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Stock Lending and Pass-Through Voting

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November 2026

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Abstract

Concerns about conflicts of interest have led to growing calls for asset managers to let fund investors cast votes directly at shareholder meetings. We study this reform, known as pass-through voting, in a model where market participants with heterogeneous preferences lend shares, trade, and vote. We show that it can move voting outcomes further away from investors' preferences, rather than closer, for a reason that has received little attention: the fund's manager retains control over share lending and may lend more once the votes are no longer his to cast. Because the votes attached to lent shares end up in the hands of traders whose preferences differ from those of the fund's investors, pass-through voting can leave these investors worse off, even after accounting for lending revenue. The manager, meanwhile, may embrace the reform to increase lending income. Our analyses inform the debate over mandating pass-through voting, the use of lending fees as a proxy for the value of a vote, and, more broadly, policy at the intersection of shareholder voting and securities lending.

Keywords: Stock lending, Pass-through voting, Corporate governance, Asset management

JEL Classification: G23, G32, G34, G38, K22

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Stock Lending and Pass-Through Voting*

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November 13, 2026

Abstract

Concerns about conflicts of interest have led to growing calls for asset managers to let fund investors cast votes directly at shareholder meetings. We study this reform, known as pass-through voting, in a model where market participants with heterogeneous preferences lend shares, trade, and vote. We show that it can move voting outcomes *further away* from investors' preferences, rather than closer, for a reason that has received little attention: the fund's manager retains control over share lending and may lend more once the votes are no longer his to cast. Because the votes attached to lent shares end up in the hands of traders whose preferences differ from those of the fund's investors, pass-through voting can leave these investors worse off, even after accounting for lending revenue. The manager, meanwhile, may embrace the reform to increase lending income. Our analyses inform the debate over mandating pass-through voting, the use of lending fees as a proxy for the value of a vote, and, more broadly, policy at the intersection of shareholder voting and securities lending.

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1 Introduction

The growth of index funds has concentrated voting power in a handful of asset managers, raising concerns that they may not vote in the best interests of their investors (e.g., Bebchuk et al., 2017; Griffin, 2020). The leading response has been pass-through voting, which lets investors, rather than the fund manager, direct the votes attached to the fund's shares. BlackRock launched the first such program in 2022 and has since made $3.96 trillion of equity assets eligible.[1] Vanguard and State Street have followed suit. The proposed INDEX Act would go further and *require* passive funds to adopt pass-through voting. The bill's sponsor, Senator Dan Sullivan, and its cosponsor, Senator Bill Hagerty, voice the same concern. Hagerty warns that large asset managers vote to advance agendas "antithetical to many investors' views and financial interests," and Sullivan describes the remedy as "simply requiring that the power to vote shares resides with the fund investors, not the advisers."[2]

Does pass-through voting benefit fund investors? We argue that it need not, for a reason that has received little attention: the manager still decides how many of the fund's shares to lend. Share lending generates revenue, but it may come at the expense of voting rights, since the vote belongs to whoever holds the share on the record date. This trade-off is far from hypothetical.[3] For example, ahead of GameStop's 2020 proxy contest, BlackRock, Vanguard, and Fidelity together held roughly 40% of the company's shares but controlled only about 5% of the votes, largely because they kept shares on loan to generate lending revenue.[4] Under pass-through voting, only the votes attached to unlent shares are "passed through." As Vanguard puts it,

> "Additionally, shares of a security that are on loan pursuant to Vanguard's securities lending activities...could impact the total number of shares available for the fund to vote. In such cases, an investor's proportionate share will be calculated utilizing

[1] BlackRock Voting Choice

[2] For the bill, see S.1670, 119th Congress. Both quotations are from Senator Sullivan's press release.

[3] Share lending spikes around record dates (Christoffersen et al., 2007): the number of shares on loan rises by almost 3% in the days before the record date and reverses immediately afterward (Hirst and Robertson, 2022). On average, about a quarter of a firm's market capitalization is available to lend and roughly 4% is on loan, and institutions restrict lending and recall shares ahead of votes they value (Aggarwal et al., 2015). Li and Zhu (2025) estimate that, had mutual funds left recalled shares on loan, more than a tenth of close-call proposals would have been decided the other way.

[4] See "How Investing Giants Gave Away Voting Power Ahead of a Shareholder Fight", *WSJ*, June 10, 2020.

> the number of shares eligible to be voted by the fund after excluding shares on loan..."[5]

This division of control, with the manager deciding how much to lend and investors voting whatever remains, raises several questions. Does pass-through voting change the manager's incentive to lend, given that the votes he surrenders are no longer his own? If lending changes, does pass-through voting still deliver voting outcomes more aligned with investors' preferences? Once lending revenue is taken into account, are investors better off? And would a manager voluntarily adopt pass-through voting, giving up control over votes he could otherwise cast as he sees fit?

To answer these questions, we model a passive fund that holds a block of shares in a single firm. The fund is run by a manager ("he") on behalf of a representative beneficial investor ("she"), and the two may disagree about a proposal up for a shareholder vote. The fund does not trade, but it can lend shares. Before the vote on the proposal, a continuum of small traders with heterogeneous preferences can borrow shares from the fund and trade with one another. The shareholder base on the record date is therefore determined in equilibrium, as in Levit et al. (2024, 2026). Votes are then cast by whoever holds shares on that date. The *voting regime* determines the preferences according to which the fund votes its unlent shares: the manager's under pure delegation, the investor's under pure pass-through, and a mix of the two under partial pass-through.

In equilibrium, traders who oppose the proposal borrow shares from the fund and sell them short to traders who favor it, precisely because the latter value the shares more highly. The gains from these trades, and hence the lending fee the fund can charge, are larger the more likely the proposal is to pass and the wider the disagreement among traders. The stock price and the lending fee are determined jointly, clearing both markets at once. The votes attached to the fund's lent shares are therefore cast by traders who support the proposal.

In choosing how much to lend, the manager weighs the revenue lending generates against the cost of having pro-proposal traders vote those lent shares in his place under delegation, or in the investor's place under pass-through. The voting regime moves both sides of this trade-off. On the revenue side, each vote reallocated out of the fund changes the probability that the proposal is approved, and the extent of that change depends on who votes the fund's remaining

[5] Vanguard Investor Choice.

shares. Since that probability shapes the gains from trade, the regime shifts the fee the fund can charge, and hence, its lending revenue. On the cost side, the votes the manager gives up are his own under delegation but the investor's under pass-through. The cost is therefore largest under delegation, where each lent share takes a vote that would have been cast exactly as he prefers and hands it to a trader with different preferences. Under pass-through the cost is smaller, and can even be negative, since a manager sufficiently favorable to the proposal is glad to see votes pass from the investor to traders who share his view. Whenever this cost effect dominates, the manager lends more under pass-through voting than under delegation, leaving the investor with fewer votes than the reform appears to promise.

The effect of pass-through voting on the manager's incentive to lend has direct consequences for the investor's welfare. We begin with the investor's valuation of the firm, excluding lending revenue. Holding lending fixed, pass-through voting unambiguously raises this valuation: it then simply transfers a fixed number of votes from the manager to the investor, making her preferred outcome more likely. This is the sense in which the reform is usually understood and defended.

This conclusion, however, need not survive once lending is endogenous. Pass-through voting can strengthen the manager's incentive to lend, transferring votes from the investor to traders. If these traders disagree with her more than the manager does, and the lending response is large enough, her valuation is *lower* under pure pass-through voting than under pure delegation, even though she casts every retained vote herself. More generally, regardless of whom the investor disagrees with more, pure pass-through voting fails to maximize her valuation whenever delegation reduces lending. To see why, consider a marginal shift from pure pass-through voting toward delegation. Because her retained votes are already cast exactly as she would cast them, the shift has no first-order direct effect on her valuation. If it curbs the manager's lending, however, it keeps votes away from traders whose preferences differ from hers, and so raises her valuation.

The previous result concerns the investor's valuation alone, ignoring lending revenue. But the additional lending that lowers her valuation also generates revenue for the fund, and hence for her. The investor's welfare, the sum of her valuation of the fund's holdings and the lending revenue, may then still rise even if her valuation falls. We show, however, that this revenue need not fully compensate her. In choosing how much to lend, the manager equates marginal

revenue with *his* marginal value of a vote rather than the investor's, so the revenue he collects is calibrated to his loss and need not cover hers. For example, when he is more favorable to the proposal than she is, his loss from surrendering a vote is the smaller of the two, the revenue under-compensates her, and he lends past the point she would choose. Both her valuation and her welfare can then fall. Pass-through voting is thus not automatically investor-friendly, even though it hands the investor every vote the fund still holds.[6]

These results have important policy implications. First, pass-through voting does not automatically improve voting outcomes for fund investors, even absent considerations such as managers being better informed about a proposal's value (Malenko and Malenko, 2026) or reduced complementarities with other governance activities (Gomtsian and Gosling, 2025). Mandating these programs can therefore be self-defeating. If they are to be mandated, investors should retain the option to delegate their votes back to the manager, since some delegation can leave them better off than full pass-through. Second, given the conflict between lending and voting that pass-through programs leave in place, one might ask whether such funds should simply be barred from lending. We show that a ban benefits the investor only if the manager over-lends severely, which makes it a blunt instrument. Capping the quantity a fund may lend, or letting investors choose whether their own shares are lent, targets the distortion more precisely and can serve them better.

Perhaps surprisingly, we also find that the manager may himself benefit from adopting pass-through voting. Short sellers pay more to borrow shares when the proposal is more likely to pass. A manager who is less favorable to the proposal than the investor would therefore like to commit to supporting it more often, but under delegation he cannot. Passing the votes through to the investor provides that commitment and raises the lending fee. A small move away from pure delegation has only a second-order governance cost, while the higher fee is a first-order gain. Some pass-through voting therefore makes the manager better off, and when the revenue effect is important enough, even pure pass-through can be optimal for him.

This result offers a novel rationale for the voluntary adoption of pass-through voting by large asset managers. It does not rely on their seeking to deflect political pressure or legal liability: managers may favor these programs because surrendering votes makes their lending programs

[6] In Section 4.2 we show that pass-through voting can leave the investor worse off even when it has no effect on lending, because the voting regime also determines the fee each lent share earns.

more profitable. The model therefore predicts that adoption should concentrate among funds with large lending revenues relative to assets, and on proposals where the manager's voting record is more conservative than his investors' preferences, rather than among funds whose governance practices are otherwise shareholder-friendly. It also predicts that adoption need not be complete, since the manager gains from introducing some pass-through without necessarily gaining from adopting it fully. This prediction is consistent with the pilot programs observed in practice, which cover subsets of funds and ballot items.

Finally, because the lending fee and the allocation of votes are jointly determined in our model, we can ask what the fee reveals about the value of a vote.[7] It reveals less than is often assumed, because two wedges separate the fee from the investor's valuation of a vote. First, the fee reflects the manager's valuation of a marginal vote, rather than the investor's, since the manager makes the lending decision. Second, the fee includes a markup on inframarginal shares, which separates it even from his own valuation. Neither wedge is fixed, and we show that the voting regime can move the lending fee and the value of a vote in *opposite* directions. Thus, a reform that decreases the value of votes to the party controlling lending may show up in the data as more expensive stock loans. Consequently, neither the level of observed lending fees nor their response to a governance reform can be interpreted as an unbiased measure of the value of a vote.

Related literature

Our paper is most closely related to recent theoretical work on pass-through voting.[8] Malenko and Malenko (2026) show that it improves information aggregation when investors differ in information, but can reduce welfare when they differ in preferences, because the fund's information goes underused. Chebotarev and Pugachev (2026) find that pass-through voting can improve diversification but undermines the fund's role in coordinating investors, and Döttling et al. (2026) find that, when corporate and political decisions interact, it can be harmful because

[7] In Section 4.3 and Appendix B.5, we derive the analogue of the voting premium of Levit et al. (2026) for an index fund that lends shares. We call it the *passive voting premium* and relate it to the marginal value of a vote.

[8] Empirically, Brav et al. (2025) document the policies offered by a large voting choice program and investors' uptake of them, highlighting design challenges such as setting the default and building menus for apathetic investors. Montagnes et al. (2025) survey investors and find that even their best-matching voting choice policy agrees with their preferences only about three-quarters of the time.

it splits up the fund's block. Two papers embed pass-through voting in competition among funds. In Malenko et al. (2026), asset managers adopt it to attract investors without internalizing its governance costs, and in Chen et al. (2026), investor voice, of which pass-through voting is a leading example, moderates the excessive differentiation in fund mandates that competition induces. These papers abstract from share lending, and where they find harm, it comes from one of three sources: lost information, weaker coordination, or a fragmented block. We shut down all three and show that pass-through voting can still hurt investors because the manager retains control of lending: once the votes he lends are no longer his own, he may lend more, delivering them to traders potentially even more at odds with the fund investors than he is.

More broadly, our paper relates to the literature on shareholder voting (e.g., Maug and Rydqvist, 2009; Levit and Malenko, 2011; Malenko and Malenko, 2019; Bar-Isaac and Shapiro, 2020), on how trading shapes the voter base (Dekel and Wolinsky, 2012; Meirowitz and Pi, 2022; Levit et al., 2024, 2026), and on how votes can be decoupled from economic ownership (Neeman and Orosel, 2006; Hu and Black, 2007; Esö et al., 2014; Speit et al., 2023). Closest to us, Brav and Mathews (2011) study a trader who borrows shares to vote them without a corresponding economic stake. Like much of this literature, they focus on who acquires votes; we focus instead on who supplies them. We model the fund's lending decision jointly with trading and voting: lending determines how much traders can short, their trades determine who holds the shares on the record date, and the identity of those voters in turn determines the lending fee—and hence the fund's return from lending. These linkages enable the voting regime to affect not only who casts the votes the fund keeps but also how many votes it lends out.

Finally, our paper relates to work on the equity lending market. A theoretical literature studies how lending fees and short selling are determined in equilibrium (Duffie et al., 2002; Atmaz et al., 2024; Chen et al., 2026). In these models, a borrowed share is only a claim on cash flows. In ours, it also carries a vote, so lending changes who decides and the fee depends on who ends up voting. Johnson and Weitzner (2025) show that funds that retain part of their lending income overweight high-fee stocks and underperform, an agency conflict in lending that complements ours. In their setting, the conflict is over how lending revenue is shared, while in ours it is over the votes that lending gives away. Section 5.3 shows how the two conflicts

interact. Closer to us, Nurisso (2026b) shows that short sellers reveal information to lenders when they borrow, so the lender's lending and trading decisions interact, and Nurisso (2026a) studies how a lender trades off the votes it surrenders, the revenue it earns, and the information it acquires by lending. We share with Nurisso (2026a) the premise that the votes attached to lent shares are part of what is being traded. There, however, the lender lends partly to learn what borrowers know. Here, information is symmetric, and the friction is instead disagreement between the manager and his investors. This setting enables us to study how moving voting authority from one to the other changes how much the manager lends and, in turn, how well voting outcomes reflect the investors' preferences.

2 Model Setup

Consider a publicly traded firm whose shares are held by a mutual fund and by a continuum of dispersed traders with unit mass. The fund holds $\alpha \in (0,1)$ shares and each trader is endowed with $e = 1 - \alpha$ shares, so that traders collectively hold the free float. Shares are perfectly divisible and each share carries one vote. The fund has a manager ("he") and a representative beneficial investor ("she").[9] Shareholders vote on a proposal that can be either approved ($d = 1$) or rejected ($d = 0$). The proposal may concern director elections, mergers and acquisitions, executive compensation, corporate governance, or social and environmental policies.

Preferences and types. As in Levit et al. (2024, 2026), shareholders have preferences over the proposal that reflect both common and private values. Specifically, agent i's value from owning a single share is

$$v_i = \mu + (b_i + \theta)\, d, \tag{1}$$

where $\mu > 0$ is a baseline value high enough to ensure $v_i > 0$. The common value depends on a state $\theta \sim H$ on $[-1,1]$ with strictly positive density h, so that the proposal may be either value-increasing ($\theta > 0$) or value-decreasing ($\theta < 0$). The state θ is realized after trading concludes but before the vote is held, so voters know the value implication of the proposal

[9] The model abstracts from disagreement among fund investors, an abstraction that biases against our results: when investors disagree, pass-through splits the fund's votes and dilutes its influence, whereas under delegation the manager casts them as a block.

when they cast their votes. Figure 1 summarizes the timing.

The private value depends on the agent's "bias" b, which reflects heterogeneous beliefs or preferences about the proposal's value. Such heterogeneity is well documented in the literature on shareholder voting and may reflect differences in environmental, social, and political views, corporate governance philosophies, attitudes toward management, ownership of other firms, investment horizons, tax considerations, and risk preferences.[10] It also follows a long tradition of modeling short sales as arising from disagreement (e.g., Miller, 1977; Duffie et al., 2002).

Specifically, trader i's bias is $b_i \in \{b_L, b_H\}$ with $b_H \in (0,1)$, $b_L \in (-1, b_H)$, and a proportion $\lambda \in (0,1)$ of traders have bias b_H. We refer to traders with bias b_H as "high-bias" and to those with bias b_L as "low-bias." The beneficial investor's bias is normalized to zero, and the manager's bias is denoted $b_M \in (-1,1)$, so that whenever $b_M \neq 0$ the manager is in conflict with the investor on whose behalf he acts. To ease the exposition, we assume throughout that the manager is less biased toward the proposal than the high-bias traders, $b_M < b_H$. Neither this assumption nor the assumption that $b_H > 0$ is needed for our main results, which require only that the manager and the high-bias traders each disagree with the investor ($b_M \neq 0$ and $b_H \neq 0$). See Section 5.2 and Appendix B.2 for more details.

Trading and lending. Dispersed traders trade shares with one another at a price p determined by market clearing; the fund is passive, so neither the manager nor the beneficial investor trades. Traders are price takers. Buying x_i shares, so that his post-trade holding is $e + x_i$, grants trader i utility

$$u_i \equiv ev_i + (v_i - p)\, x_i - \frac{\gamma}{2} x_i^2 - \mathbf{1}_{x_i < -e}\,(-x_i - e)\, f. \tag{2}$$

The first term is the trader's value from his initial endowment; the second reflects his trade x_i at the stock price p; the third is a quadratic trading cost, with $\gamma > 0$; and the fourth captures short-selling fees, where the indicator function in that term equals one when $x_i < -e$ and zero

[10] 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 et al. (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 towards 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.

otherwise. A position $x_i < -e$ means that the trader short sells, that is, sells $-x_i - e$ shares beyond his initial endowment, and each such share must be borrowed at the fee f. Notice that a negative fee cannot arise in equilibrium: if $f < 0$, every trader would strictly gain by borrowing a share, holding it, collecting the payment $-f > 0$, and returning it to the fund, and the resulting unbounded demand would push the fee back up to zero. We assume that a trader who is indifferent about borrowing does not, for instance, because of arbitrarily small transaction costs in the lending market. Combined with $f \geq 0$, this assumption guarantees that a trader only borrows shares in equilibrium to short sell.

