The Role of Institutional Investors in Voting: Evidence from the Securities Lending Market

REENA AGGARWAL, PEDRO A. C. SAFFI, and JASON STURGESS*

ABSTRACT

This paper investigates voting preferences of institutional investors using the unique setting of the securities lending market. Investors restrict lendable supply and/or recall loaned shares prior to the proxy record date to exercise voting rights. Recall is higher for investors with greater incentives to monitor, for firms with poor performance or weak governance, and for proposals where returns to governance are likely higher. At the subsequent vote, recall is associated with less support for management and more support for shareholder proposals. Our results indicate that institutions value their vote and use the proxy process to affect corporate governance.

JEL: G32; G34; G38
Keywords: Proxy Voting, Securities Lending, Institutional Investors, Value of the Vote.

---

* Aggarwal is at the McDonough School of Business, Georgetown University; Saffi is at the Judge School of Business, Cambridge University; and Sturgess is at the Driehaus College of Business, DePaul University. We thank Cam Harvey (the editor), an anonymous Associate Editor, and two anonymous referees for excellent comments. We thank Alon Brav, Susan Christoffersen, Isil Erel, Richard Evans, Slava Fos, Stuart Gillan, Mireia Giné, Denis Gromb, Steve Kaplan, Jose Liberti, Lee Pinkowitz, Gregor Matvos, David Musto, Adam Reed, David Ross, Laura Starks, Astrid Schornick, and David Yermack, as well as seminar participants at the Federal Reserve Board, U.S. Securities and Exchange Commission, 10th Cambridge - Princeton Meeting, ICGN 2014 Academic Meeting, 3rd Annual RMA - UNC Academic Forum for Securities Lending Research, American Finance Association 2013, European Finance Association 2011, Western Finance Association 2011, FMA Asia 2011, Drexel Conference on Corporate Governance 2011, DePaul University, Georgetown University, IESE, Università Cattolica del Sacro Cuore, Comisión Nacional del Mercado de Valores, London School of Economics, Temple University, University of Cambridge, Queen Mary, University of Maryland, University of Texas at Austin, Imperial College, INSEAD, University of Sydney, UNSW Australia, Singapore Management University, National University of Singapore, Nanyang Technological University, and HKUST, for helpful comments. Conversations with several industry participants, in particular, Les Nelson of Goldman Sachs and Judith Polzer of J.P. Morgan helped us understand the workings of the securities lending market. Doria Xu and Jiayang Yu provided excellent research assistance. We gratefully acknowledge a grant from the Q Group. Saffi acknowledges support from the Spanish Ministry of Science and Innovation under ECO2008-05155 at the Public-Private Sector Research Center at IESE. Aggarwal acknowledges support from the Robert E. McDonough endowment at Georgetown University's McDonough School of Business.

Understanding institutional investors' preferences regarding governance is important for both firms trying to attract new investors and for policy makers considering the regulation of governance mechanisms. However, the mechanisms used by institutional investors to influence corporate governance tend to be private and difficult to study.

One key mechanism through which institutional investors can exert influence is the proxy voting process. In this paper, we use the unique setting of the securities lending market to study the conditions that prompt institutional investors to influence firm-level governance and the extent to which investors use the proxy voting process to exercise their influene. Most large pension funds, mutual funds, and other institutional investors have a lending program and consider it an important source of revenue, with estimates of $800 million in annual revenue for pension funds alone (Grene (2010)). Equity lending transfers voting rights to the borrower, typically hedge funds, and hence lenders cannot vote shares that are on loan on the voting record date.[1] Institutions must therefore decide whether to recall shares or to make shares available for borrowing for an associated fee and the transfer of voting rights.

