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Earnings and the Value of Voting Rights

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April 2025

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We have benefited from comments by participants at the seminars at Boston College, Singapore Management University, Nanyang Technological University, National University of Singapore, Korea University, Bilkent University, Koç University, Queen Mary University of London, Cass Business School, Cambridge Judge Business School, Stockholm School of Economics, Amsterdam Business School, Tilburg University, Norwegian School of Economics, BI Norwegian Business School, University of Illinois at Chicago, DePaul University, EDHEC Business School, Copenhagen Business School, Luxembourg School of Finance, Drexel University, University of New South Wales, SFI-USI Lugano, University of Texas at Dallas, University of Exeter, the Early Ideas Session of the Drexel 2016 Corporate Governance Conference, the 2017 NYU-Penn Conference on Law & Finance, and the Knowledge Sharing Session at Principles for Responsible Investment (PRI). We thank the Editor (Shawn Thomas), the Referee, Rui Albuquerque, Yakov Amihud, Vladimir Atanasov, Ilona Babenko, Sudipta Basu, Bernard Black, Geoffrey Booth, Mark Bradshaw, Michael Brennan, Alex Butler, Tom Chemmanur, Lauren Cohen, John Core, Francesca Cornelli, Darrell Duffie, Allen Ferrell, Fabrizio Ferri, Rebecca Files, Julian Franks, Simon Gervais, Paul Gompers, Scott Hirst, Edith Hotchkiss, Amy Hutton, David Ikenberry, Xi Li, Marc Lipson, Alan Marcus, Ron Masulis, John Matsusaka, Jordan Nickerson, Naim Bugra Ozel, Sugata Roychowdhury, Susan Shu, Ewa Sletten, Phil Strahan, Ernst-Ludwig von Thadden, and David Yermack for useful comments. Karakaş gratefully acknowledges the financial support of Cambridge Endowment for Research in Finance (CERF) and of J M Keynes Fellowship. All errors are ours. All data are available at public sources specified in the paper. An earlier version of this study was circulated under the title ‘Control Rights and Earnings Announcements’.

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Abstract

Corporate control is integral to capital markets, yet its link to financial reporting remains elusive, partly due to challenges in valuing voting rights. Using a novel option-based methodology, we quantify the voting premium and examine its response to earnings announcements, documenting a significant negative relation with earnings surprises. This effect is amplified by upcoming shareholder meetings, activist involvement, and subpar firm performance, yet mitigated by higher insider ownership. Our findings, not attributable to short-selling constraints or informed trading, indicate earnings announcements affect stock prices via both cash flow and voting rights, offering fresh insights into financial reporting and corporate control.

Keywords: Voting Premium, Control Rights, Earnings Announcements, Corporate Governance

JEL Classifications: G34, M41

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Earnings and the Value of Voting Rights*

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Oğuzhan Karakaş

3 April 2025

Abstract

Corporate control is integral to capital markets, yet its link to financial reporting remains elusive, partly due to challenges in valuing voting rights. Using a novel option-based methodology, we quantify the voting premium and examine its response to earnings announcements, documenting a significant negative relation with earnings surprises. This effect is amplified by upcoming shareholder meetings, activist involvement, and subpar firm performance, yet mitigated by higher insider ownership. Our findings, not attributable to short-selling constraints or informed trading, indicate earnings announcements affect stock prices via both cash flow and voting rights, offering fresh insights into financial reporting and corporate control.

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Earnings announcements stand as pivotal information events in corporate settings, with their impact on capital markets commanding substantial attention from both academic researchers and practitioners. While the informational role of earnings is well documented, their crucial function as benchmarks for assessing and settling contractual agreements remains understudied in the literature (Watts and Zimmerman 1986; Weisbach 1988; Collins and DeAngelo 1990; Holthausen and Watts 2001). When firms report adverse earnings, such news can both signal and catalyze investor disagreements over asset management decisions, potentially increasing the likelihood of control contests (Collins and DeAngelo 1990; Karpoff, Schonlau, and Wehrly 2017; Peasnell, Pope, and Young 2005).[1]

In this study, we bring a new perspective and highlight the relation between the accounting information released in earnings announcements and the shareholder voting rights, which are one of the most fundamental contractual rights that shareholders have. Shareholder votes reflect investors' judgement of management effectiveness, and preferences over governance practices, and act as the key control mechanism to discipline management and influence corporate policies (Ertimur and Ferri 2019). Earnings influence control rights by providing a benchmark for shareholders to express their concerns with corporate performance and to pressure management for corporate reform (control role), in addition to informing investors regarding the risky stream of cash flows (ownership role).[2] This dual role of earnings naturally maps into the separation of ownership and control that is prevalent in modern corporations (Berle and Means 1932; Manne 1964, 1965; Jensen and Meckling 1976; Fama and Jensen 1983).

It is difficult to discern the control role of earnings because voting rights are hard to isolate

[1] In addition, several other papers have noted that accounting earnings play a central role in shaping disciplinary events, such as takeover attempts, shareholder activism, and board dismissals. For example, Adut et al. (2014) show evidence that negative earnings surprise increases the takeover likelihood. DeAngelo (1988) cites "poor earnings" as a reason for proxy contests by dissident shareholders. Dikolli et al. (2014) find that negative earnings predict CEO turnover. Denis and Kruse (2010) find that approximately one-half of the sample firms are the target of some disciplinary events in the year of and the three years following the year of poor performance.

[2] The lower information costs amid free-riding problems, and the assurance of standards under public scrutiny of the accounting information, may explain the common practice of using earnings as benchmarks for contracts (see, e.g., Li 2010, Christensen and Nikolaev 2012, and Christensen, Nikolaev, and Wittenberg-Moerman 2016).

from cash flows. We overcome this problem by utilizing a new, market-based, and daily measure of the value of shareholder voting rights. We test whether this value of voting rights varies with earnings information. Potential conflicts or disagreements among investors about how to run the firm in a world with incomplete contracts make control valuable (Aghion and Bolton 1986, 1992). In particular, the value of voting rights increases with an increased possibility of capital gains from improving the management of the company (Manne 1964; Easterbrook and Fischel 1983; Cox and Roden 2002; Karakaş and Mohseni 2021). Accordingly, given that negative earnings announcements are associated with and indicative of inefficiencies in the management of a company, we expect earnings announcements surprises to be negatively related with the value of voting rights.[3]

We estimate the value of voting rights by using option prices (hereafter, the *voting premium*), following the method introduced by Kalay, Karakaş, and Pant (2014). Specifically, we define the voting premium as the price difference between the stock and the non-voting share that is synthesized using the put-call parity relation, expressed as a percentage of the stock price.[4] The key insight for the method is that option prices reflect the cash flows of the underlying stocks, but not the control rights. This new method, unlike other, common methods of estimating the value of control such as using trades of block shareholders or dual-class stocks, enables us to estimate the voting premium for a large sample of widely held firms and hence is less subject to concerns of selection biases.[5] The voting premium is on average positive, and increases around events in which

[3] It is also possible that, control creates an environment in which managers can extract private benefits. Such private benefits could take several different forms, from excess CEO compensation to non-pecuniary utility created by pride or social capital due to being in charge of a public company. Our paper focuses more on the capital-gains-through-better-management channel of corporate control, rather than the private-benefits channel. See Section 1 for further discussions.

[4] The voting premium reflects the value of the vote to the "marginal investor," which can be incumbent management and/or (potential) outside investors. Throughout the text, we use the terms "the value of voting rights," "the value of control," and "the voting premium" interchangeably to refer to the market value of shareholder voting rights.

[5] The method of estimating the value of control using (i) trades of block shareholder, takes price difference between the share price in a block trade and the general stock price right after the block sale, and (ii) dual-class stocks, takes price difference between superior and inferior voting classes of shares. The voting premium we estimate is conceptually closer to the latter method. This is because our method essentially synthesizes a benchmark stock (i.e., an inferior voting share) using options. See Kalay, Karakaş, and Pant (2014) for a more detailed discussion.

control is likely to be contested (Kalay, Karakaş, and Pant 2014).

Analyzing 6,854 U.S. public firms over the period 1996 to 2022, and earnings surprises based on seasonal random walk expected earnings,[6] we show that *change* in the value of voting rights is negatively related to earnings surprises—that is, a firm's voting premium increases with unfavorable earnings surprises.[7] This baseline result showing a negative relation between the voting premium and earnings surprises is robust to controlling for firm size, book-to-market, absolute abnormal returns (volatility) around the earnings announcements, and firm and year fixed effects, as well as for several liquidity proxies such as stock volume, the Amihud illiquidity measure, the bid-ask spread, short interest, and institutional ownership. Our baseline result is also robust to truncating the extreme earnings surprises. Exploiting precise SEC filing timestamps and incorporating controls for lending fee changes, we find our main result unlikely to be driven by informed trading or short-selling constraints.

We find that the negative relationship between voting premiums and earnings announcements is more pronounced in firms with either lower insider ownership (entrenchment) or poorer managerial performance relative to industry norms, as measured by the firm's earnings surprise relative to its industry median. The latter finding suggests that the market, on average, can and does disentangle luck and skill in the management of the firm. Overall, our findings are in line with the view that unfavorable earnings reflect, and possibly trigger, potential disagreements among investors regarding the management of the firms' assets and increase the chances of a control contest for higher capital gains through better management, which in turn increases the voting premium.

In principle, any unexpected negative news that may increase conflicts and disagreements

[6] DeAngelo (1988) suggests that market participants largely rely upon simple earnings measures, since more complex earnings measures are likely to be difficult to interpret for most outside shareholders. Weisbach (1988) argues that changes in earnings are an unbiased estimate of unexpected earnings, since annual earnings follow approximately a random walk. Hence, we believe that using earnings surprises based on seasonal random walk earnings is more appropriate for our baseline analysis.

[7] Throughout the paper, we use the change in the voting premium as our main variable of interest. However, our analyses are robust to using the level of the voting premium.

among investors about how to run the firm (e.g., negative news linked to managerial inefficiencies) can affect the voting premium. We believe our focus on earnings is warranted since earnings provide a reliable benchmark for dissident shareholders to express their concerns with management regarding corporate performance (DeAngelo 1998; Collins and DeAngelo 1990). In addition, earnings announcements provide well-defined and regularly timed measures, alleviating the concern that companies' choice of a particular announcement time and/or form may be based on certain unobservable factors that are correlated with the value of control. Furthermore, the earnings reporting process is geared toward uncovering information that has not yet been disclosed in other sources (Van Buskirk 2011; Roychowdhury and Sletten 2012). Overall, as Collins and DeAngelo (1990, p. 237) conclude in their analysis of the earnings and proxy contests: "…the prominent role of reported earnings in the corporate governance process reflects their increased usefulness to investors attempting to evaluate managerial performance and/or to predict the contest outcome."

The voting premium is markedly higher for firms that have a higher percentage of ownership by active shareholders, and increases around dates of shareholder meetings, particularly when control is contested (Kalay, Karakaş, and Pant 2014). This insight, combined with the findings of DeAngelo (1988) and Collins and DeAngelo (1990), suggests that the voting premium should be particularly responsive to earnings information just before shareholder meetings. Indeed, exploiting 24,903 shareholder meetings between 1996 and 2022, we find that the closer the next shareholder meeting, at which control rights can be exercised, the stronger the effect of earnings on voting premium is. Relatedly, we find that the voting premium's negative response to earnings surprises is stronger at firms more subject to shareholder activism. This finding suggests that, consistent with the findings of Brav, Jiang, and Partnoy (2008), shareholder activism plays an important role in disciplining poorly performing firms. Accordingly, the market prices the value of the voting rights that are critical in exercising control in shareholder activism.