Traders borrow shares from the mutual fund, which is a monopolist in the lending market, supplying $z \in [0, \alpha]$ shares at a lending fee f.[11] We consider multiple lenders in Section 5.1. The manager chooses z to maximize the value of the fund's holdings, evaluated from his own perspective, plus lending-fee revenue. Letting $\tilde{z} \leq z$ denote the shares actually borrowed, the manager's and the beneficial investor's utilities are, respectively,[12]

$$u_M \equiv \alpha v_M + f\tilde{z} \qquad \text{and} \qquad u_I \equiv \alpha v_I + f\tilde{z}. \tag{3}$$

Voting. The proposal is approved if and only if the votes cast in favor represent at least a fraction $\tau \in (0, 1)$ of all votes cast. We assume that $\alpha < \min\{\tau, 1 - \tau\}$, so that the fund can neither pass nor block the proposal on its own. Trading, lending, and short selling all take place before the firm's record date, the date on which ownership-based voting eligibility is determined. These transactions therefore determine the composition of the voter base, which is consequently endogenous.[13]

[11] Institutional investors are the main suppliers of lendable shares (D'Avolio, 2002; Aggarwal et al., 2015), and short sellers prefer to borrow from passive investors, including ETFs, whose loans are less likely to be recalled (Palia and Sokolinski, 2024). There is also strong evidence that major lenders have market power; see, for example, Chen et al. (2026) and Kolasinski et al. (2013).

[12] If the manager earns a management fee equal to a fraction $\epsilon > 0$ of the fund's assets under management, measured from a zero-bias perspective and including fee revenue, then the manager's effective bias is b_M/ϵ, and all other results remain unchanged. Section 5.3 allows his shares of fund value and lending revenue to differ.

[13] The key timing assumption is that trading and lending occur before the record date, while borrowers may short sell after it. If short selling occurs before the record date, high-bias traders hold the borrowed shares on that date. If it occurs after the record date, the votes are cast by low-bias traders who borrowed the shares. Holding short positions, they are "empty voters" whose payoff rises when the proposal destroys value, and they, too, vote for proposals that the beneficial investor would prefer to see defeated. In either case, lending moves votes away from the manager and toward voters who support the proposal in states in which the beneficial investor opposes it, so the forces we identify continue to operate; only the size of the resulting distortion depends on the precise timing of the short sale.

We analyze subgame perfect Nash equilibria in undominated strategies of the voting game. The restriction to undominated strategies is common in voting games, in which it is standard to impose the equivalent requirement that small investors vote as if pivotal.[14] This implies that an investor with bias b votes in favor of the proposal if and only if

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

We consider different voting regimes. Under *delegation*, the block of $\alpha - \tilde{z}$ shares the fund retains is voted by the manager; under *pass-through voting*, it is voted by the beneficial investor. For notational convenience, we index the voting regime by β, which denotes the bias with which the fund's block is voted, so that $\beta = b_M$ under delegation and $\beta = 0$ under pass-through voting. Since pass-through voting can be partial in practice, we consider the full range of biases β between 0 and b_M.[15] In either regime, all of the fund's retained votes are cast,[16] and the manager makes the lending decision. Crucially, the voting regime places no restriction on the manager's ability to lend shares, but it may change his incentive to do so, as we show below.[17]

Traders, in contrast, do not always vote. A random fraction $\eta \sim G$ on $[0, 1]$, with density g, are inattentive and do not vote the shares they hold. Consistent with standard practice, the

[14] 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 and against because they are never pivotal.

[15] One alternative approach would be to model two separate sub-blocks of shares: a fraction σ voted directly by the beneficial investor with bias 0, and a fraction $1-\sigma$ voted by the manager with bias b_M. We maintain the representative-voter formulation for several reasons. First, it captures arrangements in which fund managers poll or survey their investors and incorporate those preferences into their voting decisions, effectively shifting the fund's voting bias to an intermediate level. Second, our qualitative findings are robust to this modeling choice. In either formulation, moving toward pass-through shifts the fund's votes toward the investor's preferences and thereby changes how many shares the manager lends and the fee each lent share earns, the two channels that drive our results. Finally, the β formulation offers greater analytical tractability by avoiding the additional voting thresholds and case distinctions introduced by splitting the fund's block.

[16] Assuming that the beneficial investor always turns up to vote biases the analysis against our result that pass-through voting can harm her, and is therefore conservative.

[17] This reflects practice: a fund can vote a share only if it holds it on the record date, so shares out on loan are voted by the borrower unless recalled. Hu et al. (2021) study this lending-voting trade-off directly, documenting that index funds recalled fewer shares ahead of shareholder meetings following the SEC's 2019 guidance, and Aggarwal et al. (2015) show that institutions restrict lending supply and recall shares when votes are valuable. Consistent with this, BlackRock states that eligibility for its Voting Choice program is determined by factors "including the decision to lend securities" (BlackRock, 2024).

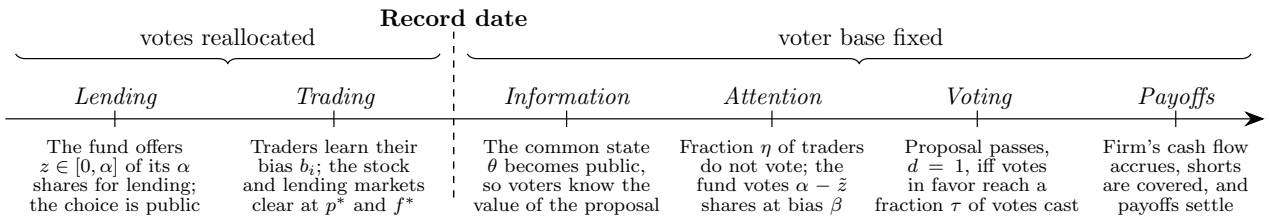


Figure 1: Timeline

tally includes only votes actually cast. The density g is strictly positive and satisfies

$$\frac{g'(\eta)}{g(\eta)} < \frac{2(1-\tau)(1-\alpha)}{\tau} \qquad \text{for all } \eta \in [0,1]. \tag{5}$$

Assumption (5) bounds the rate at which the density of non-votes can rise. As shown below, it ensures that votes exhibit diminishing returns, in the sense that each vote transferred from the fund to the traders raises the probability that the traders prevail by less than the previous one. In particular, the assumption holds for any non-increasing density, so that small shortfalls in turnout are more likely than large ones. More generally, it excludes only turnout distributions whose density rises sharply.

The primitives satisfy

$$\lambda(b_H - b_L)(1 - H(-\min\{b_M, 0\})) > \gamma e. \tag{6}$$

Assumption (6) guarantees, as shown below, that whenever the fund offers an arbitrarily small but strictly positive number of shares for lending, the resulting equilibrium lending fee is strictly positive irrespective of the voting regime.

3 Analysis

3.1 Trading and short-selling

In this section, we analyze how lending and trading shape the allocation of votes across investors. Traders are price takers and are individually too small to influence the voting outcome, so they ignore this strategic consideration when trading. Given a stock price p and a lending

fee f, the demand of a trader i is given by

$$x_i^* = \begin{cases} x\left(p-f, b_i\right) & \text{if } x\left(p-f, b_i\right) < -e \\ -e & \text{if } x\left(p, b_i\right) \leq -e \leq x\left(p-f, b_i\right) \\ x\left(p, b_i\right) & \text{if } -e < x\left(p, b_i\right). \end{cases} \tag{7}$$

where

$$x\left(p, b\right) \equiv \frac{\mu + \mathbb{E}[(b+\theta)d] - p}{\gamma}. \tag{8}$$

That is, if trader i prefers short-selling even after accounting for the additional lending fee f, his demand is $x\left(p-f, b_i\right) < -e$. At the other extreme, if trader i prefers to retain at least some of his endowment at the stock price p, his demand is $x\left(p, b_i\right) > -e$. In all other cases, the trader wants to sell more than his endowment, but finds the borrowing fee too expensive to support short-selling. Thus, trader i sells exactly his endowment, $x_i = -e$.

Let x_H^* and x_L^* denote the demands of high- and low-bias traders, respectively. Clearing of the stock market requires

$$\lambda x_H^* + (1-\lambda)\, x_L^* = 0. \tag{9}$$

Traders' valuations are increasing in their bias whenever the probability of approval is strictly positive. Consequently, high-bias traders will be net buyers, while low-bias traders will be net sellers. That is, $x_L^* < 0 < x_H^*$.

If short selling occurs in equilibrium, low-bias traders are the ones who borrow shares and sell them to high-bias traders; that is, $x_L^* < -e$. The lending market clears when

$$(1-\lambda)\left(-x_L^* - e\right) = \tilde{z}, \tag{10}$$

where $x_L^* = x(p^* - f^*, b_L)$. Two cases arise. If demand exceeds supply at a zero fee, the fee rises to clear the market: $\tilde{z} = z$ and $f^* > 0$. Otherwise, the non-negativity constraint binds and the quantity adjusts instead: $\tilde{z} \leq z$ and $f^* = 0$.[18] Because the stock and lending markets are mutually dependent, equilibrium requires both to clear simultaneously, as shown below.

[18]Smaller quantities could in principle be borrowed at a strictly positive fee. We select the largest quantity that clears the market at a non-negative fee, which is the outcome that survives if borrowers can bid for the marginal lendable share. See the proof of Lemma 2 for details.

3.2 Voting

Suppose $\tilde{z} > 0$ shares are borrowed and sold short. Post-trade, low-bias traders hold neither shares nor votes, while high-bias traders hold $1-\alpha+\tilde{z}$ shares, of which only the fraction $1-\eta$ held by attentive traders is voted. The fund votes its retained block of $\alpha-\tilde{z}$ shares in full, at the bias β dictated by the voting regime. Let $\Lambda(\tilde{z},\beta)$ denote the resulting probability that the proposal passes.

Lemma 1 *Suppose $\tilde{z} > 0$ shares are borrowed and sold short in equilibrium. Then, the proposal passes with probability*

$$\Lambda\left(\tilde{z},\beta\right) = \delta(\tilde{z}) \int_{-b_H}^{-\beta} dH(\theta) + \int_{-\beta}^{1} dH(\theta). \tag{11}$$

where

$$\delta(\tilde{z}) \;\equiv\; G\left(1 - \frac{\tau}{1-\tau}\frac{\alpha-\tilde{z}}{1-\alpha+\tilde{z}}\right). \tag{12}$$

Moreover, $\Lambda(\tilde{z},\beta)$ is increasing and concave in $\tilde{z}$, and increasing in β.

To understand this result, recall that a voter with bias b supports the proposal whenever $\theta > -b$, and that $b_H > \beta$ under either voting regime. There are then three regions. If $\theta < -b_H$, every voter opposes the proposal and it fails. If $\theta > -\beta$, every voter is in favor and it passes, which occurs with probability $\int_{-\beta}^{1} dH\left(\theta\right)$. The high-bias traders and the fund disagree in the intermediate region $\theta \in (-b_H, -\beta)$, which we refer to as the *contested region*; this region occurs with probability $\int_{-b_H}^{-\beta} dH\left(\theta\right)$. Only in the contested region does the allocation of votes matter: there the proposal passes if and only if the traders' bloc is decisive, that is, if and only if enough high-bias traders are attentive, which occurs with probability $\delta\left(\tilde{z}\right)$.

The high-bias traders are decisive in the contested region when the attentive fraction $1-\eta$ of their $1-\alpha+\tilde{z}$ shares outweighs the $\alpha-\tilde{z}$ votes cast by the fund—in the sense that their votes account for at least a fraction τ of votes cast. Lending moves both sides of this comparison simultaneously: each lent share strips one vote from the fund and hands it to a high-bias trader, so $\alpha-\tilde{z}$ falls while $1-\alpha+\tilde{z}$ rises. Consequently, the fund's relative voting power $\frac{\alpha-\tilde{z}}{1-\alpha+\tilde{z}}$ falls, and with it the turnout the high-bias traders need in order to prevail. It then follows that δ, and with it Λ, is increasing in $\tilde{z}$.

The same reasoning explains why Λ is concave in $\tilde{z}$. The high-bias traders prevail whenever turnout exceeds the critical level $\hat{\eta}(\tilde{z}) \equiv \frac{\tau}{1-\tau}\frac{\alpha-\tilde{z}}{1-\alpha+\tilde{z}}$. Lending lowers that level ($\hat{\eta}'(\tilde{z}) < 0$),

but each additional lent share lowers it by less than the previous one ($\hat{\eta}''(\tilde{z}) > 0$). Votes thus exhibit diminishing returns in the vote arithmetic itself. Whether this feature carries over to the probability of approval depends on the distribution of turnout. Since $\delta(\tilde{z}) = G(1 - \hat{\eta}(\tilde{z}))$, the marginal lent share raises the probability that the high-bias traders prevail by $|\hat{\eta}'(\tilde{z})|g(1-\hat{\eta}(\tilde{z}))$: the change in the critical level times the density of turnout at that level. The first factor shrinks with each lent share, as shown above. The second could grow, if turnout is more likely near the new critical level than near the old one. Assumption (5) bounds how fast the density can grow, so the first factor dominates and each lent share raises the probability of approval by less than the previous one. Finally, δ rises when traders are more attentive, in the sense of a first-order stochastic decrease in η, since a larger fraction of their holdings is then voted.

3.3 Pricing

Valuations, and hence prices and fees, depend on the allocation of votes. Given short-selling of $\tilde{z} > 0$ shares and a voting regime β, the expected value of a share to an agent with bias b_j is

$$\Gamma_j(\tilde{z}, \beta) = \mu + \delta(\tilde{z}) \int_{-b_H}^{-\beta} (\theta + b_j)\, dH(\theta) \;+\; \int_{-\beta}^{1} (\theta + b_j)\, dH(\theta). \tag{13}$$

The first integral covers the contested states, where the proposal passes only if the borrowed votes are decisive, which occurs with probability $\delta(\tilde{z})$; the second covers the states in which it passes regardless. We refer to Γ as the agent's *governance value*: the per-share value of the firm to the agent under the resulting allocation of votes, excluding fee revenue. Hereafter, we use the subscripts M, I, and T to denote the manager, beneficial investors, and the average trader, respectively, with the latter defined below.

Taking into account how trading and short selling reallocate votes, and hence shape the voting outcome, the market-clearing conditions (9)–(10) deliver the following characterization of the stock price and the lending fee when the fund offers z shares for lending.

Lemma 2 *Suppose the fund offers $z \in [0, \alpha]$ shares for lending. Define*

$$\phi(z, \beta) \equiv (b_H - b_L)\, \Lambda(z, \beta) - \frac{\gamma}{\lambda} \left(e + \frac{z}{1 - \lambda} \right), \tag{14}$$

and let $\bar{z} > 0$ denote the unique solution to $\phi(\bar{z}, \beta) = 0$. Then, in equilibrium, low-bias traders

borrow and short sell

$$\tilde{z} = \min\{z, \bar{z}\} \tag{15}$$

shares, the lending fee is

$$f^* = \phi(\tilde{z}, \beta) \geq 0, \tag{16}$$

which is concave in z, and the stock price is

$$p^* = \Gamma_T(\tilde{z}, \beta) + (1 - \lambda) f^*, \tag{17}$$

where $b_T \equiv \lambda b_H + (1 - \lambda) b_L$

The stock price reflects the valuation of a trader with the average bias, b_T, evaluated at the prevailing voting regime and at the equilibrium volume of short selling.

Lending affects the stock price through two distinct channels. The first is the fee itself, which enters (17) through the term $(1 - \lambda) f^*$. The fee acts as an endogenous short-selling constraint: it is the price low-bias traders must pay to sell more than their endowment, so a higher fee curtails their demand for borrowed shares and hence the volume sold short. This result is the overvaluation channel of Miller (1977): as low-bias traders sell fewer shares short, less of their unfavorable assessment of the proposal is impounded in the price, which is therefore increasing in f^*. This channel operates even when lending takes place after the record date, so that no votes change hands.[19] The second channel is the reallocation of voting power, which requires lending before the record date and enters through both the valuation term and the lending fee. Section 4.3 uses this second channel to analyze the relationship between the lending fee and the value of the vote, and how this relationship is affected by the voting regime.

As for the lending fee itself, borrowing a share is worthwhile only because a high-bias trader values it more than a low-bias one, and that gap is exactly $(b_H - b_L) \Lambda(\tilde{z}, \beta)$. This expression caps any borrower's willingness to pay, so f^* rises with disagreement $b_H - b_L$ and with the probability Λ that the vote—and hence the bias—actually matters: if the proposal never passes, biases are irrelevant and there is no reason to trade. The fee falls short of this

[19] Lemma 2 also covers $z = 0$. In that case, no shares are lent, low-bias traders sell exactly their endowment ($x_L^* = -e$), and $f^* = \phi(0) > 0$ is the shadow price of the short-selling constraint, that is, the fee at which those traders would be willing to short the marginal share. As the proof shows, (17) continues to deliver the correct price, so prices and fees are continuous at $z = 0$.

cap by the price concession needed to place the shares. All shares sold, $(1-\lambda)\,e+\tilde{z}$, must be absorbed by the λ high-bias traders. Because of the quadratic trading cost, each additional share a high-bias trader absorbs lowers his willingness to pay for the next one by γ, so the price at which the market clears falls with the quantity each of them must hold. Every dollar of this price concession is a dollar the borrower cannot pass on to the lender. Accordingly, f^* falls with the trading cost γ.

The effect of the lending supply itself is more subtle because z operates through both forces at once:

$$\frac{\partial\phi\,(z,\beta)}{\partial z}=\underbrace{(b_H-b_L)\,\frac{\partial\Lambda\,(z,\beta)}{\partial z}}_{\text{vote reallocation}}-\underbrace{\frac{\gamma}{\lambda\,(1-\lambda)}}_{\text{absorption}}. \tag{18}$$

Lending an additional share adds to the quantity that high-bias traders must absorb, which depresses the fee, but it also reallocates a vote from the fund to a high-bias trader, raising Λ and hence the valuation wedge between high- and low-bias traders. The two forces thus pull in opposite directions: whenever vote reallocation dominates absorption, the demand curve for borrowed shares slopes upward and the lending fee *increases* with the supply of lendable shares.