Our study uses a comprehensive daily data set that comprises lendable supply, shares on loan, and the associated borrowing fee for the period 2007 to 2009. Lendable supply measures the shares made available for lending by investors with long positions in the stock, and shares on loan measures borrowing demand, which is the quantity actually lent out. We find a marked reduction in the lendable supply prior to the proxy record date and an increase in borrowing demand and the borrowing fee around the record date. Lendable supply returns to normal levels immediately after the record date. These patterns are consistent with institutions restricting and/or recalling their loaned shares to exercise their voting rights and resuming lending immediately after the record date.

Our primary findings are as follows. First, analyzing the lendable supply dynamics of the equity lending market around voting record dates reveals that institutional investors recall shares to retain voting rights.[2] This finding suggests that institutional investors value the right to vote and use the proxy process as an important channel for affecting corporate governance. In addition, we show that borrowing demand and the borrowing fee increase around the record day. Second, we find that not all institutional investors value their voting rights in the same way, with considerable heterogeneity in their preferences. Third, we show that the decision to recall shares on the voting record date varies with firm and proposal characteristics, which typically affect the value of control rights. Fourth, we find that lenders of shares place a higher value on their vote than borrowers. Finally, we show that share recall is associated with less support for management in the subsequent voting outcome.

The heterogeneity in share recalls suggests that institutional investors systematically differ in their desire to exert governance via proxy voting. Shleifer and Vishny (1986) model the blockholder's free-rider problem and show that the willingness of a shareholder to intervene increases with the size of their stake and the value creation stemming from such intervention, but decreases with the cost of monitoring.[3] Thus, in the present context, institutional investors should not be expected to recall shares en-masse on all record dates. Rather, the recall by institutional investors should differ along several dimensions including their ownership stake, investment philosophy, investment time horizon, fiduciary responsibility, and ability or incentives to engage with management and/or invest in the private information necessary to effectively monitor (e.g., Maug (1998), Kahn and Winton (1998), and Edmans (2009)). Empirically, Matvos and Ostrovsky (2010) find systematic heterogeneity in voting behavior even across mutual funds.

While we do not know the identity of the lenders and the borrowers, we study the heterogeneity in investors' voting preferences by observing the differences in recall between firms that have a higher proportion of ownership by certain types of investors. Based on institutional ownership categories used previously in the literature (e.g., Bushee (1998, 2001), Bushee and Goodman (2007), and Chen, Harford, and Li (2007)), we examine aggregate blockholdings (Maug (1998)) as well as the holdings of four types of investors: mutual funds, banks and insurance companies, pensions and endowments, and long-term investors. For aggregate blockholdings and each of the four institutional investor categories, we find that the recall/restriction in lendable supply is significantly higher for firms with higher ownership than for firms with low ownership. When examining borrowing demand, the difference is never statistically significant. These results suggest that not all institutional investors have the same motivation to be active in corporate governance.

We next examine asymmetric changes in lendable supply and borrowing demand based on underlying firm characteristics and types of proposal on the ballot. Firms with poor performance, weaker governance, and smaller size exhibit a higher recall of shares on the record date. Additionally, recall is higher for record dates associated with meetings that have important proposals on the ballot related to nonroutine items, compensation, antitakeover, and corporate control. For example, the recall effect is almost 40% higher for record dates with corporate control-related proposals than those without. These results support the hypothesis that shareholders value their vote and are keener to vote when it is more "important" to do so.

When we examine the subsequent vote outcome, we find that higher recall of lendable supply is associated with less support for management proposals, such as those related to compensation and corporate control, and more support for shareholder proposals. In additional

tests, we focus on the voting behavior of mutual funds, since these institutional investors provide a large fraction of lendable supply. Mutual funds are significantly less likely to vote in favor of contentious proposals where recall in lendable supply is greater and the proxy advisory firm Institutional Shareholder Services (ISS) recommends voting against the proposal. These results on mutual fund voting address concerns that share recall could be negatively associated with support because institutions recall shares to vote with management when support for management is low.