Potential litigations and dividend changes following earnings announcements may create positive and negative biases in our estimations, respectively. We rule out that these possibilities

drive our results by confirming our baseline results to hold when we exclude from our sample stocks with earnings announcements accompanied by large price declines (proxying for high litigation likelihood) or stocks paying dividends. In addition, we show that our results are robust to controlling for mispricing/liquidity factors because short-sale constraints may lead to mispricing of securities and violations of put-call parity, which in turn may create a positive bias in our estimations (Ofek, Richardson, and Whitelaw 2004). Hence, it is unlikely that our results are driven by non-control-related liquidity concerns.

A host of studies examine the relationship between option prices/characteristics and stock returns, particularly around major events such as earnings announcements, takeover announcements, and analyst recommendations (see, e.g., Amin and Lee 1997; Cao, Chen, and Griffin 2005; Doran, Fodor, and Krieger 2010; Jin, Livnat, and Zhang 2012; Johnson and So 2012). A common theme in these papers is that informed traders choose to use the options markets before they trade in the underlying stocks, without being explicit about the nature of such private information. Our study complements these studies by offering an economic meaning to the changes in option prices and associated private information around earnings announcements from the perspective of the market for corporate control.

Cremers and Weinbaum (2010) interpret put-call parity deviations as evidence of privately informed traders in options markets pushing synthetic stock prices away from traded stock prices and toward the correct value, which in turn implies the predictability of future stock returns. They document the degree of predictability to be high when option liquidity is high and when stock liquidity is low, and to be minimal in the opposite case. We find that changes in the voting premium around earnings announcements do not predict future stock returns after controlling for post-earnings-announcement drift. Further, our baseline effect is significant when both the stock and option liquidity are high. These suggest that the mispricing mechanism in Cremers and Weinbaum (2010) is unlikely to drive our results.

Overall, our findings show that the value of voting rights change around accounting earnings announcements, and that these changes are negatively related to the earnings news. This

suggests that the market for corporate control is active and uses the accounting earnings as a benchmark for assessment of the firm performance. To the best of our knowledge, this study is the first to systematically document and analyze voting premium around earnings announcements, using a broad sample of widely held U.S. public firms.

Our paper relates and contributes to the literature on corporate governance/control and accounting (see, e.g., DeAngelo 1988; Collins and DeAngelo 1990; Francis, Schipper, and Vincent 2005) by highlighting a crucial economic role of the information released in the earnings announcements: to provide a benchmark for assessment and/or settlement of contractual agreements. This control role of earnings and its impact on stock prices are often neglected in the prior research.[8] Our study highlights and documents the opposing influences of earnings on stock price through voting and cash flow rights. This paper also deepens our understanding about the determinants of the voting premium, and complements the findings of Kalay, Karakaş, and Pant (2014) by illustrating that earnings surprises play an important role in the documented increases in voting premium around shareholder meetings and following shareholder activism.[9]

1. Conceptual Relation Between the Value of Voting Rights and Earnings

Control rights matter to investors of a given security if investment contracts are incomplete and investors differ in terms of their private benefits, beliefs, expectations, risk aversions, and reputational concerns (Aghion and Bolton 1986, 1992). In particular, voting rights have value if outside shareholders feel the need to use their voting power to exert disciplinary pressure to improve firm performance (Manne 1964; Easterbrook and Fischel 1983; Cox and Roden 2002; Karakaş and Mohseni 2021).

[8] Edmans, Goldstein, and Jiang (2012) show that negative market prices increase the takeover likelihood (particularly after addressing the anticipation effect), which in turn would affect the voting premium. Our paper complements the findings of Edmans, Goldstein, and Jiang (2012) by illustrating the impact of accounting earnings, in addition and in relation to the stock prices, on voting premium.

[9] Kalay, Karakaş, and Pant (2014)'s findings that the voting premium changes around shareholder meetings and shareholder activism events are not conditional on, or implied by, the most recent earnings surprises.

Indeed, Manne (1962, p.412) states that the "…market value [of the vote] results because the vote has personal utility to individuals. But it only has this utility for one of two possible reasons: it is deemed valuable either as a means of securing a highly compensatory managerial position, or because it holds the key to higher capital gains through better management by others. Actually, most shareholders are only interested in the latter and will try to vote so as to maximize that possibility." Our paper also focuses more on the latter channel (capital-gains-through-better-management channel of corporate control), rather than the former (private-benefits channel).

Lower-than-expected earnings would lower investors' assessment of the incumbent management's ability to sustain higher profits in the future. Negative earnings surprises also increase investors' anxiety that incumbent management does not possess the ability to turn the company around. In such cases, earning reports would play an important role in determining the existence and nature of competition among different management teams to keep, acquire, or exercise the control over the firm in an attempt to fix/improve the firm's performance (e.g., through a CEO turnover or a takeover). The value of voting rights should increase with the possibility of capital gains from improving the management/performance of the company. Therefore, given that negative earnings announcements are associated with and indicative of inefficiencies in the management of the company, we expect the earnings announcements to be negatively related to the value of voting rights.

We would indeed expect not only unfavorable earnings surprises, but any unexpected negative news regarding managerial inefficiency in the firm to increase the value of voting rights. In this paper, we focus on earnings news and believe this choice is warranted for several reasons. First, earnings announcements provide well-defined and regularly timed measures. This alleviates the concerns that the choice of companies regarding a particular announcement time and/or form may be due to certain unobservable factors that are correlated with the value of control. Relatedly, analyzing relative influence of efficiency and opportunism on accounting choices during corporate control contests, Christie and Zimmerman (1994) show that efficiency is the more important explanation of accounting choice and that accounting opportunism is a second-order effect.

Second, the earnings reporting process is geared toward uncovering information (particularly bad news) that has not yet been disclosed in other sources (Van Buskirk 2011; Roychowdhury and Sletten 2012). This further confirms that, on average, earnings events are likely to contain information that would matter for the pricing of voting rights. Third, as argued in DeAngelo (1988), earnings figures are critical/crucial in corporate control contests such as proxy fights, which would directly affect the value of voting rights.

The value of voting rights is also interpreted as a lower bound for private benefits of control (Barclay and Holderness 1989; Nenova 2003; Zingales 1995; Karakaş and Mohseni 2021). However, we consider that such an interpretation of the value of voting rights is less relevant for our setting and analysis utilizing widely held public firms. Consumption of private benefits may remain unchanged or decrease (rather than increase) following a negative earnings announcement, which would bias against us finding that earnings and the voting premium are negatively related. Further, levels of private benefits of control are, at least partially, controlled in our tests through control variables and fixed effects.

Regarding the private-benefits channel of corporate control, see, e.g., Karakaş and Mohseni (2021) in which the voting premium is used as a diagnostic tool to address the ongoing debate of whether staggered boards lead to managerial entrenchment problems/inefficiencies. They find that firms with staggered boards on average have a higher voting premium, which is consistent with the entrenchment view of the staggered boards. Our paper complements the work of Karakaş and Mohseni (2021) by illustrating that the market prices the value of the voting rights depending on the governance, performance, and ownership of the firm.

The value of control depends on the likelihood of a disagreement situation arising and its economic significance, as discussed in Zingales (1995), and hence is time varying. Consequently, throughout our analysis in Sections 4 and 5, we exploit various settings that shape voting rights to

test whether the impact of earnings on voting premium varies over time and across firms.[10] Relatedly, we expect a negative relation between earnings and voting premium as long as control is contestable within the firm, since otherwise the voting premium would be minimal. Firms with options tend to have a large market capitalization and dispersed ownership. Hence the firms in our sample are contestable in the market for corporate control.

2. Estimation of the Voting Premium

To calculate the value of voting rights (i.e., the voting premium) on a daily basis, we follow the method described by Kalay, Karakaş, and Pant (2014). This method relies on the notion that option prices essentially derive their value from the cash flows of the underlying stocks, but not from the control rights. Thus, if we subtract the price of a non-voting stock synthesized using options, $\hat{S}$, from that of the underlying stock, S, we obtain the value of voting rights embedded in the stock within the expected life of the synthetic stock.[11] Because stock prices are nominal values, normalizing the above-mentioned price differential by the price of the underlying stock gives us a measure for the value of the voting rights that can be used to compare over time and across companies. More formally, assume that $\hat{S}$ is calculated using put-call parity for an option pair with the same maturity T and strike price X, and is adjusted for the early exercise premiums (EEPs) of American options and for dividends (*DIVs*) paid before the options mature—that is,

$$\hat{S} = C - P + PV(X) + adjustments\ for\ EEPs\ and\ DIVs, \quad (1)$$

$$Voting\ Premium = (S - \hat{S})\ /\ S, \quad (2)$$

where C and P are the American call and put option prices, respectively, and $PV(X)$ is the present value of investing in a risk-free bond with face value X that matures at time T.

[10] Within this framework, starting with Grossman and Hart (1988) and Harris and Raviv (1988), a vast literature analyzes security voting design and points to the importance of shareholder voting rights. See Yermack (2010) for a survey of research on shareholder voting and corporate governance.

[11] Expected life of the synthetic stock is determined by the maturity of options (or the time to exercise). At option expiration, the prices of the synthetic and common stocks converge.

Kalay, Karakaş, and Pant (2014) show that neither stock or option liquidity nor non-control-related frictions drive the changes in the voting premium. In addition, they show that the voting premium is positive on average and increases around events that matter more for control rights. These events include special shareholder meetings and/or meetings with close votes, episodes of hedge fund activism (particularly with hostile engagements), and merger and acquisition events.

An important advantage of the method we employ is that we can estimate the market value of voting rights for a large number of widely held public firms. The two other common ways to calculate the value of control in the literature are: (i) using price difference between the share price in a block trade and the general stock price right after the block sale, and (ii) using price difference between superior and inferior voting classes of shares. The former method requires a block sale event, which may not be easily observable for a large subset of stocks for an extended period of time (Barclay and Holderness (1989) and Dyck and Zingales (2004)). Moreover, measuring the value of control is not possible if the controlling block is not transferred. In addition, block sales are often triggered by events that may introduce potential selection biases. The latter method requires firms to have at least one other type of stock with different voting rights, and there are few firms with dual-class shares in which both classes of shares are publicly traded (Lease, McConnell, and Mikkelson (1983), Levy (1983), Zingales (1994), Zingales (1995), Rydqvist (1996), Nenova (2003), Hauser and Lauterbach (2004), and Karakaş (2009)). Moreover, even if both classes of shares are publicly traded, one might be less liquid than the other. More importantly, these samples are potentially subject to selection biases (DeAngelo and DeAngelo 1985; Smart and Zutter 2003). Indeed, Francis, Schipper, and Vincent (2005) find that earnings are generally less informative for dual-class firms, compared with single-class firms.

Our method provides a way to explore how the value of voting rights behaves when a block sale event is not present and/or when a dual-listed stock does not exist. Our method of estimating the voting premium is conceptually closer to the method using dual-class shares. This is because our method essentially synthesizes a benchmark stock (i.e., an inferior voting share) using options.

There is an important technical difference between the two approaches: the maturity of the non-voting synthetic stock is finite in our method, whereas it is infinite for the inferior voting share in the dual-class method. This difference, *ceteris paribus*, would naturally lead to a higher voting premium measured with the dual-class method relative to ours. Comparing the two measures in a sample of firms with dual-class shares and options traded on superior classes of shares, Kalay, Karakaş, and Pant (2014) show that the voting premiums estimated from both methods are strongly positively correlated.

Absent any non-control-related frictions, by no-arbitrage, the value of voting rights would also be reflected in the equity lending markets. Indeed, one could obtain the votes by borrowing the stocks. Hence, another method to estimate the value of control is using the borrowing costs such as equity lending fees (Aggarwal, Saffi, and Sturgess 2015). However, the equity lending market is a negotiated, decentralized, and opaque market, and hence the value of voting rights inferred from equity lending fees can be significantly downward biased, as discussed in Kalay, Karakaş, and Pant (2014).