These two forces also scale differently, and that is what shapes f^* as a function of z. Absorption is linear: each lent share adds the same amount to the position that high-bias traders must carry, and so subtracts the constant $\frac{\gamma}{\lambda(1-\lambda)}$ from the fee. Vote reallocation, by contrast, is subject to diminishing returns due to the concavity of Λ (see Lemma 1). Lending therefore raises the fee as long as the marginal vote raises the approval probability by enough to outweigh the absorption cost, and lowers it once it does not. Since Λ' is decreasing, this switch can occur at most once, so f^* is single-peaked in z.

Finally, recall that $\phi\,(z,\beta)$ reflects what the marginal borrower is willing to pay, and that absorption eventually exhausts the valuation wedge. That is, at $z=\bar{z}$ the marginal borrower's willingness to pay reaches zero, and beyond that point no trader would short an additional share. Demand for borrowed shares is therefore capped at $\bar{z}$, regardless of how low the fee falls. When the fund offers $z>\bar{z}$, supply exceeds demand at every non-negative fee, so the quantity rather than the price adjusts: the fee settles at zero, only $\bar{z}$ shares are borrowed, and the remaining $z-\bar{z}$ go unborrowed.

Two implications follow. First, a zero lending fee is not evidence that votes are cheap to acquire. Instead, it is evidence that the market for them is saturated, and it coincides with the maximum volume of short selling the stock market can sustain. Second, $\bar{z}$ caps how many votes can be reallocated through the lending market, irrespective of how many shares the fund is willing to lend: the capacity of the lending market to redistribute control is limited by traders' willingness to absorb shares rather than by the supply of lendable shares.

3.4 Lending

Since $\bar{z}$ is the largest quantity the market can absorb, offering more than $\bar{z}$ shares changes neither the fee nor the allocation of votes. We therefore restrict attention, without loss of generality, to $z \leq \bar{z}$, so that $\tilde{z} = z$ throughout.

For an agent with bias b_j, define expected welfare when the fund lends z shares under voting regime β as

$$W_j(z, \beta) \equiv R(z, \beta) + \alpha \Gamma_j(z, \beta), \tag{19}$$

where the first term is the lending revenue the fund collects, defined as

$$R(z, \beta) \equiv z\phi(z, \beta), \tag{20}$$

and the second is the agent's valuation of the fund's α shares.

The manager's problem is therefore

$$\max_{z \in [0, \min\{\alpha, \bar{z}\}]} W_M(z, \beta), \tag{21}$$

and since W is continuous in z and the constraint set is a closed and bounded interval, a maximizer exists. We denote it by z^* and assume throughout that it is unique and interior and that the second-order condition holds strictly. The first-order condition requires z^* to satisfy $\frac{\partial W_M(z^*_\beta, \beta)}{\partial z} = 0$, where

$$\frac{\partial W_M(z, \beta)}{\partial z} = \underbrace{\frac{\partial R(z, \beta)}{\partial z}}_{\text{marginal lending revenue}} + \underbrace{\alpha \frac{\partial \Gamma_M(z, \beta)}{\partial z}}_{\text{marginal governance value}}. \tag{22}$$

Expression (22) reflects the manager's trade-off between the fee income that lending generates and the control he surrenders by transferring votes. The first term is the marginal revenue from the lending market,

$$\frac{\partial R(z,\beta)}{\partial z} = \phi(z,\beta) + z\frac{\partial \phi(z,\beta)}{\partial z}, \tag{23}$$

the fee collected on the extra share plus its effect on the fee earned on all shares already lent. Unlike a standard monopolist, the manager may find the second component positive, because reallocating votes increases the probability of approval and therefore the valuation wedge between low- and high-bias traders. The fee then rises with lending whenever this reallocation effect exceeds the discount high-bias traders require to hold the extra shares (see the discussion following expression (18)).[20]

The second term in (22) captures the effect on the manager's governance value of lending one additional share. Its negative is the value he assigns to a marginal vote he retains,

$$\mathrm{MV}(z,\beta) \equiv -\alpha \frac{\partial \Gamma_M(z,\beta)}{\partial z} = -\alpha\, \delta'(z) \int_{-b_H}^{-\beta} (\theta + b_M)\, dH(\theta). \tag{24}$$

The vote lost with an additional lent share matters only in the contested region $\theta \in (-b_H, -\beta)$, where the fund and the high-bias traders vote differently; elsewhere the outcome is the same whoever holds the share. Within that region the transferred vote raises the probability that the traders' bloc is decisive by $\delta'(z)$, and when the proposal is then approved the manager obtains $\theta + b_M$ per share. Integrating over the contested states and scaling by the α shares the fund holds gives (24).

The manager's marginal value of a vote can be either positive or *negative*. It is positive when $\int_{-b_H}^{-\beta} (\theta + b_M)\, dH(\theta) < 0$, in which case lending is costly in governance terms and the manager stops short of the revenue-maximizing volume. This is necessarily the case under pure delegation, where $\beta = b_M$ and the integrand is strictly negative throughout the contested region: no voter can represent the manager's preferences better than he does himself, so surrendering votes is strictly costly. When instead the integral is positive, $\mathrm{MV} < 0$ and the manager lends beyond the revenue-maximizing point, accepting lower revenue in exchange for a voting outcome he prefers. This requires two things at once: some degree of pass-through voting, so that the contested region contains states in which the manager and the high-bias traders agree,

[20] Lemma 4 in the Appendix shows that $R(z,\beta)$ is single-peaked on $[0,\bar{z}]$.

and a sufficiently pro-proposal manager, so that the gains in those states outweigh the losses in the rest of the contested region.

4 Delegation versus Pass-Through Voting

To understand the effects of the voting regime, we begin with its effect on equilibrium lending. Let z^*_β denote the manager's optimal lending under the regime β. Applying the implicit function theorem to (22) and using the second-order condition, the sign of $\frac{\partial z^*_\beta}{\partial \beta}$ is determined by the cross-partial derivative

$$\frac{\partial^2 W_M(z,\beta)}{\partial z \partial \beta} = \Big[\underbrace{(b_H - b_L)(1-\delta(z) - z\delta'(z))}_{\text{fee revenue}} + \underbrace{\alpha\delta'(z)(\beta - b_M)}_{\text{governance}}\Big] h(-\beta). \tag{25}$$

The first term captures how the voting regime affects marginal fee revenue. Specifically, differentiating marginal revenue from (23) with respect to β yields

$$\frac{\partial^2 R(z,\beta)}{\partial z \partial \beta} = (b_H - b_L)\Big[\underbrace{1-\delta(z)}_{\text{level effect}} - \underbrace{z\delta'(z)}_{\text{slope effect}}\Big] h(-\beta). \tag{26}$$

The effect of the voting regime on the marginal revenue operates through two opposing channels. A higher β raises the probability of approval and therefore the fee earned on all lent shares (i.e., shifts the inverse demand curve up); we call this force the *level effect*. At the same time, it shrinks the range of states in which the high-bias traders and the fund disagree, weakening the reallocation effect from (18). This outcome weakens the rate at which further lending raises the fee (i.e., the inverse demand curve rotates down) so we call this force the *slope effect*. The level effect dominates when lending is low, while the slope effect dominates when lending is high. Consequently, marginal revenue increases with β if and only if $1 - \delta(z) - z\delta'(z) > 0$.

The second term in (25) captures the governance effect: the direct effect of the voting regime on the manager's marginal value of a vote. As noted after (24), MV is highest under pure delegation, and moving the regime toward pass-through lowers it, though the reason depends on the sign of b_M. When $b_M < 0$, moving toward pass-through raises β and shrinks the contested region, so the vote on a lent share is less likely to change the outcome. When

$b_M > 0$, moving toward pass-through lowers β and widens the contested region, but the states it gains are those in which the manager sides with the high-bias traders, so the transferred votes go to voters he agrees with. In either case, the vote he surrenders is worth less to him, so the governance effect pushes him to lend more as the regime moves toward pass-through. The sign of the term, $\beta - b_M$, follows: it is positive when pass-through raises β ($b_M < 0$) and negative when pass-through lowers β ($b_M > 0$).

Lemma 3 *Lending z^*_β is increasing in β if and only if*

$$\beta > b_M - \frac{b_H - b_L}{\alpha} \frac{1 - \delta(z^*_\beta) - z^*_\beta \delta'(z^*_\beta)}{\delta'(z^*_\beta)}. \tag{27}$$

How the voting regime affects equilibrium lending depends on (i) which of the two revenue effects dominates and (ii) where β stands relative to b_M. Two configurations deliver unambiguous comparative statics. First, suppose the level effect dominates the slope effect, that is, $1 - \delta(z) - z\delta'(z) \geq 0$, and $\beta > b_M$. The inverse demand curve for borrowed shares shifts up faster than it rotates down, so marginal revenue rises with β. The marginal governance cost of lending also falls with β (since $\beta > b_M$), so equilibrium lending increases in β. Because $\beta > b_M$ requires $b_M < 0$, this case corresponds to a manager more opposed to the proposal than the investor: when equilibrium lending is low, moving the voting regime toward pass-through raises lending. Second, suppose the slope effect dominates and $b_M > \beta$. The curve now rotates down faster than it shifts up, so marginal revenue falls with β. The marginal governance cost also rises (since $b_M > \beta$), so equilibrium lending decreases in β. Since $b_M > \beta$ requires $b_M > 0$, this case corresponds to a manager more favorable to the proposal than the investor: when equilibrium lending is already high, moving toward pass-through again raises lending. In the two remaining configurations the revenue and governance effects conflict, and the comparison depends on which dominates.

Figure 2 demonstrates equilibrium lending in a numerical example where the slope effect dominates. When $b_M < 0$, equilibrium lending is lower under pure pass-through voting ($\beta = 0$) than under pure delegation ($\beta = b_M$). Per the discussion above, this result implies that the slope effect dominates both the governance and level effects in this parameterization. When $b_M = 0$, lending is identical across the two voting regimes. Finally, when $b_M > 0$, lending is greater under pass-through voting; here, the combined effects of the governance and slope

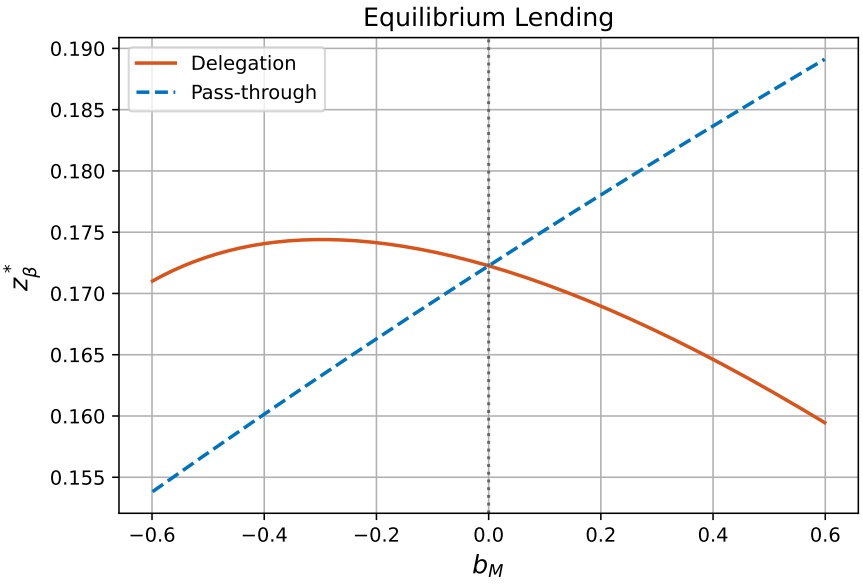


Figure 2: Lending under delegation and pass-through voting. The figure plots equilibrium lending z^*_β under pure delegation ($\beta = b_M$) and under pure pass-through voting ($\beta = 0$) as a function of the manager's bias b_M. Parameters: $H \sim U[-1, 1]$, $G \sim U[0, 1]$, $\alpha = 0.2$, $\lambda = 0.55$, $\gamma = 0.35$, $\tau = 0.5$, $b_H = 0.6$, and $b_L = -0.6$.

terms exceed the level effect.

4.1 Manager's welfare

By the envelope theorem, the manager's payoff, evaluated at his optimal lending quantity z^*_β, responds to a change in the voting regime according to

$$\frac{\partial W_M\left(z^*_\beta, \beta\right)}{\partial \beta} = \Big[\underbrace{\alpha\left(b_M - \beta\right)}_{\text{governance}} + \underbrace{z^*_\beta\left(b_H - b_L\right)}_{\text{fee revenue}}\Big]\left(1 - \delta\left(z^*_\beta\right)\right) h\left(-\beta\right). \tag{28}$$

The next result follows.

Proposition 1 *The manager strictly prefers some level of pass-through voting to pure delegation if and only if he is biased against the proposal. That is,*

$$b_M \neq \arg\max_\beta W_M(z^*_\beta, \beta) \iff b_M < 0. \tag{29}$$

Expression (28) isolates the two forces affecting the manager's welfare. The first term, $\alpha(b_M - \beta)$, is the *governance effect*. Moving the regime away from pure delegation shifts the block's votes away from the manager's preferences, so this effect always works against pass-through voting. The second term, $z^*_\beta(b_H - b_L)$, is the *fee revenue effect*. The valuation gap between high- and low-bias traders is their disagreement $b_H - b_L$ scaled by the probability of approval. A higher β makes approval more likely, so the fee on each of the z^*_β shares lent rises in proportion to that disagreement.

When the manager favors the proposal ($b_M > 0$), both effects decrease his welfare. Pass-through voting hands the block to a voter less favorable to the proposal than he is, which costs him both voting influence and fee revenue. He therefore prefers pure delegation. When the manager opposes the proposal ($b_M < 0$), the two effects pull in opposite directions. Pass-through voting commits the block to vote more favorably toward the proposal, which makes the fee revenue effect positive. The manager is then willing to sacrifice governance value in exchange for this revenue. Under pure delegation ($\beta = b_M$), the block already votes exactly as the manager would vote it, so a marginal shift in the regime costs him nothing to first order, while the gain in fee revenue is first order. Some pass-through voting is therefore always strictly better for him when $b_M < 0$, that is,

$$\left.\frac{\partial W_M\left(z^*_\beta, \beta\right)}{\partial \beta}\right|_{\beta = b_M} > 0. \tag{30}$$

Proposition 1 implies that asset managers do not uniformly resist pass-through voting. Consider a manager who is less favorable to the proposal than the investor on whose behalf he votes ($b_M < 0$). He strictly prefers to move the voting regime toward the investor's preferences, but not in order to represent her better. Rather, shifting toward a more pro-proposal voting regime makes approval more likely, thereby widening the valuation gap between traders and increasing lending fees. Moreover, when pass-through voting increases lending, more of the fund's votes are cast by the traders who end up holding the lent shares, rather than by its investors. Pass-through voting thus redistributes control away from the manager, but not necessarily toward the investors in whose name it is adopted.

4.1.1 Policy implications

Our model can speak to the ongoing expansion of pass-through voting programs. First, our model predicts that voluntary adoption should concentrate among funds with large lending revenues relative to assets, and on proposals where the manager's voting record is more conservative than his investors' preferences. It does not predict adoption among funds whose governance practices are otherwise shareholder-friendly. Second, voluntary adoption need not be complete. Proposition 1 shows that a manager with $b_M < 0$ gains from introducing some pass-through, not that he gains from adopting it fully: by (28), his welfare still rises at full pass-through only if the fee gain $z_0^* (b_H - b_L)$ exceeds the governance loss $\alpha |b_M|$. The pilot programs observed in practice, covering subsets of funds and subsets of ballot items, are consistent with cases in which the optimal degree of pass-through is intermediate.

4.2 Beneficial investor's welfare

To understand how the voting regime affects the investor's welfare, we begin with its effect on her governance value:

$$\frac{\partial \Gamma_I \left(z_\beta^*, \beta\right)}{\partial \beta} = \underbrace{-\beta \left(1 - \delta \left(z_\beta^*\right)\right) h \left(-\beta\right)}_{\text{direct}} + \underbrace{\delta' \left(z_\beta^*\right) \frac{\partial z_\beta^*}{\partial \beta} \int_{-b_H}^{-\beta} \theta \, dH \left(\theta\right)}_{\text{indirect}}. \tag{31}$$

The direct effect holds lending fixed and captures how the regime shifts the votes the fund retains. It is positive for $\beta < 0$ and negative for $\beta > 0$, so it always favors moving β toward the investor's ideal point of zero (at which point it vanishes). Holding lending fixed, the investor's governance value is therefore maximized under pure pass-through voting—consistent with the purported intent of such programs. The indirect effect operates through the manager's lending response. The next result shows that maximizing the investor's governance value may require some degree of delegation.

Proposition 2 *Some delegation* ($\beta \neq 0$) *strictly raises the investor's governance value relative to pure pass-through voting* ($\beta = 0$) *if a marginal shift toward delegation reduces lending. That is,*

$$\operatorname{sign} \left(b_M\right) \left.\frac{\partial z_\beta^*}{\partial \beta}\right|_{\beta=0} < 0 \qquad \Longrightarrow \qquad 0 \neq \arg\max_\beta \Gamma_I \left(z_\beta^*, \beta\right). \tag{32}$$

The result follows from evaluating (31) at $\beta = 0$, where the direct effect vanishes and only the indirect effect survives. Under pure pass-through voting the fund's block already votes exactly as the investor would, so a marginal change in the regime has no first-order effect on the retained votes. What such a change does alter is how many votes leave the fund altogether. Those votes go to high-bias traders, who approve the proposal in the contested states $\theta \in (-b_H, 0)$ in which the investor would reject it, so she always prefers less lending. She therefore gains from some degree of delegation whenever it curbs the manager's lending.

Which direction constitutes delegation depends on the manager's bias: when $b_M > 0$, delegation raises β, and when $b_M < 0$, it lowers β. The condition in the proposition therefore states that lending falls as β moves toward b_M. Note that the result does not say that the investor values the manager's judgment. Holding lending fixed, she would still prefer to cast the fund's votes herself. She accepts a voting regime tilted away from her own preferences only to deter the manager from selling more votes to traders whose preferences differ from hers. Her governance value can even be higher under pure delegation than under pure pass-through voting if the lending response is strong enough.

Proposition 2 shows that a reduction in lending following a marginal shift toward delegation is sufficient for some degree of delegation to improve the investor's governance value. The next result shows that lower lending is also necessary: no regime can beat pure pass-through voting unless the manager lends less under it.