Examining recall in the lending market, as opposed to the borrowing fee, improves our understanding of institutional investor voting preferences. Kolasinski, Reed, and Ringgenberg (2013) show that the supply of lendable shares is essentially flat in the equity lending market, and Prado, Saffi, and Sturgess (2014) document that this market clears with high levels of slack in lendable supply for the average firm. Therefore, the borrowing fee can be insensitive to changes in both demand and supply. Consequently, examining changes in the borrowing fee alone may underestimate the value of the vote, and could even result in concluding that the value of the vote is close to zero. To isolate record date effects due to changes in preferences for supplying shares from changes due to demand-side effects, we use an instrumental variables setup. One of our major contributions is to show that it is important to analyze both the lendable supply and the loan demand side of the market.

The issues we examine are particularly relevant for a period that has seen increased emphasis on both shareholder activism and proxy voting. Voting is an important mechanism through which shareholders can affect firm-level corporate governance and policies.

The paper proceeds as follows. Section I reviews the literature. Section II provides background on the securities lending market. Section III describes the data on proxy voting, securities lending, and other firm-level corporate attributes. In Section IV, we discuss our methodology and

identification strategy. Section V contains the main empirical results. Section VI presents results on voting outcomes and the role of lendable supply. Section VII concludes.

I. Literature Review

Prior research attempts to examine the preferences of institutional investors based on inferences of corporate governance attributes deemed important to institutional investors. Gillan and Starks (2000) study the effectiveness of shareholder activism in the U.S. Other studies find that institutional investors affect CEO turnover (Parrino, Sias, and Starks (2003) and Helwege, Intintoli, and Zhang (2012)), antitakeover amendments (Brickley, Lease, and Smith (1988)), executive compensation (Hartzell and Starks (2003)), and mergers (Gaspar, Massa, and Matos (2005) and Chen, Harford, and Li (2007)). In an analysis of 23 countries, Aggarwal, et al. (2011) find that changes in institutional ownership are positively associated with subsequent changes in firm-level governance, but the opposite is not true. Cuñat, Gine, and Guadalupe (2012) show that passing a governance provision is associated with an increase in shareholder value, and more so when proposals are sponsored by institutions.

Maug (1998) and Kahn and Winton (1998) show that large stakes bias investors towards more shareholder activism. Edmans (2009) argues that the effectiveness of activism depends on the threat to sell shares and exit the firm, which is greater for investors with larger stakes. Empirically, Gillan and Starks (2000) examine the reactions of different types of shareholders to proposals as indicated by their voting behavior. Duan and Jiao (2014) show that mutual funds with smaller ownership blocks and shorter investment horizons are more likely to exit than to vote against management. Bushee, Carter, and Gerakos (2013) show that institutional preferences about governance and voting depend on several factors, including investment philosophy and fiduciary

responsibility. Preferences may also depend on other factors such as investment horizon and economic stakes.

In a survey of institutional investors, McCahery, Sautner, and Starks (2011) find that corporate governance is important to institutional investors, and many institutions are willing to engage in shareholder activism via the proxy process. Recent papers such as Bravet al. (2008), Clifford (2008), and Klein and Zur (2009) study activism by individual funds, such as pension funds or hedge funds. Fos (2011) shows that proxy contests play a role in disciplining managers, while Gantchev (2013) finds that proxy contests are costly and that monitoring costs wipe out activist returns, on average. Iliev and Lowry (2013) conclude that certain types of funds invest considerable resources examining firm-level governance issues, and then voting accordingly.

Some controversy exists regarding how changes in the supply of and demand for lending shares around the record date affect the borrowing fee and what these changes imply in terms of the value of a vote. Christoffersen et al. (2007) use 1998 to 1999 data from a large lending agent to examine borrowing demand and the borrowing fee around a proxy vote. They find a marginally significant increase in borrowing fee around the proxy record date. The authors conclude that the price of a vote is zero because investors are not selling their votes but willingly letting them go, and speculate that this result is due to information asymmetry. Examining the change in fee alone, we find that the fee increases by approximately two basis points on the record date, which is approximately three times as large as the value found by Christoffersen et al. (2007). Using option prices, Kalay, Karakas, and Pant (2014) find the value of voting rights for the average firm to be 0.16% of the stock price, with an average option maturity of 38 days. Moser, Van Ness, and Van Ness (2013) examine securities lending activity around the proxy voting record date for potential abuse and empty voting.