3. Sample Description

We use the OptionMetrics database for the calculation of daily voting premium. OptionMetrics is the standard data set used for studies on options and provides data on U.S. equity options starting from 1996. This database provides end-of-day bid and ask quotes, trading volume, open interest, and option-specific data (e.g., implied volatility, maturity, strike price) for all American call and put options on stocks traded on U.S. exchanges. It also provides the stock price and dividends of the underlying stocks and zero-coupon interest rates.

Voting premium calculation requires availability of option prices (both put and call). Following Kalay, Karakaş, and Pant (2014), we form option pairs to construct the synthetic stock. An option pair consists of matched call and put options written on the same underlying stock and with identical strike price and time to maturity. We discard option pairs for which the quotes for either the call or the put options are locked or crossed. The option prices are taken as the midpoints

of the bid and ask quotes, which are the best closing prices across all exchanges on which the option trades. Since the options are all American style, we compute the early exercise premium for the put and the call using the binomial option-pricing model.

In our calculations, we use the most liquid option pair for each firm-day. The most liquid option pair for each firm at each day is defined as the one with the highest volume (minimum volume of call and put), closest at the money and shortest maturity. We use only the options with positive volume. Using the closest-at-the-money options also minimizes the potential downward biases in the voting premium due to the early exercise possibilities of the American options (see Kalay, Karakaş, and Pant 2014 for a more detailed discussion). Because our method requires the availability of option contracts to calculate the voting premium, we exclude stocks with no option contracts from our sample. For the stocks with option contracts, if we cannot calculate the voting premium for a given day, we assume it is zero for that particular date.

To precisely identify the timing of earnings announcements and better isolate the voting rights effect from informed trading,[12] we utilize announcement timestamps from IBES, which captures the earliest public release of earnings information through company press releases and news wires. Following standard practice in market microstructure literature, we define the event day based on market trading hours: when an earnings announcement occurs before market close, we code that day as Day 0; when the announcement occurs after market close, we code the following day as Day 0. This refined timing approach allows us to more accurately measure the market's reaction to earnings news and helps distinguish between pre-announcement informed trading and post-announcement price adjustments. The timestamp-based classification is particularly important for our analysis since options markets may react differently to news released during versus after trading hours, potentially affecting the synthetic stock price calculations.

We use several other databases to obtain further information on firms for which we have daily voting premium estimates. We use CRSP to obtain daily stock prices, which help us measure

[12] See Section 5.1.2 for further discussion of informed trading as an alternative interpretation, which we rule out as unlikely to account for our findings.

the market response to earnings announcements in terms of stock return and volatility, and also to calculate liquidity proxies such as stock volume, Amihud illiquidity, and bid-ask spread. Using the Compustat quarterly database, we identify the earnings announcement dates, earnings amount, and short interest, as well as stock characteristics such as firm asset size, and book-to-market ratio. We obtain shareholder activist ownership data from 13D filings available at SEC's EDGAR filing system, and institutional ownership data from the Thomson Reuters 13F database. We obtain annual meeting dates from the ISS (formerly RiskMetrics) database. We identify stocks that are difficult/costly to short (i.e., special stocks) by using the equity lending fees available in the Markit database. Finally, we obtain insider ownership data from Incentive Labs.

Throughout the paper, we use earnings surprises based on seasonal random walk earnings. With this setup, our baseline sample includes all the firms that have an earnings announcement available four quarters ago, and the four-quarter lagged earnings values provide the benchmark for earnings expectations. DeAngelo (1988) suggests that market participants largely rely upon simple earnings measures, since more complex earnings measures are likely to be difficult to interpret for most outside shareholders. Citing earlier literature, Weisbach (1988) argues that changes in earnings are an unbiased estimate of unexpected earnings, since annual earnings follow approximately a random walk. Hence, we believe using earnings surprises based on seasonal random walk earnings is more appropriate for our baseline analyses.

(~Insert Table 1 about here~)

Our main sample covers 6,854 U.S. public firms over 1996–2022. In Table 1, Panel A, we report summary statistics of the variables we utilize in our study. Firm equity *size* is the product of number of shares outstanding and the price at the end of calendar year prior to the fiscal year. The pooled average (median) market value of equity in our sample is $3.12 billion ($2.69 billion). *Book-to-Market* is the book-to-market ratio for which the book value of equity is calculated as sum of stockholders' equity, deferred tax, and investment tax credit minus preferred stock. The book-to-market ratio of the sample has a mean (median) of 0.380 (0.410). We measure the market response to quarterly earnings announcement as the absolute value of cumulative return (–2, +2)

trading days around the quarterly earnings announcement date. Mean (median) of absolute market response is 7.1% (4.9%).[13] The *change in the voting premium* is the average voting premium around the quarterly earnings announcement (*t–2*, *t+2*) minus the average voting premium before the earnings announcement (*t–45*, *t–15*), where *t* is the earnings announcement date and the windows are defined in trading days. The change in voting premium of the sample has a mean (median) of 0.038% (0.016%). Given that the median maturity of options in our sample is 53 days, a simple back-of-the-envelope calculation suggests that the annualized mean (median) change in the voting premium is about 0.26% (0.11%).[14]

Table 1, Panel B, shows the correlation matrix of key variables in the pooled sample. Pearson (Spearman) correlations are reported below (above) the main diagonal. The earnings surprise measure is significantly and negatively correlated with the change in the voting premium. This provides preliminary support for our main thesis that the voting premium increases if the firm announces lower-than-expected earnings.

4. Analysis

Table 2 presents our baseline regression analysis, where the change in voting premium serves as the dependent variable across all three regressions and remains our main variable of interest throughout the paper. Our main independent variable is the *earnings surprise*, which is calculated as the difference between reported earnings per share and the expected earnings (earnings per share reported four quarters ago), scaled by price at the beginning of the year. Because larger firms may differ from smaller firms with respect to the corporate control market (Nenova 2003), we control for the size of the firm. We also include proxies for growth of the firm (book-to-market), since growing firms could be more subject to a control contest (Chemmanur,

[13] Throughout the tests, announcement period refers to the (–2, +2) trading-days window around the earnings announcement day, unless it is stated otherwise for the purposes of robustness checks.

[14] The voting premium for options with maturity *T* can be annualized using the following formula: $1 - (1 - \textit{voting premium})^{365/T}$ (see Kalay, Karakaş, and Pant 2014 for more details).

Paeglis, and Simonyan 2011). Finally, earnings announcements may pose volatility risks (Barth and So 2014), and hence we include absolute announcement returns to make sure that our results are not driven by (non-control-related) volatility of the stock. We include firm fixed effects to capture unobserved time-invariant firm-specific factors that could be related to changes in the voting premium, and year fixed effects to capture variation in voting premium changes specific to each year.

(~Insert Table 2 about here~)

We find a negative relation between the change in the voting premium and the earnings surprise. As shown in Table 2, the coefficient of the earnings surprise is statistically significant in all the regressions. A one-standard-deviation decrease in earnings surprise corresponds to about a 0.021 to 0.022 percentage point increase in the change in the voting premium (*t*-statistics vary from –3.18 to –3.35), depending upon the specification (Regressions 1 to 3, Table 2). Compared with the mean level of voting premium prior to the earnings announcement (0.096% – 0.021% = 0.075%), and taking the large size of the firms in our sample into account, this amount is economically sizable.

In Regressions 4 and 5 of Table 2, we use medium-term options with expirations between 45 days and 180 days and long-term options with expirations of more than 180 days, respectively. Despite the decrease in the sample size, we find the coefficient of interest to remain statistically significant. Note also that the coefficient of interest for long-term options in Regression 5 of Table 2 is higher in absolute terms than the coefficient of interest for our baseline result in Regression 3 of Table 2. This is intuitive since the method captures the voting premium within the maturity of the options used, and in line with the findings of Kalay, Karakaş, and Pant (2014) that the voting premium increases with the maturity of the options used to synthesize the non-voting share.

4.1. Robustness of Baseline Results

When we calculate the voting premium, we adjust for dividend payments within the maturity of the options utilized. However, firms that experience a negative earnings shock are

more likely to cancel such dividends (DeAngelo and DeAngelo 1990), which in turn may introduce a negative bias in the voting premium. This potential bias is less of a concern since it would work against us finding the results we did. Regardless, in Regression 1 of Table 3, we restrict our sample to stocks that do not pay any dividends and repeat our tests, confirming that excluding dividend-paying stocks does not alter our results.

(~Insert Table 3 about here~)

Francis, Schipper, and Vincent (2005) find that earnings are generally less informative for dual-class firms, compared with single-class firms. Dual-class firms are subject to sample selection biases, and superior voting shares tend to suffer from low liquidity (Gompers, Ishii, and Metrick 2010). To check whether some unobserved factors that determine the choice of being a dual-class stock matter for the relation we document, we exclude firms that have dual-class stocks (about 1.43% of our sample observations) from our sample (Table 3, Regression 2). We find that our results remain similar to our baseline findings.

Under the scenario of litigation risk, unexpected bad earnings may lead to firms being sued due to substantial drops in their stock prices (Skinner 1997). To examine the potential impact of litigation risk on the voting premium through earnings announcements, in the spirit of Francis, Philbrick, and Schipper (1994), we identify earnings announcements followed by large negative stock price responses (less than –10% five-day earnings announcement returns) in Regression 3 of Table 3. By doing so, we essentially determine the earnings announcements that are more likely to be used as reasons to sue the firm in a class action.[15] Unexpected bad earnings often lead to large drops in stock prices (Bernard, Thomas, and Abarbanell 1993). If a firm is more likely to be sued due to these sizable drops, then shareholders who own the stock at the time of the announcement retain the rights to claim potential future settlements. Under this scenario, future expected settlement payments can increase the value of control rights today, precisely when the unexpected bad earnings hit the market. To investigate whether this plausible alternative

[15] Stock returns are a strong predictor of litigation (Palmrose and Scholz 2004, and Donelson et al. 2012). Our results in Regression 3 at Table 3 are not sensitive to the particular choice of the –10% cutoff.

mechanism plays a role in our documented relationship between the voting premium and earnings announcements, we repeat our analysis after excluding earnings announcements that are accompanied by large price declines. We find that our baseline result remains robust (in fact, becomes stronger) for the rest of the stocks, and hence is unlikely to be driven by potential litigation risks.

4.2. Alternative Windows

In our baseline methodology, we analyze earnings announcements and voting premiums using two key time windows. We employ an event window of (t–2, t+2) trading days around earnings announcements, paired with a benchmark window of (t–45, t–15) trading days for non-earnings events. We choose this five-day event window because it captures potential information leakage and market anticipation, allows for post-announcement effects to manifest, and provides us with a sufficient sample size for robust statistical analysis. Our choice of windows is supported by several key studies in the field. We draw on research by Kalay, Karakaş, and Pant (2014) showing that voting premium fluctuates over time, as well as Dodd and Warner's (1983) documentation of rising stock prices before proxy contests. We also consider Edmans, Goldstein, and Jiang's (2012) findings on how market prices influence takeover likelihood through anticipation effects, and Bernard and Thomas's (1989) work establishing that stock price reactions to earnings surprises often begin before formal announcements.

Regarding the setting of the benchmark window, we face a tradeoff. We ultimately select a 30-day period ending 15 days before the earnings announcement, as this provides sufficient distance to avoid contamination from the announcement while remaining close enough to maintain relevance for our comparative analysis. Our findings are not sensitive to the particular event and benchmark windows we chose. We find similar results using a different benchmark window that is closer to the earnings announcement (t–15, t–5), as an alternative to our baseline window of (t–45, t–15) (Appendix Table 1, Regressions 1 to 3). Our results are also robust to using the level of voting premium rather than its change (Appendix Table 1, Regression 4).

