\Delta_r^H(\beta) > 0$, $\Delta_l^H(\beta) > 0$, so both the left and the right derivatives of $\Pi(y,\beta)$ are positive at $y_H(\beta)$, and since $\Pi(y,\beta)$ is continuous at $y_H(\beta)$, the optimal trade $y^* > y_H(\beta)$. In particular, $\Delta_r^H(\beta) > 0$ implies that $y_{\text{mv}}(\beta)$ in this case is larger than $y_H(\beta)$, so $y^* = y_{\text{mv}}(\beta)$.

(ii) If $\beta \in [\kappa_r^H, \kappa_l^H]$, then $\Delta_r^H(\beta) \le 0 \le \Delta_l^H(\beta)$. Hence, $y^* = y_H(\beta) \in [y_{\text{mv}}(\beta), y^H_{\text{non-mv}}(\beta)]$. Note also that $y_H(\beta)$ is strictly inside $\big(y_{\text{mv}}(\beta), y^H_{\text{non-mv}}(\beta)\big)$ if $\beta \in \big(\kappa_r^H, \kappa_l^H\big)$.

(iii) If $\beta \in (\kappa_l^H, \bar{b}]$, then $\Delta_r^H(\beta) < 0$, $\Delta_l^H(\beta) < 0$, so both the left and the right derivatives of $\Pi(y,\beta)$ are negative at $y_H(\beta)$, and since $\Pi(y,\beta)$ is continuous at $y_H(\beta)$, the optimal trade $y^* < y_H(\beta)$. In particular, $\Delta_l^H(\beta) < 0$ implies that $y^H_{\text{non-mv}}(\beta)$ in this case is smaller than $y_H(\beta)$, so $y^* = y^H_{\text{non-mv}}(\beta)$.

Combining the three cases above, we conclude that $y^* = y_{\text{mv}}(\beta)$ if $\beta \in \left[\beta^*, \kappa_r^H\right]$, $y^* = y_H(\beta)$ if $\beta \in [\kappa_r^H, \kappa_l^H]$, and $y^* = y^H_{\text{non-mv}}(\beta)$ if $\beta \ge \kappa_l^H$ (with the interval $[\kappa_r^H, \kappa_l^H]$ collapsing to a single point if $\beta_H(0) = \mathbb{E}\left[b\right]$). Consider each of the regions separately.

(i) If $\beta \leq \kappa_r^H$, then $y^* = y_{\text{mv}}(\beta)$, $q^*(y^*) = -\beta$, and $MPV(y^*) = 0$. Next, based on (17) and repeating the arguments used to derive (A29),

$$p^*(y^*) = \gamma y_{\text{mv}}(\beta) + v(\mathbb{E}[b], -\beta) = v(b^*, -\beta) = v(b^*, q^*(y^*)). \tag{A41}$$

This gives (21) and (24) if we set $\sigma(\beta) = 1$ in this region.

(ii) If $\beta \geq \kappa_l^H$, then $y^* = y_{\text{non-mv}}^H(\beta)$, $q^*(y^*) = -\beta_H(y^*) \geq -\beta$, and by the definition of $MPV(y)$ in (19), $MPV(y^*) = \frac{\partial \Pi(y)}{\partial(-q^*(y))} \frac{\partial(-q^*(y))}{\partial y} = MPV^H(y_{\text{non-mv}}^H(\beta), \beta)$. Next, based on (17) and repeating the arguments above,

$$\begin{aligned} p^*(y^*) &= v(b^*, -\beta_H(y_{\text{non-mv}}^H(\beta))) + \frac{\gamma}{2\gamma+\eta} MPV^H(y_{\text{non-mv}}^H(\beta), \beta) \\ &= v(b^*, q^*(y^*)) + \frac{\gamma}{2\gamma+\eta} MPV(y^*). \end{aligned} \tag{A42}$$

Together, this gives (21) and (24) if we set $\sigma(\beta) = 1$ in this region.