II. Securities Lending Market

Securities lending is a transaction in which the beneficial owner of the securities, normally a large institutional investor such as a pension fund or mutual fund, agrees to lend its securities to a borrower, such as a hedge fund, in exchange for collateral consisting of cash and/or other securities.[4] Although lenders refer to these shares as being "on loan," the lender actually transfers ownership and voting rights. Shares may be borrowed for a variety of reasons, including short selling, convertible bond arbitrage and dividend tax arbitrage, and possibly empty voting.[5] The lender earns a spread by investing the collateral in low-risk short-term securities. In a typical U.S. loan, the collateral is 102% on domestic securities and 105% for international securities. Increased interest in proxy voting and securities lending has resulted in fund boards paying attention not only to the fee received from a securities lending program but also to whether the securities are being loaned to "responsible" borrowers. According to a survey of institutional investors by ISS, 37.9% of the respondents stated that a formal policy on securities lending is part of their proxy voting policy.[6] Some funds require a total recall of shares, while others weigh the lost revenue against the benefits of voting on a case-by-case basis. Two examples from funds' proxy voting guidelines are as follows:

Putnam Funds

"The funds' have requested that their securities lending agent recall each domestic issuer's voting securities that are on loan, in advance of the record date for the issuer's shareholder meetings, so that the funds may vote at the meetings." [7]

TIAA-CREF

"Even after we lend the securities of a portfolio company, we continue to monitor whether income from lending fees is of greater value than the voting rights that have passed to the borrower. Using the factors set forth in our policy, we conduct an analysis of the relative value of lending fees versus voting rights in any given situation. We will recall shares when we believe the exercise of voting rights may be necessary to maximize the long-term value of our investments despite the loss of lending fee revenue." [8]

The SEC requires funds to recall shares for "material" events but has not defined materiality. In a survey by ISS, 92.3% of the respondents indicated that mergers and acquisitions were the most important reason to recall shares.[9] One of the challenges to recalling shares is that shareholders typically do not receive the proxy material until after the record date. However, in order to vote, institutions must recall the shares by the record date.

III. Data

A. Securities Lending Descriptive Statistics

We obtain a proprietary equity lending data set from Data Explorers (now Markit) for the period January 2007 to December 2009. They collect this information daily from 125 large custodians and 32 prime brokers in the securities lending industry. The data cover more than 85% of the securities lending market. While there are 4,333 firms in the equity lending sample, the proxy voting data limit the analysis to the constituents of the Russell 3000 index. As of December 2009, there was $1.55 trillion available to lend, of which $113 billion was lent out and would be considered as being on loan. Saffi and Sigurdsson (2011) provide a detailed description of the data.

The main dependent variables in our study are as follows: lendable supply (*SUPPLY*), the dollar value of supply available on a given day relative to a firm's market capitalization; loan quantity (*ONLOAN*), the dollar value of shares on loan relative to market capitalization; utilization

rate (*UTILIZATION*), *ONLOAN* divided by *SUPPLY*; and borrowing fee (*FEE*), the average transaction-weighted rate reported by Data Explorers and expressed in basis points (bps) per annum. Firms that have a fee greater than 100 bps (1%) are commonly considered *SPECIAL*. Such firms are more closely watched by investors and are more expensive to borrow.

In Table I, we present descriptive statistics for the equity lending market. On average, 23.78% of a firm's market capitalization is available for lending, with 4.06% being on loan and resulting in a utilization rate of 17.78%. The minimum and maximum values of *SUPPLY* (winsorized at the 1% level) are 1.65% and 48.57%, respectively, Borrowing demand, *ONLOAN*, varies from a high of 20.49% to a low of 0.01%, and some firms are heavily borrowed while others are not borrowed at all, with *UTILIZATION* is as high as 69% in our sample.