Regarding the event window, we examine alternative intervals around earnings announcements—specifically a (t, t+2) window (Table 4, Panel B, Regressions 1 to 3) and a (t+1, t+2) window (Table 4, Panel B, Regressions 4 to 6)—compared to our baseline (t–2, t+2) window. It is important to note that these alternative windows affect our sample size. Specifically, calculating voting premium requires at least one option trade within the examined window period. When we narrow the analysis window, for example to (t+1, t+2), the sample size necessarily decreases as we exclude observations that only have option trades in the pre-announcement period (t–2 to t). This pattern can be directly observed in Table 4, Panel A, where we present ΔVP(%) calculations for each day separately within the (t–2, t+2) window.

In our detailed timing pattern analysis, we uncover interesting trends in the relationship between earnings surprises and voting premium (Table 4, Panel A). We observe a clear progression in the days surrounding announcements: we find a significant negative coefficient (–0.152) on the day before announcement, continuing through the announcement day (–0.117), and gradually diminishing in the following days (–0.098 on day +1, –0.059 on day +2). This pattern suggests to us more than just informed trading effects. Our analysis using alternative time windows further strengthens these conclusions. When we examine the period from announcement day through two days after (t, t+2), we find the negative relationship persists (–0.117), with an even stronger effect (–0.234) observed over longer horizons (Table 4, Panel B, Regressions 1 and 3). Even in our more conservative window that excludes pre-announcement trading (t+1, t+2), the effect remains economically and statistically significant, though smaller in magnitude (–0.082) (Table 4, Panel B, Regression 4). We find the pronounced impact on long-term horizons particularly telling, as it suggests these patterns reflect genuine revaluation of voting rights rather than merely capturing informed trading activity (Table 4, Panel B, Regression 6).

(~Insert Table 4 about here~)

4.3. Liquidity and Shorting Difficulties

One concern regarding our findings is whether the potential non-control-related frictions

due to liquidity and/or shorting difficulties affect our baseline results. We think these are unlikely since our sample consists of firms with liquid options, which tend to be relatively large in size with actively traded stocks. Our baseline analyses also control for firm size, book-to-market, absolute abnormal returns (volatility) around the earnings announcements, and firm and year fixed effects. Nevertheless, to further investigate the effect of liquidity on our results, we include several liquidity proxies such as stock volume, Amihud illiquidity measure, bid-ask spread, short interest, and institutional ownership (and their squares) as control variables to our baseline specification (including these variables one by one or all together does not change our results) in Table 5. The results reported in the Regression 1 of Table 5 show that the coefficient of the earnings surprise is close to the baseline results and is statistically significant. Using the *changes* in the liquidity proxies (except for institutional ownership, for which we do not have daily data), as opposed to the levels of liquidity proxies in Regression 1 of Table 5, we still find our results to remain robust (Table 5, Regression 5).

(~Insert Table 5 about here~)

To address the concerns regarding the shorting difficulties, in the Regressions 2 to 4 of Table 5, we exclude special stocks from our analysis, where a stock is defined to be a special stock if its three-day average indicative equity lending fee is above 100 basis points, and find that our baseline results continue to hold for the set of stocks for which shorting activity is not severely constrained.

We provide additional evidence regarding potential non-control-related frictions in Section 5.1, where we discuss alternative interpretations of our findings.

4.4. Extensions of Baseline Results

In Table 6, we first repeat our analysis for the universe of 234 dual-class firms using the voting premium obtained from dual-class shares, though the sample size decreases considerably. To make the voting premium from dual-class firms comparable to our voting premium from options prices, in the spirit of Zingales (1995), we use the following formula:

$$Dual\text{-}Class\ Voting\ Premium = [(P_S - P_I)\ /\ (P_I - rP_S)]\ *\ [(P_I\ /\ P_s)], \qquad (3)$$

where P_S and P_I are the prices of superior and inferior voting shares, respectively, and r is the relative number of votes of an inferior voting share versus a superior voting one.

(~Insert Table 6 about here~)

We find that earnings surprise is not significantly related to the voting premium from dual-class firms (Table 6, Regression 1). This could be, in line with Gompers, Ishii, and Metrick (2010) and Francis, Schipper, and Vincent (2005), due to relatively low sample size, and/or to dual-class firms' earnings being less informative and not very generalizable.

Another proxy for the value of the vote is implied by the equity lending fees. Equity lending market is negotiated, decentralized, and opaque, and hence reported lending rates may not correspond to the clearing rate in the market. More importantly, the value of the vote inferred from prices in the equity lending market can be significantly downward biased as discussed in detail in Kalay, Karakaş, and Pant (2014). Nevertheless, we repeat our analysis with the voting premium obtained from equity lending fees and find that, consistent with our baseline results, earnings surprise is negatively and statistically significantly related to the voting premium from equity lending fees (Regression 2 of Table 6). The coefficient of earnings surprise is smaller than the one in our baseline regression in Regression 3 of Table 2 (–0.008 vs. –0.137). This is not surprising given that prices in the equity lending market can be significantly downward biased.

To address potential concerns about short-selling constraints affecting our results, we conduct additional tests examining the relationship between voting premium and changes in lending fees.[16] In the Regression 3 of Table 6, we explicitly control for Δ *Lending Fee* and find that our baseline results remain robust. The coefficient on earnings surprise remains negative (–0.137) and statistically significant (*t*-statistic of –3.072), suggesting that the relationship between earnings surprises and voting premium is not merely driven by variations in short-selling costs. In

[16] See Section 5.1.1 for further discussion of short-sale costs as an alternative interpretation, which we rule out as unlikely to account for our findings.

the Regression 4 of Table 6, to minimize concerns about measurement error and the functional form of the relationship, we include indicator variables for the deciles of Δ *Lending Fee* instead of Δ *Lending Fee* itself. This specification allows for a more flexible relationship between lending fees and voting premium while controlling for potential non-linearities. The results remain qualitatively similar, with the coefficient on earnings surprise maintaining its economic (–0.135) and statistical significance (*t*-statistic of –3.022). These findings suggest that our main results are not primarily driven by changes in short-selling constraints around earnings announcements. To further narrow the scope for alternative channels and jointly address concerns about both informed trading and short-selling constraints, we replicate these tests using a narrower (t, t+2) window that excludes the pre-announcement period where informed trading might occur. The results remain broadly similar, confirming that our main findings are not driven by these alternative mechanisms (see results in Appendix Table 2).

In Regression 5 of Table 6, in line with Weisbach (1988), we replace our seasonal random walk earnings surprise measure with a relative performance metric. We calculate the relative performance metric by subtracting the industry median earnings surprise from the firm's earnings surprise. We find that the coefficient of relative performance is larger than that of the earnings surprise in our baseline regression. This is consistent with the view that the market prices the value of the voting rights lower, when the earnings performance (and related managerial inefficiencies) is accompanied by poor performance in the industry. In other words, our results suggest that the market, on average, can and does disentangle luck and skill in the management of the firm.

We also find our baseline results to remain robust after truncating extreme earnings surprise observations at the 2.5^{th} and 97.5^{th} percentiles (Table 6, Regression 6). When we analyze the earnings surprises in a piecewise regression with indicator variables for top (bottom) 2.5% of the earnings surprise distribution, we do not observe a difference in the absolute impact of favorable vs. unfavorable earnings surprises on the voting premium in our sample (Table 6, Regression 7).

Interestingly, Frazzini and Lamont (2007) and Barber et al. (2013) find that U.S. stocks earn higher returns during earnings announcement months than during non-announcement months

(earnings announcement premium). Barber et al. (2013) find the phenomenon to be more pronounced for the small stocks, and argue that uncertainty over the earnings information to be disclosed is a primary driver of the earning announcement premium. Our findings might contribute explaining the earnings announcement premium. We leave this interesting possibility for future research.

4.5. Shareholder Meetings

Markets respond to the information content of earnings more when there is greater uncertainty about a firm's future prospects (Lang 1991). The uncertainties regarding the firm's prospect and disagreements among investors about how to run the firm also make control valuable (Aghion and Bolton 1986, 1992). The timing of the meetings, content, and voting outcomes of the proposals play important roles in the mechanism of the real effects of earnings in exercising control. The voting premium increases around shareholder meetings, particularly when the control is contested (Kalay, Karakaş, and Pant 2014). Dissident shareholders attempting to unseat management through proxy contests typically cite poor accounting performance as evidence of managerial incompetence (DeAngelo 1988). Collins and DeAngelo (1990, p.214) find that "…despite evidence of earnings management during the election campaign, market and analyst reactions to earnings released during a proxy contest are more pronounced than they are in prior periods." Taking all these insights into account, and to the extent that an upcoming shareholder meeting heightens investor uncertainty and earnings reports are useful in resolving that uncertainty, we expect that voting premium reactions to earnings should be especially strong before shareholder meetings.

(~Insert Table 7 about here~)

To test this prediction, we augment the baseline specification to incorporate the timing of upcoming shareholder meeting. Using the shareholder meeting dates reported in the ISS (formerly RiskMetrics) database for 24,903 annual meetings, we assign the indicator variable for *close distance (I_CD)* a value of one if the next shareholder meeting is within 30, 25, 20, 15, 10, and 5

days of the earnings announcement in Table 7, Regressions 1 to 6, respectively, and a value of zero otherwise. We include an interaction term for earnings surprise *(ES)* and the indicator variable for the shareholder meeting that takes place close to an earnings announcement, *(ES x I_CD)*, to capture the incremental variation caused by an earnings surprise combined with the shareholder meeting that takes place within the following month.

Consistent with our hypothesis, we find the effect of earnings on the voting premium to be stronger when the next shareholder meeting, at which control rights can be exercised, is closer (Table 7). There is a monotonic increase in the absolute value of the coefficient of interest from –0.044 for the specification with close distance defined as 30 days to the meeting (Table 7, Regression 1) to –0.157 for the specification with close distance defined as 5 days to the meeting (Table 7, Regression 6). The statistical significance of the coefficient of interest also increases as the meeting gets closer (*t*-statistic increases from –0.47 in Table 7, Regressions 1 to –2.86 in Table 7, Regressions 6).

In Table 7, Regression 7, we repeat the specification in Regression 6 focusing exclusively on long-term options with maturity greater than 180 days. This design choice specifically addresses concerns about the timing of shareholder meetings relative to option expiration. Given that the typical gap between a record date and meeting date for special meetings is 43 days (Kalay, Karakas, and Pant, 2014), and considering the additional time needed between meeting announcement and record date, using options with maturities greater than 180 days ensures that any scheduled or special shareholder meetings are likely to occur within the option maturity window. This temporal alignment is useful for our analysis, as it allows us to capture the full effect of earnings announcements on voting premiums through the channel of anticipated shareholder meetings. The results from this specification not only confirm our earlier findings but show an even stronger effect, with the coefficient being greater in both absolute magnitude and statistical significance. This enhancement in the effect size when using longer-maturity options provides compelling evidence that the voting premium is indeed linked to shareholders' anticipated exercise of their voting rights at upcoming meetings, rather than being driven by other short-term factors

or measurement issues related to option maturity.

4.6. Interaction Analyses

The uncertainties regarding the firm's prospect and disagreements among investors about how to run the firm are a major source of the value of voting rights (Aghion and Bolton 1986, 1992). Using analyst forecast dispersion (range of forecasts for stocks with more than four analysts), we test this insight: in the presence of a bigger disagreement (dispersion), the voting premium is higher and its negative relation to the earnings announcements is stronger, but statistically insignificant (Table 8, Regression 1).

(~Insert Table 8 about here~)

Earnings surprises could be due to managerial inefficiencies, or to the performance of the industry that the firm operates within (or both). We would expect our baseline finding of a negative relation between earnings surprises and the voting premium to be stronger for the former than for the latter. In Regression 2 of Table 8, we find evidence consistent with this expectation: the effect of earnings on the voting premium is stronger when the firm's earnings surprise is below the median earnings surprise for its industry. Buttressing our findings in Regression 5 in Table 6, this result suggests that the market (for corporate control) on average can disentangle the managerial inefficiencies due to managers' fault versus due to the industry, and accordingly price the value of the vote.