(iii) Last, if $\beta \in (\kappa_r^H, \kappa_l^H)$, then $y^* = y_H(\beta) \in (y_{\text{mv}}(\beta), y_{\text{non-mv}}^H(\beta))$ and $q^*(y^*) = -\beta$. Note that $MPV^H(y_H(\beta), \beta) = \lim_{y \nearrow y_H(\beta)} \frac{\partial \Pi(y)}{\partial(-q^*(y))} \frac{\partial(-q^*(y))}{\partial y}$ since $\Pi(y) = \Pi_{\text{non-mv}}^H(y, \beta)$ for $y < y_H(\beta)$. Hence, by the definition of $MPV(y)$ (see the footnote after (20)), $MPV(y_H(\beta)) = MPV^H(y_H(\beta), \beta)$. Using (A35) at $y = y_H(\beta)$ and the fact that $\beta_H(y_H(\beta)) = \beta$, we have

$$MPV^H(y_H(\beta), \beta) = \frac{\partial \beta_H(y)}{\partial y}|_{y=y_H(\beta)} f(-\beta) y_H(\beta)(\beta - \mathbb{E}[b]). \tag{A43}$$

Recall that if $\kappa_r^H < \beta < \kappa_l^H$, two cases are possible: (i) either $\mathbb{E}[b] < \beta_H(0) < \kappa_r^H < \beta < \kappa_l^H$ and $y_H(\beta) > 0$, or (ii) $\kappa_r^H < \beta < \kappa_l^H < \beta_H(0) < \mathbb{E}[b]$ and $y_H(\beta) < 0$. In both cases, $y_H(\beta)(\beta - \mathbb{E}[b]) > 0$, and hence $MPV^H(y_H(\beta), \beta) > 0$. Define

$$\sigma(\beta) = \frac{(2\gamma+\eta) y_H(\beta) - (\beta - \mathbb{E}[b]) H(-\beta)}{MPV^H(y_H(\beta), \beta)}. \tag{A44}$$

Then

$$y_H(\beta) = \frac{1}{2\gamma+\eta}(\beta - \mathbb{E}[b]) H(q^*(y_H(\beta))) + \frac{1}{2\gamma+\eta} \sigma(\beta) MPV^H(y_H(\beta), \beta), \tag{A45}$$

so (21) holds. Note that $\sigma(\beta) \in (0, 1)$: As shown above, whenever $\beta \in (\kappa_r^H, \kappa_l^H)$, we have $\Delta_r^H(\beta) < 0 < \Delta_l^H(\beta)$, and the latter is equivalent to $0 < \sigma(\beta) < 1$. Next, based on (17),

$$\begin{aligned} p^*(y^*) &= \gamma y_H(\beta) + v(\mathbb{E}[b], -\beta) = \tfrac{\gamma}{2\gamma+\eta}(\beta - \mathbb{E}[b]) H(-\beta) + \tfrac{\gamma}{2\gamma+\eta} \sigma(\beta) MPV^H(y_H(\beta), \beta) \\ &+ v(\mathbb{E}[b], -\beta) = v(b^*, -\beta) + \tfrac{\gamma}{2\gamma+\eta} \sigma(\beta) MPV(y_H(\beta)) = v(b^*, q^*(y^*)) + \tfrac{\gamma}{2\gamma+\eta} \sigma(\beta) MPV(y^*). \end{aligned} \tag{A46}$$

Together, this gives (21) and (24) with $\sigma(\beta)$ given by (A44). This concludes the case $\beta > \beta^*$.

Last, we combine cases $\beta \leq \beta^*$ and $\beta > \beta^*$. Recall that for any $\gamma > \bar{\gamma}_5$, we have $-\bar{b} < \kappa_r^L < b_{\text{non-mv}}^L \leq b_{\text{mv}}^L < \kappa_l^L < \beta^* < \kappa_r^H \leq \kappa_l^H < \bar{b}$. Define

$$b_{\text{mv}}^H \equiv \kappa_r^H \text{ and } b_{\text{non-mv}}^H \equiv \kappa_l^H. \tag{A47}$$