Corollary 1 *A regime $\beta \neq 0$ gives the investor a governance value at least as high as pure pass-through voting only if the manager lends strictly less under it:*

$$\Gamma_I(z^*_\beta, \beta) \geq \Gamma_I(z^*_0, 0) \quad \Longrightarrow \quad z^*_\beta < z^*_0. \tag{33}$$

In particular, if no degree of delegation reduces lending below its level under pure pass-through voting, then pure pass-through voting uniquely maximizes her governance value.

Holding lending fixed, any regime other than pure pass-through voting costs the investor, because the block no longer votes as she would. A regime $\beta \neq 0$ can offset this cost only by keeping votes from the high-bias traders. The reduction in lending must also be large enough: the loss from tilting the block grows with the distance of β from zero, so a regime farther from her preferences must curb lending by more.

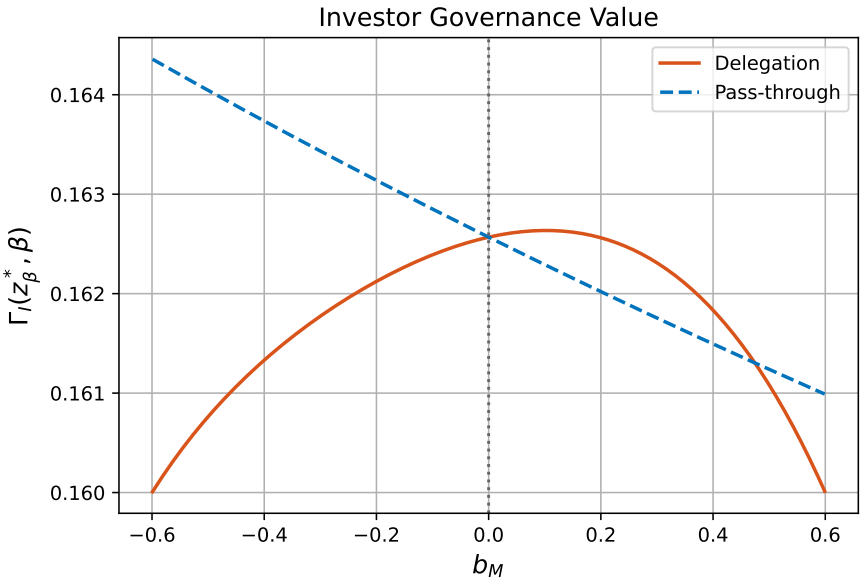


Figure 3: Governance value under delegation and pass-through voting. The figure plots the beneficial investors' governance value $\Gamma_I(z^*_\beta, \beta)$, evaluated at the manager's optimal lending, under pure delegation ($\beta = b_M$) and under pure pass-through voting ($\beta = 0$), as a function of the manager's bias b_M. Parameters are as in Figure 2.

Figure 3 illustrates, using the same parameters as Figure 2. The investor's governance value is higher under pure delegation than under pure pass-through over a range of positive managerial biases ($b_M > 0$), which is precisely where pass-through voting induces greater lending (see Figure 2). Greater lending under pass-through is necessary but not sufficient, however (Corollary 1). Once the manager becomes sufficiently pro-proposal, the investor's governance value is again higher under pass-through, because the manager votes much like the high-bias traders. Lending then becomes less relevant for the voting outcome, and who casts the unlent votes matters more.

The investor's governance value can therefore rise with delegation when delegation reduces lending. Lower lending, however, may also mean lower fee revenue, which hurts the investor. We now turn to how the voting regime affects her welfare, taking both the voting outcome and fee revenue into account.

The manager and the investor value fee revenue identically, so their payoffs differ only

through the governance term,

$$W_I(z,\beta) = W_M(z,\beta) - \alpha\, b_M\, \Lambda(z,\beta), \tag{34}$$

where $\Lambda(z,\beta)$ is the probability the proposal is approved. The investor's welfare equals the manager's welfare after subtracting a wedge representing their disagreement about the proposal. The wedge is exactly the degree of disagreement $(b_M - 0)$ times the probability this disagreement matters (Λ) times the fund's stake (α).

Differentiating (34) at the manager's optimal lending gives

$$\begin{aligned}\frac{\partial W_I\left(z^*_\beta,\beta\right)}{\partial\beta} = &\left[-\alpha\beta + z^*_\beta\left(b_H - b_L\right)\right]\left(1-\delta\left(z^*_\beta\right)\right)h\left(-\beta\right)\\ &- \alpha b_M\,\delta'\left(z^*_\beta\right)\int_{-b_H}^{-\beta} dH(\theta)\,\frac{\partial z^*_\beta}{\partial\beta}.\end{aligned} \tag{35}$$

The first line is the manager's corresponding expression (28) after replacing his bias (b_M) with the investor's (0). The second line operates through the manager's lending response. This term was absent in the manager's problem: at his optimum lending quantity, marginal fee revenue exactly offsets *his* marginal governance loss, which is the envelope theorem at work. It does not, however, offset *the investor's*. What remains is the wedge's sensitivity to lending times the change in lending itself.

The second expression also governs how investors evaluate greater lending. At the manager's optimal lending quantity,

$$\frac{\partial W_I\left(z^*_\beta,\beta\right)}{\partial z} = -\alpha b_M\,\delta'\left(z^*_\beta\right)\int_{-b_H}^{-\beta} dH(\theta), \tag{36}$$

so the manager over-lends relative to investors' preferred level when $b_M > 0$ and under-lends when $b_M < 0$. Lending raises the probability the proposal passes, and each unit of probability carries the wedge αb_M between his valuation and hers. A pro-proposal manager therefore pushes lending past the point she would choose, and an anti-proposal one stops short of it.

Evaluated at pure pass-through voting ($\beta = 0$), the governance portion of the first line of (35) (i.e., $-\alpha\beta$,) vanishes. What remains is a trade-off between the fee revenue a regime

change brings and the lending it induces. Define

$$\kappa(b_M) \equiv \frac{z_0^* (b_H - b_L)(1 - \delta(z_0^*)) h(0)}{\alpha b_M \delta'(z_0^*) \int_{-b_H}^{0} dH(\theta)}, \tag{37}$$

where z_0^* denotes z_β^* evaluated at $\beta = 0$. The threshold κ is the break-even lending response: the increase in lending that would exactly offset the fee revenue from a marginal shift toward delegation. Its numerator is that revenue gain per marginal increase in β; its denominator is the investor's welfare loss per additional lent share, from (36). Some degree of delegation benefits her whenever the manager's actual lending response falls short of κ.

Proposition 3 *The investor's welfare-maximizing voting regime involves some delegation, that is,*

$$0 \neq \arg\max_{\beta} W_I\left(z_\beta^*, \beta\right),$$

if

$$\left.\frac{\partial z_\beta^*}{\partial \beta}\right|_{\beta=0} < \kappa(b_M). \tag{38}$$

Recall from Proposition 2 that the investor's governance value rises with delegation if delegation reduces lending. Once fee revenue enters, investors are willing to tolerate some distortion in the voting outcome, provided the additional revenue more than compensates her for it. The direction of that trade-off depends on the sign of the manager's bias.

When $b_M > 0$, delegation means a higher β. A higher β makes approval more likely and thereby raises the equilibrium fee, so at any given lending quantity, delegation brings the investor more revenue. Since the manager already over-lends from the investor's perspective, she would prefer that delegation also curb lending. She can tolerate the opposite, but only if the lending response stays below the break-even level: $\frac{\partial z_\beta^*}{\partial \beta}|_{\beta=0} < \kappa(b_M)$, where $\kappa(b_M) > 0$. Because the threshold is strictly positive, the condition holds even if lending does not respond to delegation at all. Pass-through voting then leaves the investor strictly worse off: it lowers the fee on every lent share and brings no offsetting reduction in lending.

Conversely, when $b_M < 0$, delegation means a lower β. A lower β makes approval less likely and thereby lowers the equilibrium fee, so at any given lending quantity, delegation costs the investor revenue. Since the manager under-lends, however, she values the lending that

delegation induces. Delegation can therefore pay for itself only by inducing greater lending—and by enough that the added volume outweighs the lower fee per share. The condition in Proposition 3 is then equivalent to $-\frac{\partial z^*_\beta}{\partial \beta}\big|_{\beta=0} > -\kappa(b_M) > 0$: the lending response must be positive and exceed the break-even magnitude.

The contrast with Proposition 2 deserves comment, since there the investor always prefers less lending, while (36) says she prefers more whenever $b_M < 0$. There is no contradiction: the two statements value the same marginal share differently. Net of fee revenue, a lent vote is unambiguously bad for the investor, since it goes to a high-bias trader who approves the proposal in states she would reject. Once fee revenue is included, however, that vote also carries a price, pinned down by the manager's first-order condition: recall that at his optimum, the marginal fee exactly offsets *his* marginal governance loss. The investor receives the same fee but bears a different governance loss, so the trade-off is identical only when $b_M = 0$. When $b_M > 0$, the manager's governance loss is smaller than hers, the revenue under-compensates her, and she wants less lending than he chooses. When $b_M < 0$ his loss is larger than hers, the revenue over-compensates her, and she wants more.

Figure 4 plots equilibrium investor welfare, using the same parameters as Figures 2 and 3. As with the governance value, delegation dominates only when $b_M > 0$. Unlike the governance value, however, the advantage of delegation persists throughout the region $b_M > 0$. For b_M close to b_H the two measures diverge: the investor's governance value is lower under delegation while her welfare is higher, and the gap is exactly the lending revenue differential. A manager this pro-proposal commands very high fees under delegation, which more than compensate the investor for the governance loss. The lending market thus prices the misalignment between the voting outcome and the investor's preferences, so she can be better off even as that misalignment grows.

4.2.1 Policy implications

Two implications follow. First, pass-through voting is not automatically beneficial for fund investors, and it should not be evaluated by how closely the fund's votes track its clients' preferences. Under pure pass-through the block votes exactly as the investor would, yet Proposition 3 shows she may still prefer a regime tilted toward the manager. The regime governs not only how the retained votes are cast but also how many votes leave the fund, and any misalignment

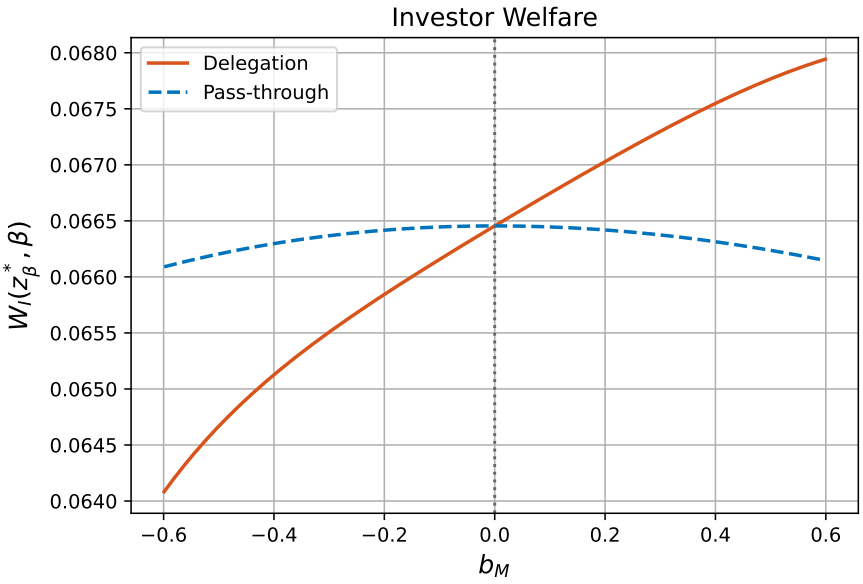


Figure 4: Investor welfare under delegation and pass-through voting. The figure plots beneficial investors' welfare $W_I\left(z^*_\beta, \beta\right)$ under pure delegation ($\beta = b_M$) and under pure pass-through voting ($\beta = 0$) as a function of the manager's bias b_M. Parameters are as in Figure 2.

it creates is priced in the lending market.

Second, pass-through voting leaves the lending decision with the manager, so policies that act directly on lending are natural complements to it. Consider the bluntest such policy: a lending ban for funds that adopt pass-through voting. Because the manager's marginal cost of lending is below the investor's only when $b_M > 0$, a ban can raise investor welfare only in that case. Even then, it helps only if the over-lending is so severe that the losses on the shares lent beyond the quantity *she would choose* outweigh the gains on the shares lent up to that point. When $b_M < 0$ the manager already lends too little from investors' point of view, so a ban strictly harms her. More targeted policies, such as lending caps or allowing fund investors to choose whether (or how many) of their shares can be lent, would be even better for investors than a ban; investors could then capture the gains on the shares lent up to their preferred quantity without suffering from over-lending.

Nevertheless, pure pass-through may still not maximize the investor's welfare when we eliminate the agency problem that lending creates by giving her direct control over lending decisions (even abstracting from any practical difficulties such a policy would entail). Handing the investor control over lending maximizes her welfare *for any given voting regime*, but such

control does not imply that pure pass-through is her welfare-maximizing regime. The intuition is identical to Proposition 1 with the roles of the investor and manager switched: the agent that controls lending may not want the fund's voting regime to be perfectly aligned with their preferences if some other regime allows the fund to commit to vote in a manner that increases lending revenue. Thus, maximizing the investor's power over the fund's decisions does not necessarily maximize her welfare, since lending fees endogenously respond to the identity of the agent exercising that power.

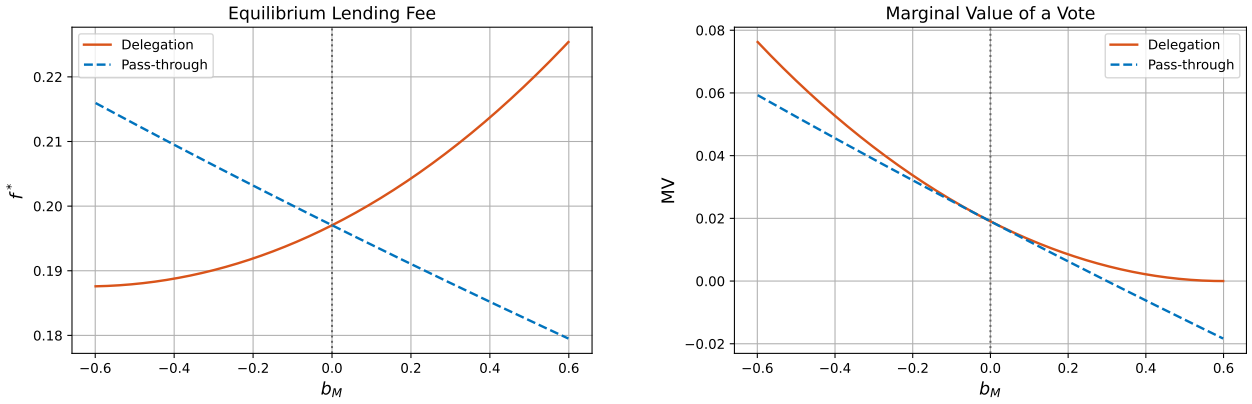
4.3 The lending fee and the value of a vote

Our model also has implications for measuring the value of voting rights. The value of a vote is not directly observed and is typically inferred from dual-class price differentials (Zingales, 1994; Nenova, 2003) or option prices around record dates (Kalay et al., 2014). Lending fees offer another potential measure: they are observed directly, and they are set in a market where a lent share carries its vote with it. But how closely do fees track what votes are worth, and how does pass-through voting change that relationship? We show that two distinct wedges separate the lending fee from the value of a vote, and that the voting regime moves both.

The manager's first-order condition equates the marginal revenue from lending to the marginal value of the vote he surrenders. Together with the market-clearing condition, it gives

$$f^* = \mathrm{MV}(z^*_\beta, \beta) - z^*_\beta \frac{\partial \phi(z^*_\beta, \beta)}{\partial z}. \tag{39}$$

The first wedge concerns whose valuation the fee reflects. The vote is priced at MV, the *manager's* marginal value of a vote, not at that of the investor on whose behalf he acts. The cross-section of lending fees is therefore informative about variation in managers' preferences rather than fund investors', and the gap between the two valuations is larger the greater the conflict of interest $|b_M - 0|$. The second wedge is the markup the manager earns on the inframarginal shares he lends. Because ϕ is single-peaked in z, this markup can take either sign. In particular, when lending raises the approval probability strongly enough that the fee rises with the quantity lent, $\frac{\partial \phi}{\partial z} > 0$, the markup is negative, and the manager lends at a fee *below* the value he places on the votes he gives up. A low lending fee is therefore not evidence that votes are worth little.



(a) Lending fee f^*

(b) Marginal value of a vote MV

Figure 5: The lending fee and the marginal value of a vote under pure delegation ($\beta = b_M$) and under pure pass-through voting ($\beta = 0$), as functions of the manager's bias b_M. Parameters are as in Figure 2.

Both terms in (39) depend on the voting regime, and they need not move together.[21] Figure 5 shows that, over the region $b_M < 0$, where pass-through voting reduces equilibrium lending (see Figure 2), adopting it *raises* the lending fee (panel (a)) while *lowering* the manager's marginal value of a vote (panel (b)). The policy implication is direct. A reform that makes votes less valuable to the party who controls the lending decision can show up in the data as more expensive stock loans, so neither the level of observed fees nor their response to a governance reform can be read as a measure of what votes are worth.

The voting premium. The fee is not the only observable that speaks to the value of a vote. In Appendix B.5 we follow Levit et al. (2026) in deriving the analogue of the voting premium in our setting. It equals the difference between the equilibrium stock price and the price that would emerge if borrowed shares conveyed no votes (as when lending and trading occur after the record date), holding fixed the equilibrium allocation of votes. We then show how this premium relates to the manager's marginal value of a vote, MV. Since the fund is passive and does not trade in our model, the premium we compute does not capture the direct effect of a large investor's trades on the stock price, and by extension on the voting premium itself. In that sense it measures the *passive voting premium*, the component that arises solely from an index fund's decision of how many shares to lend.

[21] Lemma 5 in the Appendix characterizes the effect of the voting regime on MV.