The voting premium increases in the presence of shareholder activism (Kalay, Karakaş, and Pant 2014). With this insight, we test whether our main finding, the negative relation between earnings announcements and the voting premium, is stronger when active shareholder involvement is higher. Consistent with the findings of Kalay, Karakaş, and Pant (2014) and also with our results around shareholder meetings in Section 4.5, we find that the effect of earnings announcements on the voting premium is stronger when the percentage of ownership by activist shareholders in the firm is higher (Table 8, Regression 3). This suggests that shareholder activism plays an important role in disciplining poorly performing firms.

The voting premium captures the marginal value of the vote given the performance, governance, and ownership structure of the firm. If the firm is management controlled, then we would expect our baseline result to be muted. In the very extreme case of firms with uncontestable management (e.g., management having share ownership more than 50%), the voting premium and the effect of earnings surprises on the voting premium would be minimal. Firms with options tend to have a large market capitalization and dispersed ownership. Hence the firms in our sample are contestable in the market for corporate control. Our findings in Regression 4 of Table 8 support our prediction: the negative effect of earnings surprise diminishes with insider ownership.

To conclude, together with the results of Table 7 on shareholder meetings, our findings in Table 8 analyzing various interaction effects support the notion that the negative relation between earnings surprises and voting premium is driven, at least in part, by voting rights.

5. Further Issues

In this section, we discuss issues specific to our tests and provide additional evidence validating the robustness of our results. For brevity, we briefly discuss our findings in this section and report our results in the Appendix Tables.

5.1. Alternative Interpretations

In this section, we discuss alternative interpretations of our findings, and our additional analyses to address these interpretations.

5.1.1. Short-Sale Costs

An alternative interpretation of our results is that short-sale constraints (i.e., limits to arbitrage) could cause the put-call parity deviations (Ofek, Richardson, and Whitelaw 2004), and that our results simply suggest put-parity deviations increase when earnings surprises are negative. To investigate whether such shorting difficulties drive our results, we perform a battery of tests. First, as discussed in Section 4.3, we find that including several liquidity proxies such as stock

volume, Amihud illiquidity measure, bid-ask spread, short interest, and institutional ownership (and their squares) as control variables to our baseline specification does not alter our baseline findings (Table 5, Regressions 1 and 5). Second, excluding special stocks from our analysis, where a stock is defined to be a special stock if its three-day average indicative equity lending fee is above 100 basis points, illustrates that our baseline results continue to hold for the set of stocks for which shorting activity is not severely constrained (Table 5, Regressions 2 to 4). Third, in Table 6, Regression 3, we also control for *changes* in equity lending fees and find that our baseline result survives, though equity lending fees are also significantly and positively related to the voting premium. This is in line with our finding of a negative relation between earnings surprises and equity lending fees (a proxy for voting premium) in Table 6, Regression 2.

The above findings are important since they address a fundamental disagreement in the literature regarding the notion of mispricing interpretation of put-call parity deviations. Because the voting premium is a product of the no-arbitrage principle underlying the put-call parity, our findings suggest that put-call parity deviations around earnings announcements are related to earnings news even after controlling for non-control-related frictions.

5.1.2. Informed Trading

Cremers and Weinbaum (2010) argue that deviations from put-call parity contain information about future stock returns. Their main argument is that the put-call parity deviations are predictive of future stock returns (on both the short side and the long side) not because of the noise or short-sale constraints, but because of the trading activity of informed investors trading first in the options market. They find positive (negative) abnormal stock returns for stocks with relatively expensive calls (puts), which cannot be explained by short-sale costs. Cremers and Weinbaum (2010) document the degree of predictability to be high when option liquidity is high and when stock liquidity is low, and to be minimal in the opposite case. They also find the degree of predictability to decrease over time and interpret their findings as evidence of privately informed traders in options markets pushing synthetic stock prices away from traded stock prices and toward the correct value.

To address this alternative interpretation, we perform a similar analysis using our sample that focuses on earnings announcement dates. In this analysis, we pay special attention to the previously documented relationship between earnings surprises and future stock returns (i.e., post-earnings-announcement drift) and focus on voting premium changes. We find that, unlike Cremers and Weinbaum (2010), changes in the voting premium around the earnings announcement do not predict future equity returns (untabulated), and our effect is significant when both stock and option liquidity are high (Appendix Table 3). These suggest that our findings are unlikely to be driven by the mispricing mechanism analyzed in Cremers and Weinbaum (2010).

5.1.3. Discussion

Throughout our analyses, we do not find strong support for the plausible alternative stories, but rather for the voting premium interpretation of our findings – voting rights become more valuable following unexpected negative earnings news. However, our findings do not rule out the possibility that other potential alternative hypotheses may play a role in some of our results. For instance, it is possible that lending fees may vary around earnings announcements for non-control-related issues, and/or informed traders may cause pressure in prices particularly in a market environment in which irrational investors trade with frictions where no-arbitrage principle is violated. Such mispricings due to behavioral biases and/or omitted frictions may have consequences on put-call parity violations around earnings announcements, which in turn may potentially explain some of our findings. In this study, in the spirit of the traditional finance literature, we do not investigate the behavioral aspects of the markets and assume no-arbitrage conditions to hold on average. Considering all of the collective evidence provided in the paper, we view our main results as being consistent with the control role of earnings providing an essential (but not necessarily exclusive) explanation for the patterns in voting premium around earnings announcements we document.

While our analysis focuses on the core relationship between voting premiums and corporate outcomes, several promising avenues for future research emerge from the empirical patterns we document. Two particularly noteworthy directions involve the relationship between

voting premiums and CEO turnover, and the impact of dividend policies on the spread between stock price and synthetic stock price. The relationship between voting premiums and CEO turnover presents an especially complex empirical challenge. A thorough investigation of these dynamics would require careful consideration of multiple institutional factors that influence succession events. CEO turnover decisions typically result from an intricate interaction of factors, including industry conditions and activist pressures. Several empirical challenges make this analysis particularly demanding, including the extended timeline of board deliberations that precede turnover announcements, which complicates the identification of causal relationships; the difficulty in accurately classifying voluntary versus forced departures; the need to account for board structure and composition; the role of activist involvement in succession decisions; and the challenge of addressing potential reverse causality, as both voting premiums and turnover might respond to common underlying factors. Given these complexities, we believe that a comprehensive analysis of the relationship between voting premiums and CEO turnover would be better suited for a dedicated study that can fully address these empirical challenges.

Similarly, the relationship between dividend policies and voting rights valuation offers another promising direction for future research. Understanding how systematic dividend changes affect the spread between stock price and synthetic stock price would require careful consideration of firms' historical dividend patterns, market expectations regarding dividend policy changes, the timing and magnitude of dividend announcements, and the interaction between dividend policy and other corporate governance mechanisms. These research directions could significantly advance our understanding of how corporate events and governance mechanisms interact with voting rights valuation. Future studies specifically designed to address these questions would need to employ careful identification strategies and account for the institutional complexities we have outlined. By highlighting these empirical challenges and potential research directions, we aim to provide a foundation for future work while maintaining the focused scope of our current analysis. These suggestions emerged from valuable feedback received during the review process and represent important areas for extending our understanding of voting rights valuation.

5.2. Maturity of the Options

In our main analysis, we use the voting premium calculated using the information in the mostly liquid options. As we further elaborate in Section 3, when multiple options are available, we use the shorter maturity options which are more liquid and less prone to mispricing concerns. Given that we obtain the value of voting rights embedded in the stock within the expected life of the synthetic stock, the voting premium should increase with the maturity of the options. We confirm this prediction in Appendix Table 4 by using a constant sample, i.e., using the same set of stocks that have both medium- and long-term options available for voting premium calculation. The results in this table indicate that magnitude of the coefficient of earnings surprise is about 2.2 times higher for long-term options, as compared to medium-term options.

5.3. Earnings vs. Past Returns

In our main analysis, we use the earnings surprises as a measure of the corporate performance. Alternatively, in line with the literature (e.g., Weisbach 1988), we also check whether and how the past stock return behaves as a measure of firm performance in Appendix Table 5.

Earnings surprises have the advantage of measuring short-term profits and being backward looking, compared to stock returns which reflect the future cash flows of the company and hence is forward looking. Relatedly, as discussed earlier in Section 4.2, stock returns also reflect the anticipation of the market for a potential control contest (Weisbach 1988; De Angelo 1998; Edmans, Goldstein, and Jiang 2012). This implies that using past stock returns may underestimate the market's disciplining effect on corporate control. There could also be a manipulation in the earnings streams of firms, which may also lead to underestimation of the relation we are reporting. Analyzing proxy contests for board seats, DeAngelo (1988) finds that dissident stockholders of these firms typically cite poor earnings as necessitating the proposed management change, while they infrequently cite a stock price decline for that purpose.

For purposes of comparison, we re-estimate and confirm our baseline analysis with the

sample including the past return data (Appendix Table 5, Regression 1). Using the 3-month past stock returns and 12-month past stock returns as proxies for company performance, consistent with our baseline results, we find that voting premium around the earnings announcements is negatively related to the past stock returns, though statistically insignificant (Appendix Table 5, Regressions 2 and 3). Including both the past stock returns and earnings changes, we find both the performance proxies to be negatively related to the voting premium, though only the coefficients of earnings changes are statistically significant (Appendix Table 5, Regressions 4 and 5).

The above findings suggest that, at the time of earnings announcements, markets consider both the reported accounting numbers and the past stock returns, when evaluating a firm's performance within our sample period. However, the relatively muted effect of stock returns, compared to the effect of earnings, is consistent with the literature emphasizing the anticipation effects on stock returns. Weisbach (1988, p. 444) makes the point that returns may not be a good predictor of disciplinary CEO turnover because they anticipate the good news about the replacement of a bad CEO with a good one (and hence are not a backward-looking measure of the current CEO's performance). Consequently, stock returns may be inferior to accounting returns in measurement of management/firm performance. Karpoff, Schonlau, and Wehrly (2017) find that, accounting for endogeneity and in addition to takeover indices such as G-index or E-index, market-adjusted past returns do not significantly predict takeover likelihood whereas ROAs do. Ali, Kravet, and Li (2016) find that takeover likelihood is negatively (positively) associated with negative (positive-) industry-adjusted ROA.

Our evidence compliments the findings of Edmans, Goldstein, and Jiang (2012), who conclude that prices impact the takeovers, and that financial markets have real effects by imposing discipline on managers by triggering takeover threats. While Edmans, Goldstein, and Jiang (2002)'s analysis emphasizes more the effect of the mispricing of firms, ours highlights more the effect of the mismanagement of firms. Our findings suggest that voting premium is a sensitive measure which can be utilized as a diagnostic tool to proxy for the overall governance of the firm based on market-based figures.

6. Conclusion

Corporate control is a first-order issue in capital markets, yet its relationship with financial reporting remains inadequately understood, largely due to the absence of a broadly applicable measure for voting rights valuation. Our study makes an important contribution by introducing a novel perspective on this relationship, specifically examining how accounting information affects the value of voting rights around earnings announcements. Through an innovative methodology utilizing option prices, we develop estimates of voting rights values for a comprehensive sample of widely held public firms. Our analysis reveals a significant finding: the value of voting rights increases when firms announce unexpectedly negative earnings. To our knowledge, this study is the first to demonstrate, using a broad sample of widely held public firms, that accounting disclosures directly influence the value of voting rights, with effects that vary systematically across firms and over time.

While our study focuses specifically on earnings announcements, the implications of our approach extend beyond this context. Our technique of decomposing stock value into its cash flow and voting components has potential applications across a broad spectrum of corporate governance, control, and accounting disclosure issues. Importantly, the negative relationship we document between voting rights and earnings surprises is likely to extend to other types of unexpected firm performance news. Our paper thus represents an initial step in understanding these dynamics, laying the groundwork for future research to explore how voting premiums and stock prices respond to various forms of information.