Then $b^L_{\text{non-mv}} \leq b^L_{\text{mv}} \leq b^H_{\text{mv}} < b^H_{\text{non-mv}}$. Moreover, $y^* = y^L_{\text{non-mv}}(\beta)$ for $\beta < b^L_{\text{non-mv}}$, $y^* \in \left\{y^L_{\text{non-mv}}(\beta), y_{\text{mv}}(\beta)\right\}$ for $\beta \in [b^L_{\text{non-mv}}, b^L_{\text{mv}}]$, $y^* = y_{\text{mv}}(\beta)$ for $\beta \in \left[b^L_{\text{mv}}, b^H_{\text{mv}}\right]$, $y^* = y_H(\beta)$ for $\beta \in [b^H_{\text{mv}}, b^H_{\text{non-mv}}]$, and $y^* = y^H_{\text{non-mv}}(\beta)$ for $\beta > b^H_{\text{non-mv}}$. Hence, (21), (23), and (24) hold for

$$\sigma(\beta) = \begin{cases} 1 & \text{if } \beta \notin (b^H_{\text{mv}}, b^H_{\text{non-mv}}), \\ \text{in } (0,1) \text{ and given by } (A44) & \text{if } \beta \in (b^H_{\text{mv}}, b^H_{\text{non-mv}}). \end{cases} \tag{A48}$$

In Lemma IA.4 in the Internet Appendix, we show that as $\gamma \to \infty$, the region $(b^H_{\text{mv}}, b^H_{\text{non-mv}})$ becomes infinitesimally small, and hence $\sigma(\beta) = 1$ almost everywhere. Finally, expression (22) directly follows from (11). Note that the equilibrium of the game is unique, except for a knife-edge case in the region $\beta \in [\kappa^L_r, \kappa^L_l)$, where the trades $y^L_{\text{non-mv}}(\beta)$ and $y_{\text{mv}}(\beta)$ result in the same payoff for the blockholder. This completes the proof of the proposition for any $\gamma > \bar{\gamma}_5$. In subsequent proofs, we assume that $\gamma > \bar{\gamma}_5$, so that the proposition and its arguments apply.

Proof of Corollary 1: Suppose $q^*(y^*)$ is fixed (denote it by q^* for simplicity). Denote by y^*_{CF} the optimal trade driven by the cash flow motive alone. Given $\alpha > 0$, the short-selling constraint does not bind for large enough γ, so (A14) implies that $y^*_{CF} = \frac{1}{2\gamma+\eta}\left(\beta - \mathbb{E}\left[b\right]\right) H(q^*)$. Using (10), $p_{CF}(q^*(y^*)) = \gamma y^*_{CF} + v\left(\mathbb{E}\left[b\right], q^*\right) = v\left(b^*, q^*(y^*)\right)$, as required.

Proof of Proposition 3: To prove this result, we rely on the proof of Proposition 2, and in particular, refer to the cutoffs $b^L_{\text{non-mv}} \leq b^L_{\text{mv}} < b^H_{\text{mv}} < b^H_{\text{non-mv}}$ defined in that proof.

Consider part (i). According to the proof of Proposition 2, if $\beta \in [b^L_{\text{mv}}, b^H_{\text{mv}}]$, then

$$y^* = y_{\text{mv}}(\beta) = \frac{1}{2\gamma + \eta}\left(\beta - \mathbb{E}\left[b\right]\right) H(-\beta) \tag{A49}$$

and $-q^*(y^*) = \beta$. Since $MPV(y^*, \beta) = 0$, the voting premium is zero. Letting

$$\beta^L_{\text{mv}} \equiv b^L_{\text{mv}} \text{ and } \beta^H_{\text{mv}} \equiv b^H_{\text{mv}} \tag{A50}$$

completes part (i). We prove part (ii) in several steps.

Step 1. First, define

$$\beta^H_{\text{non-mv}} \equiv b^H_{\text{non-mv}}. \tag{A51}$$

We will show that for large enough γ, if $\beta > \beta^H_{\text{non-mv}}$, then (i) the median voter is a small shareholder with a smaller bias than the blockholder, (ii) the voting premium is strictly positive, and (iii) the voting premium, the blockholder's trade, and the median voter all strictly increase in β. The first statement directly follows from the proof of Proposition 2, which shows that if $\beta > b^H_{\text{non-mv}}$, then $y^* = y^H_{\text{non-mv}}(\beta)$ and $-q^*(y^*) = \beta_H(y^*) < \beta$, that is, the median voter is a small shareholder with bias $\beta_H(y^*) < \beta$.