[Table I around here]

The mean annualized fee is 48.3 bps, implying that it is very cheap, on average, to borrow shares. However, this cost can rise quickly for firms in high demand, reaching a maximum of 1,114 bps in our winsorized sample. About 9% of the firms have a fee greater than 100 bps and are considered "special." The mean and median number of days for which loans are outstanding is 16 and one, respectively. Most loans are "open ended" and rolled over every day without a specific maturity date.

Figure 1 plots lendable supply, loan demand, utilization, and the borrowing fee for the period starting 30 days before the record date and ending 30 days after the record date. We define the record date (day 0) as the event date. For our 7,415 voting record dates, the average time between the record date and the shareholder meeting is 53 days. The supply of shares available to lend as a fraction of market capitalization starts to decrease about 20 days before a vote and is at its lowest point on day 0, the record date. On average, *SUPPLY* is equal to 24.09% on day -30 and

reduces to 22.16% by the record date. This drop in supply is consistent with institutions restricting or recalling their shares at the time of a vote. On the first day after the record date, *SUPPLY* returns to pre-event levels, in line with institutions not wanting to lose revenue from lending.

[Figure 1 around here]

The results suggest that institutions start restricting supply in advance of the proxy record date to ensure that shares can be recalled and that they can exercise the vote. In practice, institutions are generally advised to allow two weeks for a recall prior to a proxy vote, and possibly longer if the firm is "special." Consistent with industry practice, we find that the drop in lendable supply starts to occur about two weeks before the record date.[10] Institutions might also recall shares in advance to provide sufficient notice to borrowers, thus alleviating possible difficulty for borrowers to find shares and improving an institution's reputation as a stable and reliable lender.[11]

Examining the plot for borrowing demand (*ONLOAN*) shows a small increase around the record date. On day -30, on average, 4.10% of a firm's market capitalization is on loan, and by the record date it grows to 4.13%, increasing by only 0.03% of a firm's market capitalization. Finally, *UTILIZATION* and *FEE* both increase in the 20 days prior to the record date. This result adds to Blocher, Reed, and Van Wesep (2013), who argue that shifts in supply matter only for firms on special, by revealing that supply shifts become important even at relatively low levels of utilization.

B. Other Firm-Level Data

We use CRSP to obtain share price (*PRICE*), market capitalization (*SIZE*), turnover (*TURNOVER*), and bid-ask spread (*SPREAD*). We use only common shares with a price over $1, and further merge the data with Compustat and collect data on book equity (*EQUITY*) to calculate the book-to-market equity ratio (*BM*). We exclude closed-end funds, American Depositary

Receipts (ADRs), and real estate investment trusts (REITs). We obtain ownership data from the Thomson Reuters CDA/Spectrum database on SEC 13F filings. The 13F filings must be reported on a quarterly basis by all investment companies and professional money managers with assets over $100 million under management. For each firm, we calculate total institutional ownership as a percentage of market capitalization (*INST*) and institutional ownership concentration (*INST CONC*), measured as the Hirschman-Herfindahl index normalized between zero and one. As in Aggarwal, et al. (2011), we use the firm-level corporate governance index *GOV41*. Which assigns a value of one to each of the 41 governance attributes if the company meets minimally acceptable governance guidelines on that attribute and zero otherwise. We classify institutional ownership into five groups: (1) all blockholders with ownership stakes of 5% or more; (2) bank blockholders, which include banks and insurance companies; (3) mutual fund blockholders, which include investment companies; (4) pension and endowment blockholders; and (5) long-term blockholders, which include those that hold their stake for more than one year. [12, 13]

C. Proxy Voting Descriptive Statistics

Proxy voting analysis examines 56,220 proposals for 7,415 record dates obtained from ISS. The proxy voting data cover the Russell 3000 constituents and include proposal-level characteristics such as proposal description, sponsor, management's recommendation, ISS's recommendation, threshold for the proposal to pass, votes cast, and voting result.