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Appendix A. Variable Definitions

Variable name	Definition
Voting Premium (%)	*Voting Premium* (*VP*) is calculated as the difference of actual stock price (*S*) and the implied stock price (*S'*) of the synthetic long position constructed using American options as follows: long a call option, short a put option with the same strike *X* and time to maturity *T*, invest the proceeds in a bond with face value *X* for time *T*, and adjust for early exercise premiums of American options and for dividends before the options mature. We define *Voting Premium* as the ratio of this difference to actual stock price, i.e., *VP = (S–S')/S*, and present it in percentage figures (Kalay, Karakaş, and Pant 2014). We define two additional variables by restricting the option universe to two groups, based on the maturity of the options: *Voting Premium: Med. Term* refers to the voting premium calculated over a medium-term maturity using only the options that expire between 45 days and 180 days. *Voting Premium: Long Term* refers to the voting premium calculated over a long-term maturity using only the options with expiration days greater than 180 days. Data for the voting premium are obtained from OptionMetrics.
ΔVoting Premium (%)	Our main variable of interest, *ΔVoting Premium* (*ΔVP*), is based on changes in *Voting Premium*. We define this measure as the average voting premium around the quarterly earnings announcement (*t–2*, *t+2*) minus the average voting premium before the earnings announcement (*t–45*, *t–15*), where *t* is the earnings announcement date and the windows are defined in trading days.
Earnings Surprise	*Earnings Surprise* (*ES*) is measured by the difference between reported earnings per share and the expected earnings, scaled by stock price 30 trading days prior to the earnings announcement day. If stock price 30 trading days does not exist, we use 29, 31, 28 or 32 trading days ago prices. We drop observations if absolute earnings surprise is greater than 10. We use earnings per share reported four quarters ago as our expected earnings. In few instances, if earnings per share four quarters ago does not exist, we use three, two, or five quarters ago earnings as our benchmark. Data for earnings are obtained from Compustat.
Size (Ln)	*Size* is the number of shares outstanding (*CSHO*) multiplied by the market value of equity, calculated as the price end of the calendar year prior to the fiscal year (*PRCC_C*), and is utilized in natural logarithm. Relevant data are obtained from Compustat.
Book-to-Market (Ln)	*Book-to-Market* is the book-to-market ratio where the book value of equity is calculated as the sum of stockholders' equity (*SEQ*), deferred tax (*TXDB*), and investment tax credit (*ITCB*) minus preferred stock (*PREF*), and is utilized in natural logarithm. Relevant data are obtained from Compustat.

Absolute Announcement Return	*Absolute Announcement Return* (*AAR*) is the cumulative return (–2, +2) trading days around the quarterly earnings announcement (i.e., around *the earnings announcement period*), and is utilized in absolute values. Relevant data are obtained from CRSP.
Amihud Illiquidity	*Amihud Illiquidity* is the average of the stock's (*Return/Volume*) over the earnings announcement period. Relevant data are obtained from CRSP.
Bid-Ask Spread	The *Bid-Ask Spread* is the average of the stock price's *(Bid – Ask)/[(Bid + Ask)/2]* over the earnings announcement period. Relevant data are obtained from CRSP.
Short Interest	*Short Interest* is the percentage of stocks shorted as of the end of the most recent quarter prior to the earnings announcement. Relevant data are obtained from Compustat.
Lending Fee	Indicative fee, percentage rate quoted to potential borrowers that signals the approximate cost of borrowing a security.
Special Stock	A stock is a special stock if its three-day average indicative fee is above 100 basis points. Daily indicative fee information is obtained from Markit database.
Volume	*Volume* is the average of the stock's trading volume scaled by market value of equity over the earnings announcement period. Relevant data are obtained from CRSP.
Close Shareholder Meeting Dummy (X)	The *Close Shareholder Meeting Dummy* takes a value of one if the next shareholder meeting is within *X* days of the earnings announcement, and zero otherwise. Shareholder meeting data containing 24,903 meetings over 1996-2022 are obtained from ISS. We match a quarterly earnings announcement to a shareholder meeting by limiting the calendar days between these two events to 91 days or less.
Institutional Ownership	*Institutional Ownership* data are obtained from the Thomson Reuters Institutional Holdings (13F) Database, which reports the total holdings of each institution.
Insider Ownership	*Insider Ownership* is the percentage of all shares (both direct and beneficial) controlled by all the insiders reported in the Incentive Labs over 2000-2013.
Shareholder Activism	We first count all the 13-D filings, obtained from SEC's EDGAR filing system, for a given calendar year for each two-digit SIC code and then divide this count by the number of firms to create an industry-level shareholder activism measure.
Forecast Dispersion	*Forecast Dispersion* is the range of IBES's quarterly earnings forecast scaled by price. We use forecasts only if the number of analysts issuing forecasts for the stock is more than four.

Table 1. Descriptive Statistics

This table presents the summary statistics for our sample. Panel A reports the summary statistics for the main sample, which consists of U.S. public firms in the period 1996–2022. The unit of observation is firm-quarter. All variables are as defined in Appendix A. Panel B reports the correlation matrix. Pearson (Spearman) correlations are reported below (above) the main diagonal.

Panel A. Main Sample (119,760 observations; 6,854 firms)

	Mean	St. Dev.	1st Quartile	Median	3rd Quartile
Voting Premium (%)	0.096	0.899	–0.062	0.045	0.190
ΔVoting Premium (%)	0.038	0.808	–0.100	0.016	0.149
ΔVoting Premium (%): Med. Term	0.072	0.715	–0.084	0.027	0.169
ΔVoting Premium (%): Long Term	0.193	1.383	–0.131	0.061	0.311
Earnings Surprise	–0.005	0.153	–0.009	0.002	0.011
Size (Ln)	8.045	1.709	6.793	7.897	9.212
Book-to-Market (Ln)	–0.966	0.858	–1.435	–0.888	–0.400
Absolute Announcement Return	0.071	0.074	0.022	0.049	0.095

Panel B. Correlation Matrix

	ΔVP	ΔVP: Med.	ΔVP: Long	ES	Size	B/M	AAR
ΔVoting Premium (%)		0.560	0.357	–0.006	0.005	0.019	–0.013
ΔVoting Premium (%): Med. Term	0.758		0.377	–0.007	–0.059	0.018	0.014
ΔVoting Premium (%): Long Term	0.643	0.563		–0.005	–0.095	0.016	0.022
Earnings Surprise	–0.029	–0.021	–0.039		0.002	–0.047	–0.024
Size (Ln)	–0.012	–0.049	–0.073	0.023		–0.152	–0.318
Book-to-Market (Ln)	0.009	0.007	0.004	–0.065	–0.171		–0.022
Absolute Announcement Return	0.002	0.024	0.026	–0.048	–0.269	–0.013	

Table 2. Baseline Results

This table presents coefficient estimates of fixed-effects regressions of the change in the voting premium (*ΔVP*) on earnings surprise (*ES*), log firm size (*Size*), log book-to market ratio (*B/M*), and absolute announcement returns (*AAR*): $\Delta VP_{it} = b_1 + b_2 \, x \, ES_{it} + b_3 \, x \, Size_{it} + b_4 \, x \, B/M_{it} + b_5 \, x \, AAR_{it} + fixed \; effects$. The unit of observation is the firm–quarterly earnings announcement. We calculate earnings surprises based on seasonal random walk expected earnings. All variables are defined in Appendix A. We include firm and time (year) fixed effects where indicated. We treat Regression 3 as our baseline regression throughout the paper. In the fourth column, to calculate the voting premium over a medium-term maturity, we use only options that expire between 45 days and 180 days. In the fifth column, to calculate the voting premium over a long-term maturity, we use only options with expiration dates greater than 180 days to calculate the voting premium. Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Dependent Variable:	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**
Subsample:				**Med. Term**	**Long Term**
Earnings Surprise	–0.144***	–0.140***	–0.137***	–0.100***	–0.221***
	(0.043)	(0.043)	(0.043)	(0.032)	(0.073)
Size (Ln)			–0.013**	–0.016***	–0.033**
			(0.006)	(0.005)	(0.017)
Book-to-Market (Ln)			0.007	0.008	0.018
			(0.006)	(0.005)	(0.017)
Absolute Ann. Return			0.013	0.079	0.034
			(0.065)	(0.054)	(0.161)
Observations	119,760	119,760	119,760	93,263	55,480
R-squared	0.13	0.13	0.13	0.19	0.26
Year Fixed Effect	NO	YES	YES	YES	YES
Firm Fixed Effect	YES	YES	YES	YES	YES

Table 3. Robustness of Baseline Results

This table presents coefficient estimates of fixed-effects regressions of the change in the voting premium (*ΔVP*) on earnings surprise (*ES*), log firm size (*Size*), log book-to-market ratio (*B/M*), and absolute announcement returns (*AAR*): $\Delta VP_{it} = b_1 + b_2 \, x \, ES_{it} + b_3 \, x \, Size_{it} + b_4 \, x \, B/M_{it} + b_5 \, x \, AAR_{it} + fixed \; effects$. The first regression reports the baseline specification (Table 2, Regression 3) after excluding dividend-paying stocks from the sample. The second regression repeats the baseline specification after excluding dual-class stocks from the sample. The third regression reports the baseline specification for the subsample of earnings announcements with the announcement returns greater than –10%. All other variables are defined in Appendix A. The unit of observation is the firm–quarterly earnings announcement. We include firm and time (year) fixed effects where indicated. Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
Dependent Variable:	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**
Subsample:	**Excluding dividend firms**	**Excluding dual-class firms**	**Excluding EA returns < –10%**
Earnings Surprise	–0.126**	–0.139***	–0.157***
	(0.058)	(0.044)	(0.049)
Size (Ln)	–0.010	–0.013**	–0.011*
	(0.009)	(0.006)	(0.006)
Book-to-Market (Ln)	0.008	0.007	0.008
	(0.012)	(0.006)	(0.005)
Absolute Ann. Return	–0.020	0.011	0.416***
	(0.083)	(0.062)	(0.076)
Observations	55,390	118,052	107,000
R-squared	0.14	0.13	0.14
Year Fixed Effect	YES	YES	YES
Firm Fixed Effect	YES	YES	YES

Table 4. Earnings Announcements on Voting Premium Across Different Event Windows

This table presents coefficient estimates of fixed-effects regressions of the change in the voting premium (*ΔVP*) on earnings surprise (*ES*), log firm size (*Size*), log book-to-market ratio (*B/M*), and absolute announcement returns (*AAR*): $\Delta VP_{it} = b_1 + b_2 \, x \, ES_{it} + b_3 \, x \, Size_{it} + b_4 \, x \, B/M_{it} + b_5 \, x \, AAR_{it} + fixed \; effects$. Panel A examines the relationship across individual days from day –2 to day +2 relative to the earnings announcement date (day 0). Each column represents the regression results for the specified day. Panel B presents alternative specifications of the event window compared to Table 2. In the first three columns, the event window is defined as (t, t+2), while in the last three columns, it is defined as (t+1, t+2). Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Daily Effects Around Earnings Announcements

Event Window	**Day –2**	**Day –1**	**Day 0**	**Day 1**	**Day 2**
Dependent Variable:	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**
Earnings Surprise	–0.097*	–0.152***	–0.117*	–0.098*	–0.059
	(0.052)	(0.057)	(0.062)	(0.052)	(0.045)
Size (Ln)	–0.010	–0.006	–0.019**	–0.016**	–0.012*
	(0.008)	(0.006)	(0.008)	(0.006)	(0.007)
Book-to-Market (Ln)	0.017**	0.009	0.008	0.006	0.009
	(0.008)	(0.007)	(0.009)	(0.007)	(0.007)
Absolute Ann. Return	0.028	0.090	–0.240	–0.211**	–0.199
	(0.304)	(0.269)	(0.164)	(0.103)	(0.214)
Observations	70,474	74,365	85,171	85,897	79,227
R-squared	0.14	0.14	0.12	0.12	0.13
Year Fixed Effect	YES	YES	YES	YES	YES
Firm Fixed Effect	YES	YES	YES	YES	YES