To prove the two other statements, recall that $y^H_{\text{non-mv}}(\beta)$ is the unique solution of (A34) and (A35). Recall also that $b^H_{\text{non-mv}} = \kappa^H_l$, which by definition is the solution to $\Delta^H_l(\kappa^H_l) = 0$. In addition, the proof of Proposition 2 shows that $\Delta^H_l(\kappa^H_r) \geq 0$, with a strict inequality when $\beta_H(0) \neq \mathbb{E}[b]$. Suppose that $\beta = \kappa^H_l\ (= b^H_{\text{non-mv}})$. Since $\Delta^H_l(\kappa^H_l) = 0$, we have $\frac{\partial \Pi^H_{\text{non-mv}}(y,\beta)}{\partial y}|_{y=y_H(\beta)} = 0$, and hence $y^H_{\text{non-mv}}(\beta) = y_H(\beta)$. Recall that in this case $y^* = y_H(\beta)$, and hence for this β, the equilibrium MPV satisfies

$$MPV^H\big(y_H(\kappa^H_l), \kappa^H_l\big) = \frac{\partial \beta_H(y)}{\partial y}|_{y=y_H(\kappa^H_l)} f(-\kappa^H_l) y_H(\kappa^H_l)\big(\kappa^H_l - \mathbb{E}[b]\big), \tag{A52}$$

where we use (A35) and the fact that $\beta - \beta_H(y_H(\beta)) = 0$. Next, (A36) and (A37) imply that

$$\Delta^H_l(\kappa^H_l) = \Delta^H_r(\kappa^H_l) + MPV^H\big(y_H(\kappa^H_l), \kappa^H_l\big). \tag{A53}$$

Since $\Delta^H_l(\kappa^H_r) \geq 0 = \Delta^H_l(\kappa^H_l)$, it follows that (A53) implies $MPV^H\big(y_H(\kappa^H_l), \kappa^H_l\big) \geq 0$ (with a strict inequality whenever $\beta_H(0) \neq \mathbb{E}[b]$), that is, the MPV is nonnegative for $\beta = \kappa^H_l = b^H_{\text{non-mv}}$.

Thus, to prove that the voting premium is strictly positive and increases in β for $\beta > \beta^H_{\text{non-mv}}$, it is sufficient to prove that $MPV^H(y^H_{\text{non-mv}}(\beta), \beta)$ strictly increases in β for $\beta > b^H_{\text{non-mv}}$. We prove this next. Using (A35) and noting that $\beta_H(y)$ does not depend on β, we have

$$\frac{\partial MPV^H(y,\beta)}{\partial \beta} = \frac{\partial \beta_H(y)}{\partial y} \times (\alpha + y) \times f(-\beta_H(y)) > 0, \tag{A54}$$

$$\begin{aligned}\frac{\partial MPV^H(y,\beta)}{\partial y} &= \frac{\partial^2 \beta_H(y)}{\partial y^2} \times \big[\alpha(\beta - \beta_H(y)) + y\big(\beta - \mathbb{E}[b]\big)\big] \times f(-\beta_H(y)) \\ &+ \frac{\partial \beta_H(y)}{\partial y} \times \left(\begin{array}{c}\Big[-\alpha \frac{\partial \beta_H(y)}{\partial y} + \big(\beta - \mathbb{E}[b]\big)\Big] \times f(-\beta_H(y)) \\ -\frac{\partial \beta_H(y)}{\partial y}\big[\alpha(\beta - \beta_H(y)) + y\big(\beta - \mathbb{E}[b]\big)\big] \times f'(-\beta_H(y))\end{array}\right).\end{aligned} \tag{A55}$$

Thus, $\frac{\partial MPV^H(y,\beta)}{\partial \beta}$ does not depend on β, and $\frac{\partial MPV^H(y,\beta)}{\partial y}$ can be written as $\beta M(y) + S(y)$, where $M(y)$ and $S(y)$ do not depend on β. Recall from the proof of Proposition 2 that $y^* \in [-\varepsilon, \varepsilon]$ for some $\varepsilon > 0$. The proofs of Lemma IA.1 and Lemma IA.3 imply that for a large enough γ, there exists $C > 0$ such that $\left|\frac{\partial \beta_H(y)}{\partial y}\right| < C$ and $\left|\frac{\partial^2 \beta_H(y)}{\partial y^2}\right| < C$ for all $y \in [-\varepsilon, \varepsilon]$. Since $f'(\cdot)$ is, by assumption, continuous and $|\beta_H(y)| \leq \bar{b}$, there exist $M > 0$ and $S > 0$ such that $|M(y)| < M$ and $|S(y)| < S$ for all $y \in [-\varepsilon, \varepsilon]$ and γ above some cutoff.