We present proxy voting characteristics in Panel A of Table III. On average, 86.62% of votes are cast on proxy proposals, with 91.86% of those votes being in favor and only 7.54% against. The overwhelming majority of votes in favor of proposals is reflected in the 70.16% margin by which they pass. We next examine different categories of proposals, with the explicit aim of exploring both those that might be considered as contentious, based on disagreement

between different parties, and those that are associated with significant events. To do so, we first examine as routine versus nonroutine proposals, where NYSE Rule 452 considers nonroutine proxy proposals to be those in which broker voting is not allowed. Examples include proposals related to antitakeover provisions, stock capitalization, and mergers. We then examine proposals related specifically to antitakeover provisions (*G-INDEX*) included in the G-Index developed by Gompers, Ishi, and Metrick (2003), compensation proposals (*COMP*), and proposals related to mergers/proxy contests (*CORP CONTROL*).

In Panel B of Table III we summarize the voting outcome of nonroutine proposals, which comprise 12.25% of the full sample. These proposals have almost three times more votes cast against the proposal than we find for the full sample. Almost 60% of nonroutine proposals are related to compensation. Shareholder-sponsored proposals represent a much smaller subset of nonroutine proposals (only 25.56%) with 40% of votes being in favor, although when ISS is in favor of the proposal the average proportion of FOR votes increases to 46.17%. Examples of shareholder-sponsored proposals include say on pay and requests that the firm provide cumulative voting, reduce supermajority voting, require an independent chairman of board, require a majority vote for the election of directors, and declassify the board of directors. We also provide descriptive statistics on nonroutine proposals likely to attract more attention from investors. Proposals related to compensation, antitakeover, and corporate control receive far more votes against than the average across all proposals.

[Table II around here]

IV. Methodology

A. Instrumental Variables Framework

Our empirical strategy estimates quantity variables (i.e., *SUPPLY* or *ONLOAN*) as a function of price (*FEE*), a record date dummy (*RDATE*), and other controls. We employ the instrumental variables estimator developed by Angrist, Graddy, and Imbens (2000) to infer the price sensitivity of *SUPPLY* and *ONLOAN*. Kolasinski, Reed, and Ringgenberg (2013) use a similar approach to estimate how the supply schedule varies with proxies for searching frictions in the equity lending market. If a restriction in supply results in a higher fee, and these higher prices result in lower demand, it is relatively straightforward to show that standard OLS estimates that ignore endogeneity will result in a downward bias in estimates for record-date demand shifts. Similarly, ignoring endogeneity can also lead to a downward bias in lendable supply shifts at the record date due to changes in demand. Therefore, we estimate the following IV regression for lendable supply (*SUPPLY*) in the (-30, +30) window around the record date:

$$1^{st}\ stage: \quad FEE_{i,t} = \alpha_i^{F1} + \alpha_t^{F1} + \gamma^{F1} RDATE_{i,t} + \theta_2^{F1} INSTRU_{S_{i,t}} + \delta^{F1} Controls_{i,t} + \varepsilon_{i,t}^{F1} \quad (1)$$

$$2^{nd}\ stage: SUPPLY_{i,t} = \alpha_i^{S} + \alpha_t^{S} + \gamma^{S} RDATE_{i,t} + \beta_1^{S} FEE_{i,t} + \beta_2^{S} RDATE * FEE_{i,t} + \delta^{S} Controls_{i,t} + \varepsilon_{i,t}^{S}. \quad (2)$$