Panel B. Alternative Event Window Specifications

Event Window	t to t+2	t to t+2	t to t+2	t+1 to t+2	t+1 to t+2	t+1 to t+2
Dependent Variable:	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**
Subsample:		**Med. Term**	**Long Term**		**Med. Term**	**Long Term**
Earnings Surprise	–0.117***	–0.087**	–0.234***	–0.082**	–0.068**	–0.200**
	(0.042)	(0.035)	(0.075)	(0.039)	(0.033)	(0.080)
Size (Ln)	–0.016***	–0.015***	–0.037**	–0.016**	–0.015***	–0.033*
	(0.006)	(0.006)	(0.018)	(0.006)	(0.006)	(0.019)
Book-to-Market (Ln)	0.004	0.016***	0.029	0.004	0.020***	0.024
	(0.007)	(0.006)	(0.018)	(0.006)	(0.006)	(0.018)
Absolute Ann. Return	–0.120*	–0.031	–0.343	–0.210***	–0.097	–0.502**
	(0.070)	(0.070)	(0.210)	(0.076)	(0.079)	(0.244)
Observations	111,753	85,254	48,812	99,804	74,554	41,895
R-squared	0.12	0.19	0.26	0.13	0.17	0.27
Year Fixed Effect	YES	YES	YES	YES	YES	YES
Firm Fixed Effect	YES	YES	YES	YES	YES	YES

Table 5. Liquidity and Shorting Difficulties

This table presents coefficient estimates of fixed-effects regressions of the change in the voting premium (*ΔVP*) on earnings surprise (*ES*) and on various liquidity proxies. In the regressions, we also control for log firm size (*Size*), log book-to-market ratio (*B/M*), and absolute announcement returns (*AAR*): $\Delta VP_{it} = b_1 + b_2 \, x \, ES_{it} + b_3 \, x \, Size_{it} + b_4 \, x \, B/M_{it} + b_5 \, x \, AAR_{it} + Liquidity \, Proxies + fixed \, effects$. Liquidity proxies include announcement window averages of the stock's *Amihud illiquidity*, *Bid-Ask Spread, Trading Volume*, *Short Interest*, and *Institutional Ownership*. We also include squares of the liquidity proxies. The first column presents our result in the main sample. In columns 2 to 4, we estimate the same specification after excluding the special stocks from the sample. We identify these special stocks using short interest data reported in the Markit database. A stock is a special stock if its three-day average indicative fee is above 100 basis points. In the first two columns, the voting premium is calculated using all options. In the third column, to calculate the voting premium over a medium-term maturity, we exclude options with expiration dates greater than 180 and less than 45 days to calculate the voting premium. In the fourth column, to calculate the voting premium over a long-term maturity, we use options that have expiration dates greater than or equal to 180 days. In the last column, we replace *Bid-Ask Spread*, *Amihud*, *Volume/ME*, *Short Interest*, and *their squares* with *ΔBid-Ask Spread*, *ΔAmihud*, *ΔVolume/ME*, *ΔShort Interest*, and *their squares*. In calculating these changes, we use level of the same variable 15 days before the announcement date. In the last column, we cannot use the change in institutional ownership because we do not have daily levels of institutional ownership information. The unit of observation is the firm–quarterly earnings announcement. We drop observations that do not have short interest data. All other variables are defined in Appendix A. We include firm and time (year) fixed effects where indicated. Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Liquidity and Shorting Difficulties (cont'd)

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	ΔVP (%)	ΔVP (%)	ΔVP (%)	ΔVP (%)	ΔVP (%)
Subsample/Method:		Excluding special stocks	Excluding special stocks	Excluding special stocks	Using Δliquidity proxies
			Med. Term	Long Term	
Earnings Surprise	–0.138***	–0.132***	–0.089**	–0.145**	–0.136***
	(0.043)	(0.048)	(0.037)	(0.073)	(0.043)
Size (Ln)	–0.017***	–0.011*	–0.018***	–0.017	–0.014**
	(0.006)	(0.006)	(0.006)	(0.016)	(0.006)
Book-to-Market (Ln)	0.007	0.002	0.004	0.022	0.008
	(0.006)	(0.007)	(0.005)	(0.014)	(0.007)
Absolute Return (Abs)	0.065	0.106**	0.082	–0.120	0.079
	(0.067)	(0.050)	(0.053)	(0.114)	(0.063)
Institutional Ownership	–0.013	–0.002	–0.001	0.001	–0.015
	(0.010)	(0.008)	(0.010)	(0.024)	(0.010)
Bid-Ask Spread	–0.788	–0.320	–1.291***	2.405**	–0.697***
	(0.586)	(0.473)	(0.416)	(1.006)	(0.194)
Amihud	0.002	0.001	0.007	0.023	0.004
	(0.006)	(0.004)	(0.010)	(0.023)	(0.003)
Volume/ME	–0.272	–0.362	–0.463*	–1.418**	–0.127
	(0.297)	(0.296)	(0.237)	(0.576)	(0.165)
Short Interest	0.086	0.046	0.108	0.309	0.069
	(0.072)	(0.064)	(0.078)	(0.213)	(0.088)
(Bid-Ask Spread)^2	2.791	–3.847	5.417*	–8.621	0.409
	(3.903)	(3.208)	(2.795)	(5.925)	(2.691)
(Amihud)^2	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
(Volume/ME)^2	0.122	0.155*	0.206**	0.435***	0.020
	(0.078)	(0.087)	(0.098)	(0.166)	(0.028)
(Short Interest)^2	–0.084	–0.067	–0.107	–0.188	–0.308
	(0.100)	(0.088)	(0.102)	(0.249)	(0.280)
Observations	119,742	114,415	89,013	52,602	119,670
R-squared	0.13	0.11	0.16	0.20	0.13
Year Fixed Effect	YES	YES	YES	YES	YES
Firm Fixed Effect	YES	YES	YES	YES	YES

Table 6. Extensions of Baseline Results

This table presents coefficient estimates of fixed-effects regressions of the change in the voting premium (*ΔVP*) on earnings surprise (*ES*) and on various liquidity proxies. In the regressions, we also control for log firm size (*Size*), log book-to-market ratio (*B/M*), and absolute announcement returns (*AAR*): $\Delta VP_{it} = b_1 + b_2 \, x \, ES_{it} + b_3 \, x \, Size_{it} + b_4 \, x \, B/M_{it} + b_5 \, x \, AAR_{it} + Liquidity \; Proxies + fixed \; effects$. The first regression uses an alternative voting premium measure calculated from dual-class stocks as described in Section 4.4. The second column uses the level of lending fee at the earnings announcement day as the dependent variable. In the third column, we regress our voting premium metric on the Δ Lending Fee. In the fourth column, we include fixed effects for decile of Δ Lending Fee. The fifth regression replaces the standard earnings surprise measure with a Relative Performance (*RP*) metric, calculated as the difference between a firm's earnings surprise and its industry's median earnings surprise for that quarter. The sixth regression replicates the baseline specification with earnings surprise truncated at the 2.5th and 97.5th percentiles. The seventh regression implements a piecewise regression incorporating dummy variables *Top* and *Bottom*, which equal one if the earnings surprise falls within the top or bottom 2.5% of the distribution, respectively, and zero otherwise. The unit of observation is the firm–quarterly earnings announcement. We include firm and time (year) fixed effects where indicated. Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 6. Extensions of Baseline Results (cont'd)

Dependent Variable:	(1) ΔVP (%)	(2) Lending Fee	(3) ΔVP (%)	(4) ΔVP (%)	(5) ΔVP (%)	(6) ΔVP (%)	(7) ΔVP (%)
Subsample/Method:	**Dual-class VP**	**Lending fee approach**			**Relative performance**	**Truncated**	**Piecewise regression**
Earnings Surprise	0.002	–0.008***	–0.137***	–0.135***		–0.201**	–0.216**
	(0.052)	(0.002)	(0.045)	(0.045)		(0.091)	(0.092)
Relative Performance					–0.167***		
					(0.050)		
Size (Ln)	–0.004	–0.003***	–0.007	–0.007	–0.013**	–0.009	–0.013**
	(0.015)	(0.001)	(0.008)	(0.007)	(0.006)	(0.006)	(0.005)
Book-to-Market (Ln)	0.012	–0.001	0.014	0.014	0.008	0.009*	0.009
	(0.020)	(0.001)	(0.009)	(0.009)	(0.007)	(0.005)	(0.007)
Absolute Ann. Return	0.130	0.008***	0.096	0.093	0.015	–0.017	0.017
	(0.344)	(0.003)	(0.086)	(0.086)	(0.064)	(0.057)	(0.063)
Δ Lending Fee			0.038***				
			(0.008)				
Top x Earnings Surprise							–1.333
							(1.029)
Bottom x Earnings Surprise							–0.246
							(0.245)
Top							0.146
							(0.107)
Bottom							–0.017
							(0.048)
Observations	1,708	78,268	78,268	78,268	119,760	113,694	119,760
R-squared	0.14	0.49	0.15	0.15	0.13	0.13	0.13
Δ Lending Fee Decile FE				YES			
Year Fixed Effect	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effect	YES	YES	YES	YES	YES	YES	YES

Table 7. Shareholder Meetings

This table presents coefficient estimates of fixed-effects regressions of the change in the voting premium (*ΔVP*) on earnings surprise (*ES*), an indicator variable for close distance to shareholder meeting (*I_CD*), the interaction of earnings surprise and close shareholder meeting dummy (*ES x I_CD*), and the control variables, including log firm size (*Size*), log book to market ratio (*B/M*), and absolute announcement return (*AAR*): $\Delta VP_{it} = b_1 + b_2 \text{ x } ES_{it} + b_3 \text{ x } I_CD_{it} + b_4 \text{ x } ES_{it} \text{ x } I_CD_{it} + b_5 \text{ x } Control\ Variables_{it} + fixed\ effects$. The unit of observation is the firm-quarterly earnings announcement. *I (Close Distance)* takes a value of one if the next shareholder meeting is within *X* days of the earnings announcement, and zero otherwise. The values of *X* are given in the heading of each column. All other variables are defined in Appendix A. The sample includes all observations for firms with an upcoming shareholder meeting in the next 91 days. In the last column, to calculate the voting premium over a long-term maturity, we use only options with expiration dates more than 180 days to calculate the voting premium. We include firm and time (year) fixed effects where indicated. Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent Variable:	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%): Long Term**
Close Distance:	**30 days to meeting**	**25 days to meeting**	**20 days to meeting**	**15 days to meeting**	**10 days to meeting**	**5 days to meeting**	**5 days to meeting**
ES x I (Close Distance)	–0.044	–0.053	–0.116	–0.126*	–0.156***	–0.157***	–0.386***
	(0.094)	(0.094)	(0.076)	(0.074)	(0.058)	(0.055)	(0.101)
Earnings Surprise	0.016	0.018	0.031	0.028	0.033	0.030	0.167*
	(0.051)	(0.051)	(0.050)	(0.047)	(0.049)	(0.047)	(0.094)
I (Close Distance)	0.008	0.009	0.015*	0.016*	0.014	0.021*	0.029
	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)	(0.013)	(0.025)
Size (Ln)	–0.007	–0.007	–0.007	–0.007	–0.007	–0.007	–0.065***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.023)
Book-to-Market (Ln)	0.023***	0.023***	0.023***	0.023***	0.023***	0.023***	0.062***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.019)
Absolute Ann. Return	0.133	0.133	0.134	0.134	0.134	0.135	0.188
	(0.102)	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)	(0.293)
Observations	23,646	23,646	23,646	23,646	23,646	23,646	11,701
R-squared	0.20	0.20	0.20	0.20	0.20	0.20	0.31
Year Fixed Effect	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effect	YES	YES	YES	YES	YES	YES	YES