Since for $\beta > b^H_{\text{non-mv}}$ we have $y^* = y^H_{\text{non-mv}}(\beta)$, which satisfies (A34), we differentiate both sides of (A34) with respect to β and get

$$\frac{\partial y^*}{\partial \beta} = \frac{H(-\beta_H(y^*)) + \frac{\partial MPV^H(y^*,\beta)}{\partial \beta}}{2\gamma + \eta - \big(\beta - \mathbb{E}[b]\big) f(-\beta_H(y^*)) \frac{\partial \beta_H(y^*)}{\partial y} - \frac{\partial MPV^H(y^*,\beta)}{\partial y}} =$$

$$\frac{H(-\beta_H(y^*)) + \frac{\partial MPV^H(y^*,\beta)}{\partial\beta}}{2\gamma+\eta-\beta\Big[M(y^*)+f(-\beta_H(y^*))\frac{\partial\beta_H(y^*)}{\partial y}\Big]+\mathbb{E}\big[b\big]f(-\beta_H(y^*))\frac{\partial\beta_H(y^*)}{\partial y}-S(y^*)}, \quad \text{(A56)}$$

where y^* stands for $y^*(\beta)$, the optimal trade given bias β. For all $y \in [-\varepsilon, \varepsilon]$, we have $H(-\beta_H(y)) > 0$ and $\frac{\partial MPV^H(y,\beta)}{\partial\beta} > 0$ (from (A54)), and hence the numerator of (A56) is positive for any β. In addition, as the arguments above imply, there exists $C > 0$ such that for all $y^* \in [-\varepsilon, \varepsilon]$, all the terms $|M(y^*)|$, $\left|S(y^*)\right|$, $\left|\frac{\partial\beta_H(y^*)}{\partial y}\right|$, and $f(-\beta_H(y^*)$ are bounded by C if γ is large enough. Since $\beta \in \left[-\bar{b}, \bar{b}\right]$, then these arguments together imply that there exists $\bar{\gamma}_1$ such that for any $\gamma > \bar{\gamma}_1$, the denominator of (A56) is positive as well and hence $\frac{\partial y^*}{\partial\beta} > 0$. This implies that the blockholder's trade strictly increases in β.

Next, consider (A34) evaluated at $y^*(\beta)$, and differentiate it with respect to β. This gives

$$\frac{dMPV^H(y^*(\beta),\beta)}{d\beta} = -H(-\beta_H(y^*(\beta)) + \frac{\partial y^*}{\partial\beta}\left[(2\gamma+\eta)-(\beta-\mathbb{E}[b])f(-\beta_H(y^*))\frac{\partial\beta_H(y^*)}{\partial y}\right]. \quad \text{(A57)}$$

Using (A56) and simplifying, $\frac{dMPV^H(y^*(\beta),\beta)}{d\beta}$ equals

$$\frac{(\beta M(y^*)+S(y^*))H(-\beta_H(y^*))+\left[(2\gamma+\eta)-(\beta-\mathbb{E}[b])f(-\beta_H(y^*))\frac{\partial\beta_H(y^*)}{\partial y}\right]\frac{\partial MPV^H(y^*,\beta)}{\partial\beta}}{2\gamma+\eta-\beta(M(y^*)+f(-\beta_H(y^*))\frac{\partial\beta_H(y^*)}{\partial y})+\mathbb{E}[b]f(-\beta_H(y^*))\frac{\partial\beta_H(y^*)}{\partial y}-S(y^*)}, \quad \text{(A58)}$$

or equivalently, $\frac{dMPV^H(y^*(\beta),\beta)}{d\beta} = \frac{N(y^*,\beta)}{D(y^*,\beta)}$, where

$$\begin{aligned} N(y^*,\beta) &= \frac{\partial MPV^H(y^*,\beta)}{\partial\beta} + \frac{(\beta M(y^*)+S(y^*))H(-\beta_H(y^*))-(\beta-\mathbb{E}[b])f(-\beta_H(y^*))\frac{\partial\beta_H(y^*)}{\partial y}\frac{\partial MPV^H(y^*,\beta)}{\partial\beta}}{2\gamma+\eta}, \\ D(y^*,\beta) &= 1-\frac{\beta(M(y^*)+f(-\beta_H(y^*))\frac{\partial\beta_H(y^*)}{\partial y})+\mathbb{E}[b]f(-\beta_H(y^*))\frac{\partial\beta_H(y^*)}{\partial y}-S(y^*)}{2\gamma+\eta}. \end{aligned} \quad \text{(A59)}$$