5 Extensions

5.1 Multiple lenders

Our baseline model treats the fund as a monopolist in the lending market. In practice, although lending supply is highly concentrated (Chen et al., 2026) and intermediation in the lending market is far from competitive (Daniel et al., 2025), most stocks have several lenders. In Appendix B.1, we extend the model to allow for competition among $N > 1$ symmetric funds, each holding α/N shares and competing à la Cournot in the lending market.[22] Our main results do not rely on the fund being a monopolist. With competing lenders, pass-through voting can still lower the investor's governance value and welfare while raising the manager's welfare. The central result, that pass-through voting can harm the investors it is meant to empower, survives even under perfect competition ($N \to \infty$). In that case, the fee is competed down to zero, so the equilibrium lending quantity is pinned down by how many shares high-bias traders are willing to absorb. A more pro-proposal block makes approval more likely, increasing that quantity. When $b_M < 0$, pass-through voting makes the block more pro-proposal and thus increases lending; the investor is then strictly better off with some degree of delegation.[23]

5.2 Generalized biases of the manager and the traders

Our baseline model assumes that the traders who hold the lent shares are more pro-proposal than the investor ($b_H > 0$) and that the manager is less pro-proposal than they are ($b_M < b_H$). In Appendix B.2, we drop both assumptions. Propositions 1 to 3 carry over for every $b_H \neq 0$ and $b_M \neq 0$, whatever their signs and relative size. The mechanism requires only that the traders who receive the lent votes disagree with the investor ($b_H \neq 0$), so that lending is costly to her, and that the manager disagrees with her ($b_M \neq 0$), so that delegation is a distinct regime. The analysis reduces to two cases: $\beta < b_H$, which is the baseline, and $\beta \geq b_H$, which is new. In the latter, the lent votes oppose the proposal in states where the block supports it, so lending lowers the probability of approval.

Proposition 1 still holds because a higher β raises the probability of approval, and hence

[22] All managers have bias b_M, and all beneficial investors have zero bias.

[23] What perfect competition does change is which managers favor pass-through voting: those with $b_M > 0$ rather than those with $b_M < 0$.

the fee, while the manager's governance cost of moving away from pure delegation is second order. Proposition 2 continues to hold because, starting from pure pass-through voting, the direct effect of a change in β is second order while the lending response is first order: the lent votes still go to traders who disagree with the investor, whichever direction that disagreement takes. Proposition 3 holds with the inequality reversed when $b_H < 0$, because lending then lowers the probability of approval and so flips whether the manager over- or under-lends from the investor's perspective. In sum, what matters for our results is not the sign or size of the disagreement but its existence.[24]

5.3 Lending revenue splits

In Appendix B.3, we allow the manager's share of lending revenue to differ from his share of fund value, as is common in practice (Johnson and Weitzner, 2025). This difference alone creates an agency problem. A manager who keeps a larger share of lending income than of fund value lends as if he had a higher *effective* bias, and so over-lends even when he agrees with the investor about the proposal. Since management fees are a small fraction of assets while lending agents often retain a sizable cut of lending income, this wedge is likely large in practice, pushing managers toward revenue maximization and away from governance concerns. Our main results nonetheless continue to hold: the manager still prefers some pass-through voting if and only if $b_M < 0$, Proposition 2 is unchanged, and Proposition 3 generalizes, with the manager's effective bias determining whether the investor wants greater lending. Moreover, the revenue split interpolates between these two propositions: the more lending income the manager keeps, the more the investor's welfare comparison resembles her governance-value comparison, in which she always prefers less lending.

For the manager's lending incentives, what matters is not how much lending revenue fund sponsors share with investors, but whether his share of lending income matches his share of the fund's value. Crediting all net lending income to the fund, with the manager paid only through a fee on assets, achieves this automatically. A larger share of lending income pushes the manager toward over-lending, and a smaller one toward under-lending. Mandating that

[24] This generalization does rule out some regimes as maximizers of the investor's governance value. No regime in which the block is voted with a bias at least as extreme as the high-bias traders' ($\beta \geq b_H > 0$ or $\beta \leq b_H < 0$) can improve her governance value relative to pure pass-through voting. Such a regime can still maximize her welfare through greater lending revenue, however.

lending revenue flow through to the fund thus addresses this distortion better than a lending ban: it preserves lending revenue while removing the pay-driven distortion in how much the manager lends, leaving only the distortion that stems from his preferences over the proposal.

6 Conclusion

Pass-through voting is often described as simply transferring the fund's voting rights from the manager to its investors. We argue that this description is incomplete. The manager still decides how many shares to lend, and the votes attached to lent shares are cast by whoever holds them on the record date.

We develop a model with heterogeneous preferences in which stock lending, trading, and voting are jointly determined in equilibrium. We show that pass-through voting can change the manager's incentive to lend and, as a result, reduce investors' valuation of the fund's holdings as well as their welfare. Mandating pass-through voting can therefore be self-defeating. Investors may be better served by retaining the option to delegate their votes back to the manager. Similarly, capping lending or allowing investors to determine whether their own shares are lent can be welfare-improving. We also show that managers may benefit from adopting pass-through voting voluntarily, and that lending fees are a biased measure of the value of a vote.

Several questions remain open, with fund flows perhaps the most important. Our model holds the fund's size fixed. If pass-through voting makes investors worse off, however, some may withdraw their capital. The fund would then need to sell shares, changing the firm's shareholder base and the supply of lendable shares, both of which affect the lending fee and the outcome of the vote. Future work could examine whether fund flows reinforce or offset the effects we identify and how they shape a manager's decision to adopt pass-through voting.

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A Proofs

Proof of Lemma 1. Recall $\beta < b_H$ regardless of the voting regime. There are three relevant regions of θ that determine the voting outcome. First, if $\theta < -b_H$ then every cast vote is against the proposal, so the proposal fails for sure. Second, if $-b_H < \theta < -\beta$ (*contested region*), then high-bias traders vote for and the fund votes against. The proposal passes if and only if

$$\frac{(1-\eta)(1-\alpha+z)}{(1-\eta)(1-\alpha+z)+(\alpha-z)} > \tau \Leftrightarrow \eta < 1 - \frac{\tau}{1-\tau}\frac{\alpha-z}{1-\alpha+z}.$$

Notice that the right-hand side increases in z. Third, if $\theta > -\beta$ then every cast vote is for the proposal, so it passes for sure. Therefore, the probability the proposal passes is Λ, where $\delta'(z) > 0$ implies $\Lambda'(z) > 0$ as required. Finally, by Leibniz's rule, $\partial\Lambda(z,\beta)/\partial\beta = (1-\delta(z))\,h(-\beta) \geq 0$, with strict inequality for $z < \alpha$, since then $\delta(z) < 1$.

To show concavity, notice that

$$\delta'(z) = g\left(1 - \frac{\tau}{1-\tau}\frac{\alpha-z}{1-\alpha+z}\right)\frac{\tau}{1-\tau}\frac{1}{(1-\alpha+z)^2},$$

$$\delta''(z) = g'\left(1 - \frac{\tau}{1-\tau}\frac{\alpha-z}{1-\alpha+z}\right)\left[\frac{\tau}{1-\tau}\frac{1}{(1-\alpha+z)^2}\right]^2 - g\left(1 - \frac{\tau}{1-\tau}\frac{\alpha-z}{1-\alpha+z}\right)\frac{\tau}{1-\tau}\frac{2}{(1-\alpha+z)^3}.$$

Therefore, $\delta''(z) < 0$ if and only if

$$\frac{g'\left(1 - \frac{\tau}{1-\tau}\frac{\alpha-z}{1-\alpha+z}\right)}{g\left(1 - \frac{\tau}{1-\tau}\frac{\alpha-z}{1-\alpha+z}\right)} < 2\frac{1-\tau}{\tau}(1-\alpha+z)$$

which always holds given Assumption (5). ■

Proof of Lemma 2. Throughout, recall from (13) that the value of a share to an agent with bias b_j is $\Gamma_j(\tilde{z},\beta)$ when $\tilde{z}$ shares are borrowed and short sold, and that Γ_j is linear in the bias, so that

$$\Gamma_j(\tilde{z},\beta) - \Gamma_k(\tilde{z},\beta) = (b_j - b_k)\,\Lambda(\tilde{z},\beta) \qquad \text{for all } j,k.$$

Stock price. Suppose the lending fee is $f^* \geq 0$ and low-bias traders short $\tilde{z}$ shares. Then p^* must solve (9):

$$\begin{aligned} 0 &= \lambda x(p^*, b_H) + (1-\lambda)\,x(p^* - f^*, b_L) \\ &= \lambda\frac{\Gamma_H(\tilde{z},\beta) - p^*}{\gamma} + (1-\lambda)\frac{\Gamma_L(\tilde{z},\beta) - p^* + f^*}{\gamma}, \end{aligned}$$

which, by the linearity of Γ_j in the bias, is (17).

Lending fee when $\phi(z) \geq 0$. Suppose low-bias traders short all z shares, so that $\tilde{z} = z$. Then f^* must solve (10), and substituting p^* from above,

$$\begin{aligned} & (1-\lambda)\left(-x\left(p^*-f^*, b_L\right)-e\right)=z \\ \iff \quad & -\frac{\Gamma_L(z,\beta)-\Gamma_T(z,\beta)+\lambda f^*}{\gamma}=e+\frac{z}{1-\lambda} \\ \iff \quad & \frac{\lambda\left(b_H-b_L\right)\Lambda(z,\beta)-\lambda f^*}{\gamma}=e+\frac{z}{1-\lambda} \\ \iff \quad & f^*=\phi(z)\geq 0. \end{aligned}$$

Thus, at a fee of $\phi(z)$ the demand for borrowed shares is exactly z, and the lending market clears with all shares borrowed.

Lending fee when $\phi(z) < 0$. By the same computation, clearing the market with all z shares borrowed would require a strictly negative fee, which cannot arise in equilibrium, as noted in the main text. Note first that (6) implies $\phi(0) > 0$: since β lies between 0 and b_M (inclusive) and b_H exceeds the bias of the block's voter, $\Lambda(0,\beta) \geq 1 - H(-\beta) \geq 1 - H(-\min\{b_M, 0\})$. Note second that, by Lemma 1,

$$\phi'(x) = (b_H - b_L)\Lambda'(x) - \frac{\gamma}{\lambda(1-\lambda)}, \qquad \phi''(x) = (b_H - b_L)\Lambda''(x) < 0,$$

so ϕ is strictly concave. Combined with $\phi(0) > 0 > \phi(z)$, it follows that ϕ crosses zero exactly once on $(0, z)$, at the unique root $\bar{z} \in (0, z)$, so that $\tilde{z} = \bar{z}$. The lending market therefore clears at a zero fee, with only $\bar{z}$ of the shares offered by the fund being borrowed and sold short. Finally, $\phi(x) < 0$ for every $x \in (\bar{z}, z]$, so no larger quantity can be supported by a non-negative fee, and $\bar{z}$ is the largest such quantity.

No lending. With $z = 0$ no share can be borrowed, so $x_L^* \geq -e$. Suppose the constraint binds, $x_L^* = -e$. Market clearing then requires $\lambda x(p^*, b_H) = (1-\lambda)e$, that is,

$$\lambda\frac{\Gamma_H(0,\beta)-p^*}{\gamma}=(1-\lambda)e \qquad \iff \qquad p^*=\Gamma_H(0,\beta)-\gamma\frac{1-\lambda}{\lambda}e.$$

To verify that the constraint indeed binds, note that

$$x(p^*, b_L) = \frac{\Gamma_L(0,\beta)-p^*}{\gamma} = -\frac{(b_H-b_L)\Lambda(0,\beta)}{\gamma} + \frac{1-\lambda}{\lambda}e,$$

which is weakly below $-e$ if and only if $\lambda(b_H - b_L)\Lambda(0,\beta) \geq \gamma e$, that is, if and only if $\phi(0) \geq 0$, which holds. The shadow price of the constraint is the fee at which low-bias traders would

be willing to short the marginal share, namely $\phi(0)$. Finally, evaluating (17) at $\tilde{z} = 0$ and $f^* = \phi(0)$ and using linearity of Γ_j in the bias,

$$\Gamma_T(0,\beta) + (1-\lambda)\phi(0) = \Gamma_H(0,\beta) - \gamma\frac{1-\lambda}{\lambda}e,$$

because $\lambda b_H + (1-\lambda) b_L + (1-\lambda)(b_H - b_L) = b_H$. Hence (17) also delivers the price at $z = 0$, and the lemma holds for every $z \in [0,\alpha]$. ■

Lemma 4 (Fee revenue is single-peaked) *$R(z)$ is single-peaked on $[0,\bar{z}]$.*

Proof. By Assumption 6, $\phi(0,\beta) > 0$, and ϕ is strictly concave in z with $\phi(\bar{z},\beta) = 0$, so $\phi > 0$ on $[0,\bar{z})$ and $\phi'(\bar{z},\beta) < 0$; otherwise concavity would give $\phi(0,\beta) \leq \phi(\bar{z},\beta) - \bar{z}\phi'(\bar{z},\beta) \leq 0$. Let z_ϕ maximize $\phi(\cdot,\beta)$. On $[0,z_\phi]$, $R' = \phi + z\phi' > 0$ because $\phi > 0$ and $\phi' \geq 0$. On $[z_\phi,\bar{z}]$, $R'' = 2\phi' + z\phi'' < 0$, so R' is strictly decreasing, with $R'(z_\phi,\beta) = \phi(z_\phi,\beta) > 0$ and $R'(\bar{z},\beta) = \bar{z}\phi'(\bar{z},\beta) < 0$. Hence R' vanishes exactly once on $(z_\phi,\bar{z})$, and R increases before that point and decreases after it. ■

Proof of Lemma 3. By the implicit function theorem, $\frac{\partial z^*_\beta}{\partial\beta} = -\frac{\partial^2 W_M/\partial z\,\partial\beta}{\partial^2 W_M/\partial z^2}$, evaluated at z^*_β. The denominator is negative by the second-order condition, so $\partial z^*_\beta/\partial\beta$ has the sign of (25). Since $h(-\beta) > 0$ and $\alpha\,\delta'(z^*_\beta) > 0$, that sign is positive if and only if $(b_H - b_L)\big(1 - \delta(z^*_\beta) - z^*_\beta\delta'(z^*_\beta)\big) + \alpha\,\delta'(z^*_\beta)(\beta - b_M) > 0$, which rearranges to the stated condition. ■

Proof of Proposition 1. Differentiating (13) with respect to β, the two integrals contribute $\delta(z)(\beta - b)\,h(-\beta)$ and $(b-\beta)\,h(-\beta)$, so that

$$\frac{\partial\Gamma(z,\beta)}{\partial\beta} = (b-\beta)\,h(-\beta)\,(1-\delta(z)).$$

Since ϕ depends on β only through Λ,

$$\frac{\partial R(z,\beta)}{\partial\beta} = z\,(b_H - b_L)\,h(-\beta)\,(1-\delta(z)).$$

Adding the two, with the first weighted by α, gives (28), in which $1 - \delta > 0$ and $h > 0$, so the sign is that of the bracket.

Suppose $b_M < 0$. Evaluating (28) at $\beta = b_M$, the bracket equals $z^*_{b_M}(b_H - b_L) > 0$, since $z^*_{b_M} > 0$ by the interiority assumption. Hence W_M is strictly increasing in β at $\beta = b_M$, and because pass-through raises β above b_M, some level of pass-through voting strictly dominates pure delegation.

Suppose instead $b_M \geq 0$. For every $\beta \in [0, b_M)$ the bracket is strictly positive, since $\alpha\,(b_M - \beta) > 0$ and $z^*_\beta\,(b_H - b_L) \geq 0$. Thus W_M is strictly increasing in β on $[0, b_M]$, and every level of pass-through voting, which lowers β below b_M, is strictly worse than pure delegation. ■

Proof of Proposition 2. Write the investors' governance value evaluated at the manager's optimal lending as $\Gamma_I\big(z^*_\beta, \beta\big)$, and differentiate with respect to β:

$$\frac{d\Gamma_I\big(z^*_\beta, \beta\big)}{d\beta} = \frac{\partial \Gamma_I}{\partial \beta} + \frac{\partial \Gamma_I}{\partial z}\,\frac{\partial z^*_\beta}{\partial \beta}. \tag{40}$$

Differentiating (13) with $b_I = 0$ and using Leibniz's rule, the boundary $-\beta$ enters both integrals with opposite signs, so

$$\frac{\partial \Gamma_I}{\partial \beta} = -\big(1 - \delta(z)\big)\,\beta\,h(-\beta), \qquad \frac{\partial \Gamma_I}{\partial z} = \delta'(z)\int_{-b_H}^{-\beta} \theta\, dH(\theta). \tag{41}$$

Evaluate (40) at $\beta = 0$. The direct effect in (41) is proportional to β and therefore vanishes, while the integrand of the indirect effect is strictly negative on the whole range of integration, so that

$$\left.\frac{d\Gamma_I\big(z^*_\beta, \beta\big)}{d\beta}\right|_{\beta=0} = \underbrace{\delta'(z^*_0)\int_{-b_H}^{0} \theta\, dH(\theta)}_{<\,0}\ \left.\frac{\partial z^*_\beta}{\partial \beta}\right|_{\beta=0}, \tag{42}$$

where $z^*_0 \equiv z^*_\beta|_{\beta=0}$ and $\delta' > 0$ because $g > 0$.