Table 8. Interaction Analyses

This table presents coefficient estimates of fixed-effects regressions of the change in the voting premium (*ΔVP*) on earnings surprise (*ES*) and on the interaction of the earnings surprise with the following variables: (i) an indicator variable set equal to one if forecast dispersion is greater than the median dispersion in the fiscal quarter, and zero otherwise; (ii) an indicator variable that takes a value of one if the firm's earnings surprise is less than the median earnings surprise of its industry; (iii) an indicator variable set equal to one if the number of shareholder activism events in the industry (two-digit SIC) in a given year is greater than the 75th percentile of the sample, and zero otherwise; and (iv) an indicator variable set equal to one if insider ownership is greater than 75% percentile of the sample, and zero otherwise. In the regressions, we also control for log firm size (*Size*), log book-to-market ratio (*B/M*), and absolute announcement return (*AAR*). We estimate the following regression: $\Delta VP_{it} = b_1 + b_2 \times ES_{it} + b_3 \times ES_{it} \times Interacting\ Variable_{it} + b_4 \times Control\ Variables_{it} + fixed\ effects$. The unit of observation is the firm–quarterly earnings announcement. All other variables are defined in Appendix A. We include firm and time (year) fixed effects where indicated. Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable:	(1) ΔVP (%)	(2) ΔVP (%)	(3) ΔVP (%)	(4) ΔVP (%)
Interacting Variable:	**Forecast dispersion**	**Relative performance**	**Shareholder activism**	**Insider ownership**
Earnings Surprise x Interacting Variable	–0.149	–0.188**	–0.444*	0.168**
	(0.116)	(0.090)	(0.255)	(0.081)
Earnings Surprise	–0.128**	–0.030	–0.105***	–0.144**
	(0.055)	(0.064)	(0.040)	(0.066)
Interacting Variable	0.005	0.002	–0.005	–0.007
	(0.005)	(0.004)	(0.012)	(0.007)
Observations	90,948	119,760	119,760	72,930
R-squared	0.13	0.13	0.13	0.08
Control Variables	YES	YES	YES	YES
Year Fixed Effect	YES	YES	YES	YES
Firm Fixed Effect	YES	YES	YES	YES

Appendix Table 1. Alternative Windows and Methods

This table presents coefficient estimates of fixed-effects regressions of the change in the voting premium (*ΔVP*) on earnings surprise (*ES*), log firm size (*Size*), log book-to-market ratio (*B/M*), and absolute announcement returns (*AAR*): $\Delta VP_{it} = b_1 + b_2 \times ES_{it} + b_3 \times Size_{it} + b_4 \times B/M_{it} + b_5 \times AAR_{it} + fixed\ effects$. The unit of observation is the firm–quarterly earnings announcement. We use the samples used in Table 2 and Regressions 3, 4, and 5 to facilitate comparisons across analysis using the alternative benchmark windows in Regressions 1, 2, and 3 of this table, respectively. In all first three columns, we define the benchmark window as *(t–15, t–5)*, as opposed to *(t–45, t–15)* in Table 2. In the last column, we use the level of (rather than the change in) the voting premium. All other variables are defined in Appendix A. We include firm and time (year) fixed effects where indicated. Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable:	**(1)** **ΔVP (%)**	**(2)** **ΔVP (%)**	**(3)** **ΔVP (%)**	**(4)** **VP (%)**
Subsample/Method:	**Alt. Bench. Window**	**Alt. Bench. Window, Med. Term**	**Alt. Bench. Window, Long Term**	**Level of VP**
Earnings Surprise	–0.193***	–0.192***	–0.415***	–0.259***
	(0.051)	(0.043)	(0.106)	(0.056)
Size (Ln)	–0.001	–0.020***	–0.047**	–0.018***
	(0.008)	(0.007)	(0.021)	(0.006)
Book-to-Market (Ln)	0.021**	0.002	0.022	0.006
	(0.008)	(0.007)	(0.022)	(0.009)
Absolute Ann. Return	0.015	0.175***	0.293*	0.128**
	(0.060)	(0.063)	(0.174)	(0.058)
Observations	119,760	93,263	55,480	119,760
R-squared	0.14	0.26	0.32	0.19
Year Fixed Effect	YES	YES	YES	YES
Firm Fixed Effect	YES	YES	YES	YES

Appendix Table 2. Lending Fee and Voting Premium

This table presents coefficient estimates of fixed-effects regressions of the change in the voting premium (*ΔVP*) on earnings surprise (*ES*) and on various liquidity proxies. In the regressions, we also control for log firm size (*Size*), log book-to-market ratio (*B/M*), and absolute announcement returns (*AAR*): $\Delta VP_{it} = b_1 + b_2 \times ES_{it} + b_3 \times Size_{it} + b_4 \times B/M_{it} + b_5 \times AAR_{it} + Liquidity\ Proxies + fixed\ effects$. Unlike Table 6 where we use (t–2, t+2) as our event window, we use (t, t+2) as the event window to calculate the voting premium in this analysis. In the first column, we use the level of lending fee as the dependent variable. In the second column, we regress our voting premium metric on the Δ Lending Fee. In the third column, we include fixed effects for decile of Δ Lending Fee. The unit of observation is the firm–quarterly earnings announcement. We include firm and time (year) fixed effects where indicated. Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable:	(1) **Lending Fee**	(2) **ΔVP (%)**	(3) **ΔVP (%)**
Earnings Surprise	–0.008***	–0.100**	–0.098**
	(0.002)	(0.040)	(0.040)
Size (Ln)	–0.003***	–0.007	–0.007
	(0.001)	(0.008)	(0.007)
Book-to-Market (Ln)	–0.001	0.011	0.011
	(0.001)	(0.009)	(0.010)
Absolute Ann. Return	0.008***	0.060	0.056
	(0.003)	(0.097)	(0.097)
Δ Lending Fee		0.038***	
		(0.009)	
Observations	73,432	73,432	73,432
R-squared	0.48	0.13	0.12
Δ Lending Fee Decile FE			YES
Year Fixed Effect	YES	YES	YES
Firm Fixed Effect	YES	YES	YES

Appendix Table 3. Stock and Option Liquidities

This table reports estimates obtained from fixed-effects regressions of *change in voting premium* (*ΔVP*) on earnings surprise (*ES*), log firm size (*Size*), log book-to-market ratio (*B/M*), and absolute announcement returns (*AAR*): $\Delta VP_{it} = b_1 + b_2 \, x \, ES_{it} + b_3 \, x \, Size_{it} + b_4 \, x \, B/M_{it} + b_5 \, x \, AAR_{it} + fixed \; effects$. The unit of observation is the firm–quarterly earnings announcement. We calculate earnings surprises based on seasonal random walk expected earnings. We split the sample into four subsamples based on the trading activity of the stock and the option using the full sample universe before matching with our primary analytical sample. Specifically, for each stock-year, we first calculate annual stock turnover by dividing trading volume by the market value of equity. We then split stocks into high and low stock turnover groups based on the cross-sectional median turnover in each year. We repeat the same procedure for total option trading volume (sum of put and call options) and split the stocks into high and low option turnover groups based on the cross-sectional median turnover in each year. All other variables are defined in Appendix A. We include firm and time (year) fixed effects where indicated. Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
Dependent Variable:	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**
Stock Liquidity:	**High**	**High**	**Low**	**Low**
Option Liquidity:	**High**	**Low**	**High**	**Low**
Earnings Surprise	–0.105***	–0.268	–0.287***	–0.160
	(0.039)	(0.234)	(0.105)	(0.161)
Size (Ln)	–0.005	–0.028	–0.035**	–0.005
	(0.006)	(0.026)	(0.018)	(0.025)
Book-to-Market (Ln)	0.012	0.017	–0.010	–0.009
	(0.007)	(0.020)	(0.021)	(0.023)
Absolute Ann. Return	–0.064	–0.238	0.104	0.179
	(0.089)	(0.151)	(0.125)	(0.143)
Observations	62,551	16,992	14,623	24,014
R-squared	0.12	0.17	0.25	0.22
Year Fixed Effect	YES	YES	YES	YES
Firm Fixed Effect	YES	YES	YES	YES

Appendix Table 4. Maturity of Options (Constant Sample)

This table reports estimates obtained from fixed-effects regressions of *change in voting premium* (*ΔVP*) on earnings surprise (*ES*), log firm size (*Size*), log book-to-market ratio (*B/M*), and absolute announcement returns (*AAR*): $\Delta VP_{it} = b_1 + b_2 \, x \, ES_{it} + b_3 \, x \, Size_{it} + b_4 \, x \, B/M_{it} + b_5 \, x \, AAR_{it} + fixed \; effects$. The unit of observation is the firm–quarterly earnings announcement. We calculate earnings surprises based on seasonal random walk expected earnings. In the first column, to calculate the voting premium over a medium-term maturity, we exclude options with expiration dates greater than 180 and less than 45 days to calculate the voting premium. In the second column, to calculate the voting premium over a long-term maturity, we use options that have expiration dates greater than or equal to 180 days. We constrain the sample to earnings announcements for which we can calculate voting premium using both medium- and long-term options. All other variables are defined in Appendix A. We include firm and time (year) fixed effects where indicated. Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
Dependent Variable:	**ΔVP (%)**	**ΔVP (%)**
Subsample:	**Med. Term**	**Long Term**
Earnings Surprise	–0.084**	–0.186***
	(0.034)	(0.066)
Size (Ln)	–0.010*	–0.033**
	(0.006)	(0.016)
Book-to-Market (Ln)	0.021***	0.034**
	(0.006)	(0.015)
Absolute Return (Abs)	0.120*	0.034
	(0.068)	(0.167)
Observations	50,620	50,620
R-squared	0.22	0.29
Year Fixed Effect	YES	YES
Firm Fixed Effect	YES	YES

Appendix Table 5. Earnings Surprises vs. Past Stock Returns

This table reports estimates obtained from fixed-effects regressions of *change in voting premium* (*ΔVP*) on earnings surprise (*ES*), past stock return (*PR*), log firm size (*Size*), log book-to-market ratio (*B/M*), and absolute announcement returns (*AAR*): $\Delta VP_{it} = b_1 + b_2 \, x \, ES_{it} + b_3 \, x \, PR_{it} + b_4 \, x \, Size_{it} + b_5 \, x \, B/M_{it} + b_6 \, x \, AAR_{it} + fixed \; effects$. The unit of observation is the firm–quarterly earnings announcement. We calculate earnings surprises based on seasonal random walk expected earnings. *Past Return 3mth* refers to excess stock return in excess of CRSP value weighted market index during the fiscal quarter (year) prior to the earnings announcement. *Past Return 12mth* refers to excess stock return during the four fiscal quarters prior to the earnings announcement. All other variables are defined in Appendix A. We include firm and time (year) fixed effects where indicated. Robust standard errors clustered by firm are reported in parentheses below coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**	**ΔVP (%)**
Earnings Surprise	–0.137***			–0.136***	–0.136***
	(0.043)			(0.043)	(0.043)
Past Return 3mth		–0.014		–0.011	
		(0.014)		(0.014)	
Past Return 12mth			–0.004		–0.001
			(0.004)		(0.003)
Size (Ln)	–0.013**	–0.013**	–0.013**	–0.014**	–0.013**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)
Book-to-Market (Ln)	0.007	0.011*	0.011	0.007	0.007
	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)
Absolute Ann. Return	0.013	0.019	0.021	0.011	0.013
	(0.065)	(0.061)	(0.061)	(0.064)	(0.063)
Observations	119,760	119,661	119,623	119,661	119,623
R-squared	0.13	0.13	0.13	0.13	0.13
Year Fixed Effect	YES	YES	YES	YES	YES
Firm Fixed Effect	YES	YES	YES	YES	YES

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