Consider $D(y^*, \beta)$. Recall that $y^* \in [-\varepsilon, \varepsilon]$, $\beta \in \left[-\bar{b}, \bar{b}\right]$ and, as discussed above, $|M(y^*)|$, $\left|S(y^*)\right|$, $\left|\frac{\partial\beta_H(y^*)}{\partial y}\right|$, and $f(-\beta_H(y^*)$ are all bounded by some constant for all $y^* \in [-\varepsilon, \varepsilon]$ and large enough γ. Hence, for large enough γ, $D(y^*, \beta) > 0$ for all $y^* \in [-\varepsilon, \varepsilon]$ and $\beta \in \left[-\bar{b}, \bar{b}\right]$. Next, consider $N(y^*, \beta)$. From (A54), we have $\frac{\partial MPV^H(y^*,\beta)}{\partial\beta} > 0$. In addition, since $\left|\frac{\partial\beta_H(y^*)}{\partial y}\right|$ is bounded by some constant for large enough γ, (A54) implies that $\left|\frac{\partial MPV^H(y^*,\beta)}{\partial\beta}\right|$ is also bounded by some constant for large enough γ. The other functions in the numerator of the second term in $N(y^*, \beta)$ are bounded as well. Together, this implies that there is a cutoff on γ such that $N(y^*, \beta) > 0$ for all $y^* \in [-\varepsilon, \varepsilon]$ and $\beta \in \left[-\bar{b}, \bar{b}\right]$ for γ above this cutoff.

In sum, we have shown that there exists $\bar{\gamma}_2 > \bar{\gamma}_1$ such that $\frac{dMPV^H(y^*(\beta),\beta)}{d\beta} > 0$ for all $\beta > b^H_{\text{non-mv}}$ and all $\gamma > \bar{\gamma}_2$. Together with $MPV^H(y^H_{\text{non-mv}}(\beta), \beta) \geq 0$ for $\beta = b^H_{\text{non-mv}}$, this implies that $MPV^H(y^H_{\text{non-mv}}(\beta), \beta)$ is strictly positive and strictly increasing in β for $\beta > b^H_{\text{non-mv}}$ and $\gamma > \bar{\gamma}_2$. Since the voting premium in this region equals $\frac{\gamma}{2\gamma+\eta} MPV^H(y^H_{\text{non-mv}}(\beta), \beta)$, the voting premium is also strictly positive and strictly increasing in β.

Finally, note that the median voter in this range is $\beta_H\left(y^H_{\text{non-mv}}(\beta)\right)$. Since $y^H_{\text{non-mv}}(\beta)$ increases in β for $\gamma > \bar{\gamma}_2$ and $\beta_H(\cdot)$ is an increasing function, the median voter increases in β in this range as well. This completes the proof for the region $\beta > b^H_{\text{non-mv}}$.

The two other steps for part (ii) involve proving the following statements:

Step 2: If $\beta < b^L_{\text{non-mv}}$, then there exists $\bar{\gamma}_3 > \bar{\gamma}_2$ such that for any $\gamma > \bar{\gamma}_3$, the median voter is a small shareholder with a larger bias toward the proposal than the blockholder and the voting premium strictly decreases in β.

Step 3: There exists $\bar{\gamma}_4 > \bar{\gamma}_3$ such that for any $\gamma > \bar{\gamma}_4$, there exists $\beta^L_{\text{non-mv}} \in (-\bar{b}, b^L_{\text{non-mv}})$ such that if $\beta < \beta^L_{\text{non-mv}}$, then $MPV^L(y^*(\beta), \beta) > 0$.

For brevity, the proof of these two steps is relegated to Section III.H of the Internet Appendix. This completes the proof of the proposition for any $\gamma > \bar{\gamma}_4$. In subsequent proofs, we assume that $\gamma > \bar{\gamma}_4$, so that the proposition and its arguments apply.

We relegate the proofs of Proposition 4, Corollary 2, and Proposition 5 to Sections III.I, III.J, and III.K of the Internet Appendix, respectively.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

Appendix S1: Internet Appendix.