The admissible range of voting regimes is $[0, b_M]$ when $b_M > 0$ and $[b_M, 0]$ when $b_M < 0$, so $\beta = 0$ is a boundary point and delegation corresponds to a movement of β in the direction of $\operatorname{sign}(b_M)$. Hence a marginal shift toward delegation strictly raises her governance value if and only if

$$\operatorname{sign}(b_M)\,\left.\frac{d\Gamma_I\big(z^*_\beta, \beta\big)}{d\beta}\right|_{\beta=0} > 0. \tag{43}$$

Substituting (42) into (43) and dividing by the strictly negative constant $\delta'(z^*_0)\int_{-b_H}^{0} \theta\, dH(\theta)$ reverses the inequality and yields

$$\operatorname{sign}(b_M)\,\left.\frac{\partial z^*_\beta}{\partial \beta}\right|_{\beta=0} < 0,$$

which is the stated condition. Finally, $\operatorname{sign}(b_M)\,\partial z^*_\beta/\partial\beta|_{\beta=0} < 0$ says precisely that moving β toward b_M, that is, delegating, reduces lending at $\beta = 0$. Since $\beta = 0$ is a boundary point

of the admissible range, a strictly positive one-sided derivative there implies that some $\beta \neq 0$ yields a strictly higher governance value, so pure pass-through voting does not maximize it. ■

Proof of Corollary 1. Fix $\beta \neq 0$ and write

$$\Gamma_I(z^*_\beta, \beta) - \Gamma_I(z^*_0, 0) = \big[\Gamma_I(z^*_\beta, \beta) - \Gamma_I(z^*_\beta, 0)\big] + \big[\Gamma_I(z^*_\beta, 0) - \Gamma_I(z^*_0, 0)\big].$$

Splitting the integrals in (13) at $\theta = 0$, with $b_I = 0$, the first bracket equals

$$-\big(1 - \delta(z^*_\beta)\big) \int_{\min\{0,-\beta\}}^{\max\{0,-\beta\}} |\theta|\, dH(\theta),$$

which is strictly negative because $h > 0$ and $\delta(z^*_\beta) < 1$, the latter since $z^*_\beta < \alpha$. The second bracket equals $\big(\delta(z^*_\beta) - \delta(z^*_0)\big) \int_{-b_H}^{0} \theta\, dH(\theta)$. The integral is strictly negative and δ is strictly increasing, so this bracket is strictly positive if and only if $z^*_\beta < z^*_0$. Hence $\Gamma_I(z^*_\beta, \beta) \geq \Gamma_I(z^*_0, 0)$ requires $z^*_\beta < z^*_0$. If instead $z^*_\beta \geq z^*_0$, both brackets are non-positive and the first is strictly negative, so pure pass-through voting is the unique maximizer. ■

Proof of Proposition 3. Evaluate (35) at $\beta = 0$. The direct governance term is proportional to β and therefore vanishes, leaving

$$\left.\frac{\partial W_I\left(z^*_\beta, \beta\right)}{\partial \beta}\right|_{\beta=0} = z^*_0 \left(b_H - b_L\right)\left(1 - \delta\left(z^*_0\right)\right) h\left(0\right) - \alpha b_M\, \delta'\left(z^*_0\right) \left.\frac{\partial z^*_\beta}{\partial \beta}\right|_{\beta=0} \int_{-b_H}^{0} dH\left(\theta\right). \tag{44}$$

The admissible range of voting regimes is $[0, b_M]$ when $b_M > 0$ and $[b_M, 0]$ when $b_M < 0$, so $\beta = 0$ is a boundary point and delegation moves β in the direction of $\operatorname{sign}\left(b_M\right)$. A marginal shift toward delegation therefore strictly raises her welfare if and only if

$$\operatorname{sign}\left(b_M\right) \left.\frac{\partial W_I\left(z^*_\beta, \beta\right)}{\partial \beta}\right|_{\beta=0} > 0. \tag{45}$$

Dividing (44) by $\alpha\delta'(z^*_0) \int_{-b_H}^{0} dH(\theta) > 0$ and substituting (37), the first term becomes $b_M \kappa$, so condition (45) reads

$$\operatorname{sign}(b_M)\, b_M \Big(\kappa - \left.\tfrac{\partial z^*_\beta}{\partial \beta}\right|_{\beta=0}\Big) = |b_M| \Big(\kappa - \left.\tfrac{\partial z^*_\beta}{\partial \beta}\right|_{\beta=0}\Big) > 0,$$

which is (38). Since $\beta = 0$ is a boundary point of the admissible range, a strictly positive one-sided derivative there implies that some $\beta \neq 0$ yields strictly higher welfare, so pure pass-through voting does not maximize it. ■

B Supplementary Analysis

B.1 Multiple lenders

We now relax the assumption that the fund is a monopolist in the lending market. Although this market is quite concentrated (e.g., Chen et al. (2026)), multiple lenders typically supply the same stock. We show that our main insights are robust to this generalization.

Suppose there are $N \geq 1$ symmetric funds, indexed by k, each holding a block of size α/N, so that the funds collectively control α shares. Each fund has a manager with bias b_M and a beneficial investor with bias zero, and all funds operate under the same voting regime β. Funds engage in Cournot competition: fund k supplies z_k shares to the lending market, making aggregate supply $Z \equiv \sum_k z_k$. The probability of approval, the lending fee, and each agent's valuation depend on the lending market only through the aggregate quantity, so $\Lambda(Z, \beta)$, $\delta(Z)$, $\phi(Z, \beta)$, and $\Gamma_j(Z, \beta)$ are as in the baseline model with Z in place of z.

Fund k's manager has welfare

$$W_{M,k}(z_k, Z_{-k}, \beta) = z_k \phi(Z, \beta) + \frac{\alpha}{N} \Gamma_M(Z, \beta),$$

where Z_{-k} is aggregate lending by the other funds. Taking Z_{-k} as given, his first-order condition for lending is

$$\frac{\partial W_{M,k}}{\partial z_k} = \phi(Z, \beta) + z_k \frac{\partial \phi(Z, \beta)}{\partial Z} + \frac{\alpha}{N} \delta'(Z) \int_{-b_H}^{-\beta} (\theta + b_M) \, dH(\theta) = 0. \tag{46}$$

In an interior symmetric equilibrium, $z_k = Z/N$, and we denote aggregate equilibrium lending in regime β by Z^*_β.[25]

The beneficial investor's equilibrium governance value is that of the baseline model with Z^*_β in place of z^*_β. Proposition 2 therefore continues to hold, with its condition now referring to the derivative of Z^*_β: pure pass-through voting does not maximize a representative investor's governance value whenever a move toward delegation reduces *aggregate* lending.

We now turn to welfare, starting with the manager. The regime affects his welfare through three channels:

$$\frac{dW_{M,k}}{d\beta} = \underbrace{\frac{\partial W_{M,k}}{\partial \beta}}_{\text{Direct}} + \underbrace{\frac{\partial W_{M,k}}{\partial z_k} \frac{dz_k}{d\beta}}_{\text{Indirect}} + \underbrace{\frac{\partial W_{M,k}}{\partial Z_{-k}} \frac{dZ_{-k}}{d\beta}}_{\text{Cournot}}. \tag{47}$$

[25] Throughout this section we assume that for every β a unique symmetric interior equilibrium exists with $\phi(Z^*_\beta, \beta) > 0$, and that the manager's second-order condition is satisfied. This assumption implies that Z^*_β is differentiable by the implicit function theorem. These are the counterparts of the regularity conditions maintained in the baseline model.

The direct term generalizes in a straightforward manner from the baseline model. The indirect term is zero by the envelope theorem. The Cournot term is new: lending by other funds affects both the fee fund k collects and the voting outcome. Specifically,

$$\frac{\partial W_{M,k}}{\partial Z_{-k}} = z_k \frac{\partial \phi}{\partial Z} + \frac{\alpha}{N} \delta'(Z) \int_{-b_H}^{-\beta} (\theta + b_M)\, dH(\theta) = -\phi(Z, \beta), \tag{48}$$

where the second equality follows from (46). A marginal share lent by another fund affects the manager's welfare exactly as a marginal share lent by his own, except that he does not collect the associated fee. His own marginal share is worth zero to him at the optimum, so his loss from a competitor's share is precisely the fee. Because the other funds lend $\frac{N-1}{N}$ of the aggregate in the symmetric equilibrium, $\frac{dZ_{-k}}{d\beta} = \frac{N-1}{N}\frac{\partial Z^*_\beta}{\partial \beta}$, and (47) becomes

$$\begin{aligned} \frac{dW_{M,k}}{d\beta} = &\left[\frac{\alpha}{N}(b_M - \beta) + z_k (b_H - b_L)\right]\left(1 - \delta\left(Z^*_\beta\right)\right) h(-\beta) \\ &- \frac{N-1}{N} \phi\left(Z^*_\beta, \beta\right) \frac{\partial Z^*_\beta}{\partial \beta}. \end{aligned} \tag{49}$$

Proposition 1 generalizes as follows. Evaluated at $\beta = b_M$, the first line of (49) is strictly positive, as in the baseline model. With a single lender that was the whole story: for $b_M > 0$ a move toward pass-through lowers β and hence the manager's welfare, and for $b_M < 0$ it raises both. With competition, the Cournot term can flip the welfare implications of a move toward pass-through. A move toward pass-through can now increase the welfare of a manager with $b_M > 0$ by sufficiently lowering aggregate lending, and can lower the welfare of a manager with $b_M < 0$ by sufficiently raising it. The manager's regime preference thus comes to resemble the investor's in the baseline model, in that it depends on how *others* lend. Rearranging (49) at $\beta = b_M$, the manager strictly prefers some pass-through voting to pure delegation if

$$\operatorname{sign}(b_M)\left(\left.\frac{\partial Z^*_\beta}{\partial \beta}\right|_{\beta = b_M} - \kappa_M\right) > 0, \qquad \text{where } \kappa_M \equiv \frac{Z^*_{b_M}(b_H - b_L)\left(1 - \delta\left(Z^*_{b_M}\right)\right) h(-b_M)}{(N-1)\,\phi\left(Z^*_{b_M}, b_M\right)} > 0.$$

That is, a manager with $b_M < 0$ strictly prefers some pass-through voting if $\partial Z^*_\beta / \partial \beta|_{\beta = b_M} < \kappa_M$, and a manager with $b_M > 0$ if and only if the reverse inequality holds.

The investor's welfare response acquires the same Cournot term. The lending-response threshold in (37) and Proposition 3 generalizes to

$$\kappa(b_M, N) \equiv \frac{Z^*_0 (b_H - b_L)\left(1 - \delta\left(Z^*_0\right)\right) h(0)}{D}, \qquad D \equiv \alpha b_M \delta'\left(Z^*_0\right) \int_{-b_H}^{0} dH(\theta) + (N-1)\,\phi\left(Z^*_0, 0\right).$$

The Cournot term lives in the denominator D. Under monopolistic lending this denominator, and hence the threshold $\kappa(b_M, 1)$, takes the sign of b_M: the manager over-lends from the investor's perspective when $b_M > 0$ and under-lends when $b_M < 0$. The same holds with competition when $b_M > 0$, but not necessarily when $b_M < 0$, where the two terms in D conflict. The investor's welfare-maximizing regime then involves some delegation if

$$\operatorname{sign}(b_M D)\left(\kappa(b_M, N) - \left.\frac{\partial Z^*_\beta}{\partial \beta}\right|_{\beta=0}\right) > 0.$$

The cases $b_M > 0$ and $\{b_M < 0, D < 0\}$ have the same intuition as in the baseline model. The new case is $\{b_M < 0, D > 0\}$. Under monopolistic lending, $b_M < 0$ means the manager under-lends from the investor's perspective: he stops lending while the fee on the next share still exceeds her marginal governance loss, leaving revenue on the table. Delegation can then help her only by inducing him to lend more. With competition, inducing her manager to lend more also induces every other manager to lend more, and each of their shares lowers her welfare by a further amount equaling the fee, exactly as in (48). The denominator D is therefore positive exactly when this extra cost of the competitors' lending exceeds the gain from her manager's additional lending. In that case the investor wants less aggregate lending even though her own manager lends too little. Delegation, which for $b_M < 0$ lowers β and the fee, then helps her only if the reduction in aggregate lending outweighs the revenue loss from the lower fee.

In sum, none of our insights depends on a strict monopoly. Pass-through voting can lower investors' governance value and welfare, and raise the manager's welfare, when there are multiple lenders.

B.1.1 The limit of perfect competition

We now characterize the limit of the game as $N \to \infty$, holding the funds' aggregate stake α fixed. As N grows, each fund's block and its share of aggregate lending vanish. Recall from Lemma 2 that $\bar{z}_\beta$, the saturation point of the lending market, solves $\phi(\bar{z}_\beta, \beta) = 0$. We assume $\bar{z}_\beta < \alpha$; otherwise every fund lends its entire block, the funds cast no votes, and the regime is irrelevant. Because each fund's welfare scales with $1/N$, we compare regimes using the limit of $N W_{j,k}$ for $j \in \{M, I\}$.

Proposition 4 *Suppose $\bar{z}_\beta < \alpha$. As $N \to \infty$:*

(i) Aggregate lending converges to $\bar{z}_\beta$ and the lending fee converges to zero. Limit lending does not depend on b_M and strictly increases in β.

(ii) *If $b_M > 0$, the manager strictly prefers some pass-through voting to pure delegation. If $b_M < 0$, pure delegation maximizes his welfare.*

(iii) *If $b_M > 0$, pure pass-through voting maximizes the investor's welfare. If $b_M < 0$, some delegation is strictly better for her than pure pass-through voting.*

Competition dissipates the rents from lending. In the limit, funds do not internalize their price impact, and they lend until the fee reaches zero, and aggregate lending reaches $\bar{z}_\beta$, the most traders can absorb. This has three consequences. First, the manager's bias no longer affects lending. Lending is now excessive from every fund's perspective because of competition, not because the manager's bias differs from the investor's. Second, with no fee revenue left, both managers and investors evaluate the regime by its governance consequences alone. Third, the regime affects lending only through the level effect: a more pro-proposal block widens traders' disagreement, so the market absorbs more shares before the fee reaches zero, and $\frac{d\bar{z}_\beta}{d\beta} > 0$.

Moving the block toward the proposal therefore always sends more votes to high-bias traders. In the baseline model, a manager with $b_M < 0$ embraces pass-through voting because it raises the fee he collects; with no fee to raise, it only hands more votes to traders he disagrees with. A manager with $b_M > 0$, in contrast, now welcomes pass-through voting. At $\beta = b_M$ his direct loss of control is second order, while the lower lending keeps votes away from traders who are more biased than he is. For the investor, pass-through voting both gives her the vote and curbs lending when $b_M > 0$. When $b_M < 0$, delegation curbs lending, a first-order gain, while its direct cost is second order at $\beta = 0$. In the limit, the manager and the investor therefore agree on the direction of reform: both favor pass-through voting when $b_M > 0$ and delegation when $b_M < 0$. Which managers volunteer pass-through voting thus depends on the structure of the lending market.

Proof of Proposition 4. *Part (i).* In a symmetric equilibrium, (46) reads

$$\phi\left(Z_\beta^*, \beta\right) + \frac{1}{N}\left[Z_\beta^* \frac{\partial \phi\left(Z_\beta^*, \beta\right)}{\partial Z} + \alpha\, \delta'\left(Z_\beta^*\right) \int_{-b_H}^{-\beta} \left(\theta + b_M\right) dH\left(\theta\right)\right] = 0.$$

The term in brackets is bounded, so $\phi\left(Z_\beta^*, \beta\right) \to 0$. Since ϕ is concave in Z and strictly positive on $[0, \bar{z}_\beta)$, with $\frac{\partial \phi\left(\bar{z}_\beta, \beta\right)}{\partial Z} < 0$ (see the proof of Lemma 4), it follows that $Z_\beta^* \to \bar{z}_\beta$. The derivatives of the term in brackets are also bounded. Differentiating the first-order condition with respect to β and letting $N \to \infty$ therefore gives

$$\frac{\partial \phi\left(\bar{z}_\beta, \beta\right)}{\partial \beta} + \frac{\partial \phi\left(\bar{z}_\beta, \beta\right)}{\partial Z} \frac{d\bar{z}_\beta}{d\beta} = 0,$$

which yields

$$\frac{\partial Z_\beta^*}{\partial \beta} \;\to\; \frac{d\bar{z}_\beta}{d\beta} = \frac{(b_H - b_L)\,(1-\delta\,(\bar{z}_\beta))\,h\,(-\beta)}{-\frac{\partial \phi\left(\bar{z}_\beta,\beta\right)}{\partial Z}} > 0, \tag{50}$$

because $\frac{\partial \phi}{\partial \beta} = (b_H - b_L)\,\frac{\partial \Lambda}{\partial \beta} = (b_H - b_L)\,(1-\delta)\,h\,(-\beta) > 0$.

Welfare in the limit. Let $W_{I,k} = z_k\,\phi\,(Z,\beta) + \frac{\alpha}{N}\,\Gamma_I\,(Z,\beta)$ denote the welfare of fund k's investor. In a symmetric equilibrium, for $j \in \{M, I\}$,

$$N\,W_{j,k} = Z_\beta^*\,\phi\left(Z_\beta^*,\beta\right) + \alpha\,\Gamma_j\left(Z_\beta^*,\beta\right).$$

Differentiating with respect to β,

$$N\,\frac{dW_{j,k}}{d\beta} = \alpha\,\frac{\partial \Gamma_j}{\partial \beta} + Z_\beta^*\,\frac{\partial \phi}{\partial \beta} + \left[\phi + Z_\beta^*\,\frac{\partial \phi}{\partial Z} + \alpha\,\delta'\left(Z_\beta^*\right)\int_{-b_H}^{-\beta}(\theta + b_j)\,dH\,(\theta)\right]\frac{\partial Z_\beta^*}{\partial \beta}.$$

The second term, the effect of the regime on fee revenue, does not vanish as $N \to \infty$. By part (i), however, $\phi \to 0$, and hence

$$N\,\frac{dW_{j,k}}{d\beta} \;\to\; \alpha\,\frac{\partial \Gamma_j}{\partial \beta} + \bar{z}_\beta\left[\frac{\partial \phi}{\partial \beta} + \frac{\partial \phi}{\partial Z}\,\frac{d\bar{z}_\beta}{d\beta}\right] + \alpha\,\delta'\,(\bar{z}_\beta)\,\frac{d\bar{z}_\beta}{d\beta}\int_{-b_H}^{-\beta}(\theta + b_j)\,dH\,(\theta),$$

where the term in brackets is zero by part (i). Holding lending fixed, a move toward a more pro-proposal block raises the fee. The additional lending it induces, however, lowers the fee by exactly the same amount. Using $\frac{\partial \Gamma_j}{\partial \beta} = (b_j - \beta)\,(1-\delta)\,h\,(-\beta)$ (see the proof of Proposition 1),

$$N\,\frac{dW_{j,k}}{d\beta} \;\to\; \alpha\left[(b_j - \beta)\,(1-\delta\,(\bar{z}_\beta))\,h\,(-\beta) + \delta'\,(\bar{z}_\beta)\,\frac{d\bar{z}_\beta}{d\beta}\int_{-b_H}^{-\beta}(\theta + b_j)\,dH\,(\theta)\right]. \tag{51}$$

Part (ii). Set $b_j = b_M$ in (51). For every $\beta \geq b_M$, the first term is non-positive. On the contested region $\theta \leq -\beta$ we have $\theta + b_M \leq b_M - \beta \leq 0$, so the integral is strictly negative, and by part (i) so is the second term. The limit of $N\,\frac{dW_{M,k}}{d\beta}$ is therefore strictly negative for every $\beta \geq b_M$. If $b_M < 0$, every regime satisfies $\beta \in [b_M, 0]$, so the manager's welfare decreases throughout and is maximized at $\beta = b_M$. If $b_M > 0$, pass-through voting lowers β below b_M, and the negative derivative at $\beta = b_M$ implies that doing so strictly raises his welfare.

Part (iii). Set $b_j = 0$ in (51). For every $\beta \geq 0$, the first term is non-positive and the integral $\int_{-b_H}^{-\beta}\theta\,dH\,(\theta)$ is strictly negative, so the limit of $N\,\frac{dW_{I,k}}{d\beta}$ is strictly negative. If $b_M > 0$, every regime satisfies $\beta \in [0, b_M]$, so the investor's welfare decreases throughout and is maximized at $\beta = 0$. If $b_M < 0$, delegation lowers β below 0, and the negative derivative at $\beta = 0$ implies that doing so strictly raises her welfare. ■

B.2 Generalized biases of the manager and the traders

The model makes two assumptions about biases. The high-bias traders, who hold the lent shares on the record date, favor the proposal ($b_H > 0$), and the manager is less pro-proposal than they are ($b_M < b_H$). The first assumption implies that high-bias traders support the proposal in states where the investor opposes it. The second carries an analogous implication from the manager's, rather than the investor's, perspective. Both were made to ease the exposition and are not required for our main results. We now show that Propositions 1 to 3 carry over for every $b_M \neq 0$ and $b_H \neq 0$. Our mechanism requires only that the manager and the traders who receive the lent votes each disagree with the investor.[26]

When $b_M = 0$, there is no difference between pass-through voting and delegation, so the comparison is moot. Hence we take $b_M \neq 0$ throughout. We first consider $b_H \neq 0$ and then turn to $b_H = 0$.

Suppose that $b_H \neq 0$. Trading is unchanged: as in Lemma 2, low-bias traders borrow and sell short, and high-bias traders hold all of the traders' shares on the record date. The vote is therefore a contest between the fund's retained block, voted at bias β, and the attentive high-bias traders. That contest takes one of two forms, depending on the position of β relative to b_H.

In the *first configuration*, $\beta < b_H$, the block is less pro-proposal than the traders. The contested region is $\theta \in (-b_H, -\beta)$, where the high-bias traders support the proposal and the fund opposes it, and Λ and Γ are as in Lemma 1 and (13).

In the *second configuration*, $\beta \geq b_H$, the fund and the high-bias traders switch roles: for $\theta \in (-\beta, -b_H)$ the fund votes *for* the proposal while the high-bias traders vote against it. The proposal then passes if and only if the fund's retained votes account for at least a fraction τ of the votes cast,

$$\frac{\alpha - z}{(\alpha - z) + (1 - \eta)(1 - \alpha + z)} \geq \tau \qquad \Longleftrightarrow \qquad \eta \geq 1 - \frac{1 - \tau}{\tau} \frac{\alpha - z}{1 - \alpha + z},$$

which occurs with probability $1 - \tilde{\delta}(z)$, where

$$\tilde{\delta}(z) \equiv G\left(1 - \frac{1 - \tau}{\tau} \frac{\alpha - z}{1 - \alpha + z}\right) \tag{52}$$

is the probability that the high-bias traders' vote is decisive in this region. Observe also that

[26] We maintain the regularity conditions of the baseline model, including a strictly positive lending fee, an interior solution, and a negative second-order condition.

$\tilde{\delta}$ is increasing in z. The approval probability and the governance value are therefore

$$\Lambda(z,\beta) = \left(1-\tilde{\delta}(z)\right)\int_{-\beta}^{-b_H} dH(\theta) + \int_{-b_H}^{1} dH(\theta), \tag{53}$$

$$\Gamma_j(z,\beta) = \mu + \left(1-\tilde{\delta}(z)\right)\int_{-\beta}^{-b_H} (\theta+b_j)\, dH(\theta) + \int_{-b_H}^{1} (\theta+b_j)\, dH(\theta). \tag{54}$$

Nothing in this derivation uses the sign of b_H or the position of b_M; it uses only the position of β relative to b_H. Every voting regime lies in exactly one configuration, so stating each result for both configurations covers every ordering of 0, b_M, and b_H. Pure pass-through voting, $\beta = 0$, lies in the first configuration if $b_H > 0$ and in the second if $b_H < 0$. Pure delegation, $\beta = b_M$, lies in the first if $b_M < b_H$ and in the second otherwise. The main text treats the case in which both lie in the first.

Lending. The manager's marginal governance value of lending in (22) is $\alpha\delta'(z)\int_{-b_H}^{-\beta}(\theta+b_M)\,dH(\theta)$ in the first configuration and $-\alpha\tilde{\delta}'(z)\int_{-\beta}^{-b_H}(\theta+b_M)\,dH(\theta)$ in the second. Under pure delegation it is strictly negative in either configuration whenever $b_M \neq b_H$: no voter can represent the manager's preferences better than he does himself, so surrendering votes is strictly costly, as in the main text.[27]

In the second configuration lending *lowers* the approval probability, $\frac{\partial\Lambda(z,\beta)}{\partial z} = -\tilde{\delta}'(z)\int_{-\beta}^{-b_H} dH(\theta) \leq 0$, because each lent share moves a vote from the fund, which supports the proposal in the contested region, to a high-bias trader who opposes it. The vote-reallocation term in (18) is then negative, and the demand curve for borrowed shares slopes unambiguously downward.

The manager's welfare. Proposition 1 is unchanged. The manager's welfare responds to the voting regime according to (28) in the first configuration, and according to the same expression with $1-\tilde{\delta}$ in place of $1-\delta$ in the second. In both, the bracketed expression $\alpha(b_M-\beta)+z^*_\beta(b_H-b_L)$ is strictly positive for every $\beta < b_M$ and equals $z^*_{b_M}(b_H-b_L) > 0$ at $\beta = b_M$. For $\beta < b_M$, raising β moves the block toward the manager's own bias, which improves the voting outcome for him and, by raising the approval probability, the fee on every share lent (whichever configuration the regime is in). The manager therefore prefers some pass-through voting if and only if $b_M < 0$, exactly as in Proposition 1.

[27] When $b_M = b_H$, the contested region is empty and the term vanishes.

The investor's governance value. Differentiating (13) and (54) with respect to z at $b_j = 0$,

$$\frac{\partial \Gamma_I(z,\beta)}{\partial z} = \begin{cases} \delta'(z) \displaystyle\int_{-b_H}^{-\beta} \theta \, dH(\theta) & \text{in the first configuration,} \\ -\tilde{\delta}'(z) \displaystyle\int_{-\beta}^{-b_H} \theta \, dH(\theta) & \text{in the second.} \end{cases} \tag{55}$$

At pure pass-through voting both expressions are strictly negative. In the first configuration the contested region is $(-b_H, 0)$, where the integrand is negative; in the second it is $(0, -b_H)$, where the integrand is positive, and $\tilde{\delta}' > 0$. In either configuration, each lent share moves a vote from the investor to a trader with bias b_H. That vote matters only in the states where the two disagree, and in those states the trader votes against her: in the first configuration the trader approves the proposal in states where she would reject it, and in the second the trader blocks it in states where she would approve it. Either way she loses. The direction of the disagreement does not matter—only its existence does.

The direct effect of the regime, holding lending fixed, is $-\beta(1-\delta(z))\,h(-\beta)$ in the first configuration and $-\beta\left(1-\tilde{\delta}(z)\right)h(-\beta)$ in the second. Both vanish at $\beta = 0$: under pure pass-through voting the block already votes as the investor would, so a marginal change in its voter costs her nothing to first order. The total effect of the regime at $\beta = 0$ is therefore the product of (55) and the manager's lending response, exactly as in (42).

Proposition 5 *Suppose $b_M \neq 0$ and $b_H \neq 0$. Proposition 2 holds: some delegation strictly raises the investor's governance value relative to pure pass-through voting if a marginal shift toward delegation reduces lending:* $\operatorname{sign}(b_M) \left.\frac{\partial z^*_\beta}{\partial \beta}\right|_{\beta=0} < 0$.

Proof. By (55), the first factor in the total effect is strictly negative in either configuration. A marginal shift toward delegation moves β in the direction of $\operatorname{sign}(b_M)$, so it strictly raises the investor's governance value if $\operatorname{sign}(b_M)\, \partial z^*_\beta/\partial\beta|_{\beta=0} < 0$, as in the proof of Proposition 2. ■

The economics are those of the main text. The investor accepts a block voted away from her own preferences only because it deters the manager from lending votes to traders who disagree with her. The configuration changes only what those traders do with the votes.

The relative position of b_M and b_H does not affect this local result, but it restricts which regimes the investor can prefer to pure pass-through.

Proposition 6 *Suppose $b_H \neq 0$, and let β be a voting regime at or beyond b_H: $\beta \geq b_H$ if $b_H > 0$, and $\beta \leq b_H$ if $b_H < 0$. Then*

$$\Gamma_I\left(z^*_\beta, \beta\right) < \Gamma_I\left(z^*_0, 0\right). \tag{56}$$

No regime at or beyond b_H therefore maximizes the investor's governance value. In particular, if the manager is at least as extreme as the traders, $b_M \geq b_H > 0$ or $b_M \leq b_H < 0$, pure delegation never maximizes the investor's governance value.

Proof. Suppose $b_H > 0$, so that $\beta \geq b_H$. The regime β is in the second configuration, so $\Gamma_I\left(z^*_\beta, \beta\right)$ is given by (54) with $b_j = 0$, while pure pass-through voting has $\beta = 0 < b_H$, so $\Gamma_I\left(z^*_0, 0\right)$ is given by (13) with $b_j = 0$. Splitting $\int_{-b_H}^{1} = \int_{-b_H}^{0} + \int_{0}^{1}$ in the former, the terms $\mu + \int_0^1 \theta \, dH$ are common to both and cancel, leaving

$$\Gamma_I\left(z^*_\beta, \beta\right) - \Gamma_I\left(z^*_0, 0\right) = \left(1 - \tilde{\delta}\left(z^*_\beta\right)\right) \int_{-\beta}^{-b_H} \theta \, dH\left(\theta\right) + \left(1 - \delta\left(z^*_0\right)\right) \int_{-b_H}^{0} \theta \, dH\left(\theta\right).$$

Both integrals are over negative values of θ, so the first term is non-positive and the second strictly negative, since $\delta\left(z^*_0\right) < 1$.

Suppose instead $b_H < 0$, so that $\beta \leq b_H$. The roles of the two formulas are reversed: the regime β is in the first configuration, so $\Gamma_I\left(z^*_\beta, \beta\right)$ is given by (13), while pure pass-through voting has $\beta = 0 > b_H$, so $\Gamma_I\left(z^*_0, 0\right)$ is given by (54). Subtracting, and using $\int_{-\beta}^{1} - \int_{-b_H}^{1} = -\int_{-b_H}^{-\beta}$,

$$\Gamma_I\left(z^*_\beta, \beta\right) - \Gamma_I\left(z^*_0, 0\right) = -\left(1 - \delta\left(z^*_\beta\right)\right) \int_{-b_H}^{-\beta} \theta \, dH\left(\theta\right) - \left(1 - \tilde{\delta}\left(z^*_0\right)\right) \int_{0}^{-b_H} \theta \, dH\left(\theta\right).$$

Both integrals are over positive values of θ, so the first term is non-positive and the second strictly negative, since $\tilde{\delta}\left(z^*_0\right) < 1$. ■

Proposition 5 says that a marginal move toward delegation can raise the investor's governance value relative to pure pass-through voting if it curbs lending. Proposition 6 adds a global restriction: no regime at or beyond b_H improves on pure pass-through voting, whatever the manager's lending response. Suppose $b_H > 0$ and $\beta \geq b_H$. The block is then more pro-proposal than the traders, so each lent share moves a vote from the block to a voter closer to her own preferences; the investor would therefore like the manager to lend as much as possible. Yet even if he lends the entire block, pure pass-through voting still leaves her better off. In states $\theta \in (-b_H, 0)$, where she opposes the proposal, the block and the traders both support it, so it passes for sure; under pure pass-through voting, her own votes oppose it, so it passes only when the traders are decisive. In states $\theta \in (-\beta, -b_H)$, which she also opposes, the block supports the proposal, so it passes whenever the traders are not decisive; under pure pass-through voting, it never passes. The case $b_H < 0$ is the mirror image, with the block and the traders both opposing the proposal in states where she supports it. No regime at or beyond b_H can therefore improve on pure pass-through voting.

The investor's welfare. The wedge identity (34) uses only the linearity of valuations in the bias, so it holds in both configurations. Differentiating it with respect to lending and applying the manager's first-order condition, (36) becomes $\frac{\partial W_I\left(z_\beta^*,\beta\right)}{\partial z} = -\alpha b_M \frac{\partial \Lambda\left(z_\beta^*,\beta\right)}{\partial z}$, where

$$\frac{\partial \Lambda\left(z,\beta\right)}{\partial z} = \begin{cases} \delta'\left(z\right)\int_{-b_H}^{-\beta} dH\left(\theta\right) > 0 & \text{in the first configuration,} \\ -\tilde{\delta}'\left(z\right)\int_{-\beta}^{-b_H} dH\left(\theta\right) < 0 & \text{in the second, for } \beta > b_H. \end{cases} \tag{57}$$

The manager therefore over-lends from the investor's perspective if and only if $b_M > 0$ in the first configuration, and if and only if $b_M < 0$ in the second. In the first configuration, lent votes go to traders who support the proposal, so lending raises approval. A pro-proposal manager then finds lending cheaper than she does and over-lends. In the second configuration, lent votes go to traders who oppose the proposal, so lending lowers approval. A pro-proposal manager now finds lending costlier than she does and under-lends; an anti-proposal manager over-lends.

The investor's regime preference follows by the same steps as in Section 4.2. Evaluated at $\beta = 0$, the direct governance term in (35) vanishes, and what remains is the fee-revenue effect, $z_0^*\left(b_H - b_L\right)\frac{\partial \Lambda}{\partial \beta}$, less the lending response weighted by (57). The fee-revenue effect has the same sign in both configurations: $\frac{\partial \Lambda}{\partial \beta}$ equals $\left(1-\delta\right)h\left(-\beta\right)$ in the first and $\left(1-\tilde{\delta}\right)h\left(-\beta\right)$ in the second, and both are positive. A more pro-proposal block raises the probability of approval, and hence the fee, whoever the traders are. The break-even lending response in (37) generalizes to

$$\kappa\left(b_M\right) \equiv \frac{z_0^*\left(b_H - b_L\right)\partial\Lambda/\partial\beta}{\alpha b_M\, \partial\Lambda/\partial z}, \tag{58}$$

with both derivatives evaluated at $\beta = 0$ and $z = z_0^*$. In the first configuration this is (37) and has the sign of b_M. In the second it has the sign of $-b_M$.

Proposition 7 *Suppose $b_M \neq 0$ and $b_H \neq 0$. The investor's welfare-maximizing voting regime involves some delegation if*

$$\left.\frac{\partial z_\beta^*}{\partial \beta}\right|_{\beta=0} < \kappa\left(b_M\right) \tag{59}$$

when $b_H > 0$, and if the reverse inequality holds when $b_H < 0$.

Proof. A marginal shift toward delegation moves β in the direction of $\text{sign}\left(b_M\right)$, so it strictly raises the investor's welfare if $\text{sign}\left(b_M\right)\partial W_I/\partial\beta|_{\beta=0} > 0$. By the decomposition above and (58), $\partial W_I/\partial\beta|_{\beta=0} = \alpha b_M \frac{\partial\Lambda}{\partial z}\left(\kappa - \partial z_\beta^*/\partial\beta|_{\beta=0}\right)$. Multiplying by $\text{sign}\left(b_M\right)$ gives $\alpha\left|b_M\right|\frac{\partial\Lambda}{\partial z}\left(\kappa - \partial z_\beta^*/\partial\beta|_{\beta=0}\right)$, whose sign is that of $\frac{\partial\Lambda}{\partial z}$ times $\kappa - \partial z_\beta^*/\partial\beta|_{\beta=0}$. By (57), $\frac{\partial\Lambda}{\partial z}$ is

positive in the first configuration and negative in the second, and pure pass-through voting lies in the first configuration if and only if $b_H > 0$. ■

In the first configuration, condition (59) is (38): delegation helps when the manager's lending response falls short of the break-even level. In the second, the inequality reverses because lending now lowers the probability of approval. Suppose $b_H < 0$, so that pure pass-through voting lies in the second configuration. If $b_M > 0$, delegation raises the fee and the investor wants more lending by (57), so delegation helps unless it cuts lending by more than $|\kappa(b_M)|$. If instead $b_M < 0$, delegation lowers the fee and the investor wants less lending, so delegation helps only if it cuts lending by more than $\kappa(b_M) > 0$.

High-bias traders agree with the investor. Next, suppose the high-bias traders have the same preferences as the investor.

Proposition 8 *Suppose $b_H = 0$ and $b_M \neq 0$.*

(i) For every z, pure pass-through voting attains the investor's first-best governance value, $\Gamma_I(z, 0) = \mu + \int_0^1 \theta \, dH(\theta)$, and every regime $\beta \neq 0$ yields a strictly lower governance value.

(ii) If $b_M > 0$, some delegation strictly raises the investor's welfare, whatever the manager's lending response. If $b_M < 0$, a marginal move toward delegation strictly lowers it.

Proof. *Part (i).* At $b_H = 0$, both (13) and (54) give $\Gamma_I(z, 0) = \mu + \int_0^1 \theta \, dH$, and no allocation of votes can do better for her than approving exactly when $\theta \geq 0$. For $\beta < 0$, (13) gives $\Gamma_I(z, \beta) = \mu + \int_0^1 \theta \, dH - (1 - \delta(z)) \int_0^{-\beta} \theta \, dH$. For $\beta > 0$, (54) gives $\Gamma_I(z, \beta) = \mu + \int_0^1 \theta \, dH + \left(1 - \tilde{\delta}(z)\right) \int_{-\beta}^0 \theta \, dH$. In both cases the last term is strictly negative for $z < \alpha$.

Part (ii). At $\beta = 0$, the direct governance term in $\partial W_I / \partial \beta$ vanishes, as in the main text. Moreover, when $b_H = 0$, the contested region disappears, and with it the lending term. Only the fee-revenue effect remains. If $b_M > 0$, delegation raises β above 0, where the second configuration applies, and W_I increases at the rate $z_0^*(b_H - b_L)\left(1 - \tilde{\delta}(z_0^*)\right) h(0) > 0$. If $b_M < 0$, delegation lowers β below 0, where the first configuration applies, and W_I falls at the rate $z_0^*(b_H - b_L)(1 - \delta(z_0^*)) h(0) > 0$. ■

When the high-bias traders share the investor's preferences, lending is neutral from her perspective, so pure pass-through voting is her governance-optimal regime for any lending response. Her welfare, however, is not neutral. Starting from pure pass-through voting, a small tilt toward the manager has no first-order effect on her governance value, but it does have a first-order effect on the fee. A pro-proposal manager's votes raise the probability of approval and hence the fee, so she gains from some delegation. An anti-proposal manager's

votes lower both, so a marginal move toward delegation costs her. Lastly, note that if instead the low-bias traders are aligned with the investor ($b_L = 0 < b_H$), they short sell and hold no votes, so the baseline model applies as written.

In sum, our main results do not depend on how 0, b_M, and b_H are ordered. The mechanism requires only that (i) the high-bias traders disagree with the investor, so that lending is costly to her ($b_H \neq 0$), and (ii) the manager disagrees with her, so that delegation is a distinct regime ($b_M \neq 0$). The ordering matters only globally: *pure* delegation is never governance-optimal when the manager's bias lies at or beyond the high-bias traders'—though the investor may still prefer an intermediate regime strictly between 0 and b_H.

B.3 Lending revenue splits

We have assumed that the manager and the beneficial investor value fee revenue equally, so their respective welfare differs only through their biases. This assumption is without loss of generality if the manager's compensation is a constant fraction of the fund's value *plus* lending revenue, since this common factor would not affect his lending decision or either party's voting-regime preferences. In practice, however, a fund's management fee and its share of lending income need not coincide (Johnson and Weitzner, 2025). When the two fractions differ, the manager and the investor disagree not only about the proposal but also about how to value lending revenue. We now explore the implications of such a difference and show that the core insights of our model continue to hold.

Suppose the manager receives a fraction $\zeta_\Gamma \in (0,1)$ of the value of the fund's holdings and a fraction $\zeta_R \in (0,1)$ of lending revenue, and the investor receives the remainder of each, so that their payoffs are $\zeta_\Gamma \, \alpha \Gamma_M(z,\beta) + \zeta_R \, R(z,\beta)$ and $(1-\zeta_\Gamma)\,\alpha\,\Gamma_I(z,\beta) + (1-\zeta_R)\,R(z,\beta)$. Dividing by ζ_Γ and $1-\zeta_\Gamma$, respectively, these are equivalent to

$$W_M(z,\beta) \equiv \alpha\,\Gamma_M(z,\beta) + \rho_M\,R(z,\beta) \qquad \text{and} \qquad W_I(z,\beta) \equiv \alpha\,\Gamma_I(z,\beta) + \rho_I\,R(z,\beta),$$

where $\rho_M \equiv \zeta_R/\zeta_\Gamma$ and $\rho_I \equiv (1-\zeta_R)/(1-\zeta_\Gamma)$ are the two parties' revenue weights. The baseline model is the case $\zeta_\Gamma = \zeta_R$, in which $\rho_M = \rho_I = 1$. When $\zeta_R > \zeta_\Gamma$, we instead have $\rho_M > 1 > \rho_I$, so the manager values a dollar of lending income more than a dollar of fund value, and vice versa for the investor.

Lending. The manager's first-order condition becomes

$$\rho_M \frac{\partial R(z,\beta)}{\partial z} + \alpha\,\delta'(z) \int_{-b_H}^{-\beta} (\theta + b_M)\,dH(\theta) = 0, \tag{60}$$

and we denote its solution by z^*_β as before, now understood to also depend on ρ_M.[28] By (60), marginal revenue at the optimum has the opposite sign of the marginal governance value, so $\frac{\partial z^*_\beta}{\partial \rho_M}$, which takes the sign of $\frac{\partial R}{\partial z}$ by the Implicit Function Theorem, is positive (negative) when the marginal value of a vote is positive (negative). Intuitively, a larger revenue weight moves lending toward the revenue-maximizing quantity from whichever side governance concerns originally distorted it to. As $\rho_M \to \infty$ the manager lends the revenue-maximizing quantity.

The voting regime affects lending through the same two channels as before, but their relative weights change. The cross-partial (25) becomes

$$\frac{\partial^2 W_M(z,\beta)}{\partial z\,\partial \beta} = \Big[\rho_M (b_H - b_L)(1 - \delta(z) - z\delta'(z)) + \alpha\,\delta'(z)(\beta - b_M)\Big] h(-\beta),$$

so Lemma 3 holds with $(b_H - b_L)/\alpha$ replaced by $\rho_M (b_H - b_L)/\alpha$. A larger revenue weight tilts the comparison toward the fee-revenue channel. In the limit as $\rho_M \to \infty$, only the level and slope effects determine whether pass-through raises or lowers lending, and the governance channel drops out.

The manager's welfare. By the envelope theorem, (28) becomes

$$\frac{\partial W_M\left(z^*_\beta,\beta\right)}{\partial \beta} = \Big[\alpha(b_M - \beta) + \rho_M\, z^*_\beta (b_H - b_L)\Big]\left(1 - \delta\left(z^*_\beta\right)\right) h(-\beta),$$

which is strictly positive at $\beta = b_M$. Proposition 1 is therefore unchanged: the manager prefers some pass-through voting if and only if $b_M < 0$, and a larger revenue weight only strengthens the fee-revenue motive behind that preference.

The investor's governance value and welfare. The investor's governance value is that of the baseline model evaluated at the new z^*_β, so Proposition 2 continues to hold as stated. Her welfare is where the revenue split matters. Her marginal valuation of lending is

$$\frac{\partial W_I(z,\beta)}{\partial z} = \alpha\,\delta'(z)\int_{-b_H}^{-\beta} \theta\, dH(\theta) + \rho_I \frac{\partial R(z,\beta)}{\partial z}.$$

[28] We maintain the regularity conditions of the baseline model: an interior solution with a positive fee, and a negative second-order condition.

At the manager's optimum, (60) pins down marginal revenue, $\frac{\partial R}{\partial z} = -\frac{\alpha}{\rho_M}\,\delta'(z)\int_{-b_H}^{-\beta}(\theta + b_M)\,dH(\theta)$. Substituting and collecting terms,

$$\begin{aligned}\frac{\partial W_I\left(z_\beta^*,\beta\right)}{\partial z} &= \alpha\,\delta'\left(z_\beta^*\right)\int_{-b_H}^{-\beta}\left[\left(1-\frac{\rho_I}{\rho_M}\right)\theta - \frac{\rho_I}{\rho_M}\,b_M\right]dH(\theta)\\ &= -\frac{\rho_I}{\rho_M}\,\alpha\,\delta'\left(z_\beta^*\right)\int_{-b_H}^{-\beta}\left(b_M - \frac{\rho_M-\rho_I}{\rho_I}\theta\right)dH(\theta).\end{aligned} \tag{61}$$

The first line clarifies the role of the split. By (60), marginal revenue at the manager's optimum equals $1/\rho_M$ times his marginal value of a vote, which is the investor's cost, $-\alpha\,\delta'(z)\int_{-b_H}^{-\beta}\theta\,dH(\theta)$, plus the bias wedge $-\alpha\,b_M\,\delta'(z)\int_{-b_H}^{-\beta}dH(\theta)$. To the investor, who weights revenue by ρ_I, the marginal revenue delivers a fraction ρ_I/ρ_M of her own cost plus the similarly scaled bias wedge. Netting this marginal revenue against her marginal cost gives the first line of (61). In the baseline model revenue covers her cost exactly and only the bias term survives. Here a fraction $1-\rho_I/\rho_M$ of her own cost survives as well, even when she and the manager agree on the proposal. The second line in (61) collects terms, allowing us to define the manager's *effective* bias in regime β as

$$\tilde{b}_M(\beta) \equiv b_M + \frac{\rho_M-\rho_I}{\rho_I}\,\mathbb{E}\left[-\theta \,|\, \theta\in(-b_H,-\beta)\right],$$

so that (61) is proportional to $-\tilde{b}_M(\beta)$. The manager over-lends from the investor's perspective if and only if $\tilde{b}_M(\beta) > 0$. When $\rho_M > \rho_I$, the fee under-compensates her, so under pure pass-through voting the manager under-lends only when he is sufficiently anti-proposal: $b_M < -\frac{\rho_M-\rho_I}{\rho_I}\,\mathbb{E}\left[-\theta \,|\, \theta\in(-b_H,0)\right] < 0$. The manager retaining a larger share of lending income thus shrinks the set of managers who lend too little and expands the set who lend too much. Conversely, the fee over-compensates the investor when $\rho_M < \rho_I$, so a moderately pro-proposal manager under-lends from her perspective despite favoring the proposal.

The investor's regime preference follows by the same steps as in Section 4.2. Evaluated at $\beta = 0$, the break-even lending response in (37) generalizes to

$$\kappa(b_M,\rho_M,\rho_I) \equiv \frac{\rho_M\,z_0^*\,(b_H-b_L)\,(1-\delta(z_0^*))\,h(0)}{\alpha\,\tilde{b}_M(0)\;\delta'(z_0^*)\int_{-b_H}^{0}dH(\theta)}.$$

The investor's welfare-maximizing regime then involves some delegation if

$$\operatorname{sign}\left(b_M\,\tilde{b}_M(0)\right)\left(\kappa(b_M,\rho_M,\rho_I) - \left.\frac{\partial z_\beta^*}{\partial\beta}\right|_{\beta=0}\right) > 0.$$

The sign of b_M determines which direction constitutes delegation, and hence whether delegation raises or lowers the fee, exactly as in Proposition 3. The sign of $\tilde{b}_M(0)$ determines whether the investor wants more or less lending. In the baseline model these coincide, so $\operatorname{sign}(b_M \tilde{b}_M(0)) = 1$ and the condition reduces to (38). When the revenue split results in $\operatorname{sign}(b_M \tilde{b}_M(0)) = -1$, a marginal move toward delegation improves her welfare if it moves lending in the opposite direction from the baseline case by more than the break-even amount. For example, an anti-proposal manager who keeps enough of the lending income has $b_M < 0 < \tilde{b}_M(0)$. Delegation lowers the fee, and the investor now wants less lending rather than more, so delegation helps her if it curbs lending by more than the break-even amount.

Two limiting cases connect this extension to the results in the main text. When $\rho_M = \rho_I$ we have $\tilde{b}_M = b_M$, which recovers Proposition 3. As $\rho_I \to 0$, the investor receives none of the lending income, $\kappa(b_M, \rho_M, \rho_I) \to 0$, and (61) converges to the marginal governance value $\alpha\,\delta'(z)\int_{-b_H}^{-\beta} \theta\, dH(\theta)$ underlying Proposition 2. The revenue split case therefore interpolates between the two baseline propositions: the more of the lending income the manager keeps, the more the investor's welfare comparison across regimes resembles her governance-value comparison, in which she always prefers less lending.

B.4 The effect of the voting regime on the value of a vote

The next result derives the effect of the voting regime on the manager's marginal value of a vote.

Lemma 5 *In equilibrium,*

$$\frac{d\,\mathrm{MV}\left(z_\beta^*, \beta\right)}{d\beta} = -\alpha\,\delta'\left(z_\beta^*\right)\left(\beta - b_M\right) h\left(-\beta\right) + \frac{\delta''\left(z_\beta^*\right)}{\delta'\left(z_\beta^*\right)}\,\mathrm{MV}\left(z_\beta^*, \beta\right)\frac{\partial z_\beta^*}{\partial \beta}. \tag{62}$$

The first term in (62) reflects the fact that, holding lending fixed, the manager's valuation of a retained vote is highest under pure delegation and falls as β moves away from b_M in either direction. On this channel alone, any degree of pass-through lowers the value he places on a vote. At $\beta = b_M$, however, the term vanishes, so a marginal change in the regime has no first-order effect on MV through it.

What remains is the lending channel, captured by the second term. Votes exhibit diminishing returns, $\delta'' < 0$, so the marginal vote is worth more the larger the block the fund retains. A regime that induces the manager to lend less therefore leaves him with a larger and more pivotal block, raising the value of the vote at the margin, while a regime that induces him to lend more has the opposite effect. At $\beta = b_M$ the marginal value of a vote is itself strictly

positive, since the block is voted exactly as the manager would vote it and every surrendered vote is a pure loss. The coefficient multiplying $\frac{\partial z^*_\beta}{\partial \beta}$ in (62) is therefore strictly negative, so $\frac{d\,\mathrm{MV}}{d\beta}$ has the *opposite* sign to $\frac{\partial z^*_\beta}{\partial \beta}$: the marginal value of a vote rises with β exactly when lending falls with β.[29] A manager who adopts pass-through voting may thus end up valuing his remaining votes *more*, not because the regime serves his preferences better, but because it leads him to retain a larger share of the block.

Proof of Lemma 5. Differentiating (24) totally,

$$\frac{d\,\mathrm{MV}\,(z^*,\beta)}{d\beta} = \frac{\partial \mathrm{MV}}{\partial \beta} + \frac{\partial \mathrm{MV}}{\partial z}\,\frac{\partial z^*}{\partial \beta}.$$

For the first term, only the upper limit of integration in (24) depends on β, and the integrand evaluated there equals $-\beta + b_M$, so by Leibniz's rule

$$\frac{\partial \mathrm{MV}\,(z,\beta)}{\partial \beta} = -\alpha\,\delta'(z)\,(\beta - b_M)\,h\,(-\beta)\,,$$

which vanishes at $\beta = b_M$ and elsewhere takes the opposite sign to $\beta - b_M$, so that MV is maximized at $\beta = b_M$ for any fixed z. For the second term, the integral in (24) does not depend on z, so

$$\frac{\partial \mathrm{MV}\,(z,\beta)}{\partial z} = -\alpha\,\delta''(z)\int_{-b_H}^{-\beta}(\theta + b_M)\,dH\,(\theta) = \frac{\delta''(z)}{\delta'(z)}\,\mathrm{MV}\,(z,\beta)\,.$$

At $\beta = b_M$ the integrand $\theta + b_M$ is strictly negative throughout the contested region $(-b_H, -b_M)$, so $\mathrm{MV}\,(z^*, b_M) > 0$, and δ is strictly increasing because $g > 0$ and strictly concave by Assumption (5), so $\delta'' < 0 < \delta'$. The coefficient on $\frac{\partial z^*}{\partial \beta}$ in (62) is therefore strictly negative, so $\frac{dMV}{d\beta}$ has the opposite sign to $\frac{\partial z^*}{\partial \beta}$. ■

B.5 Derivation of the voting premium

Throughout, the voting regime β is fixed and z^* is assumed interior. Recall from Lemma 2 and expressions (16)–(17) that the equilibrium fee is $f^* = \phi\,(z^*,\beta)$ and that the equilibrium price is

$$p^* = \Gamma_T\,(z^*,\beta) + (1-\lambda)\,f^*. \tag{63}$$

Following Levit et al. (2026), the benchmark holds the allocation of votes fixed at the one

[29] Equivalently, for a marginal move away from pure delegation, pass-through voting raises the marginal value of a vote if and only if $\mathrm{sign}\,(b_M)\,\frac{\partial z^*_\beta}{\partial \beta} > 0$.

implied by z^*, so the probability of approval is the constant $\Lambda(z^*, \beta)$ however much the fund lends. This can be read as a setting in which trading and lending occur *after* the record date, so that borrowing conveys no vote.[30] Demand is otherwise unchanged, so the benchmark fee schedule is

$$\phi^{nv}(z, \beta) \equiv (b_H - b_L)\,\Lambda(z^*, \beta) - \frac{\gamma}{\lambda}\left(e + \frac{z}{1-\lambda}\right). \tag{64}$$

Since Λ is evaluated at the same quantity in both economies, ϕ^{nv} agrees with ϕ at z^*, and it is affine in z because only its last term varies with z. It can therefore be rewritten as

$$\phi^{nv}(z, \beta) = f^* - \frac{\gamma}{\lambda(1-\lambda)}(z - z^*). \tag{65}$$

The benchmark fund maximizes $z\,\phi^{nv}(z, \beta)$, which by (65) is a strictly concave quadratic in z. Its first-order condition yields the benchmark lending quantity and the associated fee,

$$z^{nv} = \frac{z^*}{2} + \frac{\lambda(1-\lambda)}{2\gamma} f^*, \qquad \phi^{nv}(z^{nv}, \beta) = \frac{1}{2}\left[f^* + \frac{\gamma}{\lambda(1-\lambda)} z^*\right], \tag{66}$$

where the second expression follows by substituting z^{nv} into (65). We assume $z^{nv} \leq \alpha$, so that the benchmark optimum is interior as well. Since the benchmark fund has no governance stake in the outcome, the resulting price is

$$p^{nv} = \Gamma_T(z^*, \beta) + (1-\lambda)\,\phi^{nv}(z^{nv}, \beta). \tag{67}$$

By construction the two economies deliver the same allocation of votes, hence the same voting outcome and the same valuation term $\Gamma_T(z^*, \beta)$ in (63) and (67). Subtracting gives the voting premium, which is proportional to the difference in lending fees,

$$\text{VP} \;\equiv\; p^* - p^{nv} = (1-\lambda)\left[f^* - \phi^{nv}(z^{nv}, \beta)\right], \tag{68}$$

and is therefore positive precisely when the fund lends less once shares carry votes.

The premium can also be negative. Attaching votes to borrowed shares makes the fund's own supply raise the value of what it has already supplied, so lending becomes partly self-reinforcing. The fund's marginal revenue from lending is higher when shares carry votes than when they do not, and a manager who dislikes losing influence may nonetheless lend more than in the vote-neutral benchmark. Borrowing is then cheaper in the voting economy and the premium is negative. A negative premium also arises in Levit et al. (2026), though through a different channel. There it reflects a blockholder who *buys* fewer voting shares than non-voting

[30] Equivalently, the benchmark is the equilibrium that emerges when the shares traded are non-voting.

ones, because dispersed shareholders anticipate the voting outcome his purchases would bring about and free-ride by raising the price at which they will sell. Here it reflects a large investor who *supplies* more voting shares than non-voting ones, because lending them out raises the fee he collects on the shares already on loan. Both results caution against reading the voting premium as the value of a vote.

Finally, the voting premium and the marginal value of a vote are linked through the lending fee. Substituting $\phi^{nv}(z^{nv}, \beta)$ from (66) into (68), and then substituting the fee from (39), the absorption terms cancel and the premium reduces to

$$\text{VP} = \frac{1-\lambda}{2}\left[\text{MV}(z^*, \beta) - z^*(b_H - b_L)\frac{\partial \Lambda(z^*, \beta)}{\partial z}\right]. \tag{69}$$

The voting premium is thus the manager's marginal value of a vote, net of the lending revenue that transferring that vote generates on the shares already on loan.

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