For borrowing demand (*ONLOAN*), we estimate:

$$1^{st}\ stage: \quad FEE_{i,t} = \alpha_i^{F2} + \alpha_t^{F2} + \gamma^{F2} RDATE_{i,t} + \theta_2^{F2} INSTRU_{D_{i,t}} + \delta^{F2} Controls_{i,t} + \varepsilon_{i,t}^{F2}, \quad (3)$$

$$2^{nd}\ stage: ONLOAN_{i,t} = \alpha_i^{D} + \alpha_t^{D} + \gamma^{D} RDATE_{i,t} + \beta_1^{D} FEE_{i,t} + \beta_2^{D} RDATE * FEE_{i,t} + \delta^{D} Controls_{i,t} + \varepsilon_{i,t}^{D}, \quad (4)$$

where *INSTRU*$_D$ *and INSTRU*$_S$ are the exogenous instruments used to identify *FEE* in the second stage for each of the two quantity variables (i.e., *ONLOAN* and *SUPPLY*), α_i and α_t are firm and year fixed effects, respectively, β_2 is the elasticity on the record-date, and γ is the shift in quantity on the record date.[14] We include firm and year fixed effects to ensure robustness to heteroskedasticity as well as common year-specific shocks.

The estimates above compare record-date shifts in lendable supply and borrowing demand with nonrecord-date levels for the same firm. We capture not only the recall in lendable supply and increase in borrowing demand on the record date (γ^S and γ^D) but also changes in the fee-elasticity of *SUPPLY* and *ONLOAN* on the record date (β_2^S and β_2^D).[15] Employing an IV framework to examine

lendable supply, which measures the quantity of shares made available to borrow, and borrowing demand, which measures the quantity of shares borrowed, on the record-date is similar to the use of the IV framework to examine:[16] wages are equivalent to lending fees *(FEE*), the employment rate is equivalent to loan demand (*ONLOAN*), and the size of the labor force is equivalent to lendable supply (*SUPPLY*). For example, Eissa and Liebman (1996) study how changes in the Earned Income Tax Credit (EITC) affects the labor force participation and hours worked of single mothers. In our context, *RDATE* is equivalent to a dummy controlling for the EITC tax change in 1986, while *SUPPLY* is equivalent to labor market participation. These tax changes are expected to affect not only the level of quantity supplied (i.e., *SUPPLY* in our case) but also the impact of wages on participation rates (i.e., similar to our estimates for the *RDATE*FEE* coefficient).

B. Choice of Instruments

We start by introducing the instruments necessary to implement the empirical strategy described earlier. Identification requires finding instruments that are exogenously related to *FEE* but unrelated to the error term in the *SUPPLY* and *ONLOAN* equations. For example, in equation (4) for *ONLOAN* we need variables that affect *FEE* but not demand, such that the estimated $\widehat{FEE}$ and $\widehat{RDATE} * FEE$ values are uncorrelated with the error term $\varepsilon_{i,t}^{D}$. More specifically, we instrument demand to map out changes in lendable supply (i.e., equations (1) and (2)) and instrument lendable supply to map out changes in borrowing demand to control for the endogeneity between quantity and price (i.e., equations (3) and (4)).

This approach requires valid instruments that satisfy the exclusion restriction, that is, the instrument must not affect the dependent variable directly or through omitted variables. Thus, we need to identify variables that affect *FEE* through changes in *ONLOAN* (*SUPPLY*) but are unrelated to *SUPPLY* (*ONLOAN*).

To identify *SUPPLY*, we initially consider the following variables that capture demand-related shocks to *FEE*: hedging demand, earnings surprise, and discretionary accruals. The first, *HEDGING DEMAND,* is proposed by Hwang, Liu, and Xu (2013), who argue that short selling can help correct the underpricing of firms by facilitating the hedging of industry risk. If other firms in the same industry become undervalued, arbitrageurs should purchase the undervalued firms and short substitute securities. Thus, we expect the demand for shorting stock *i* to be high when the demand for going long shares of peers, *j*, is high. Underpricing is measured as below-average relative cumulative returns in the previous year, where relative returns are defined as the equal-weighted cumulative return over the past 252 days of related firms (excluding the firm's own returns) with the same four-digit GICS industry classification code.

Our second instrument is the standardized unexpected earnings measure, *SUE*, defined as last quarter's earnings surprise relative to analysts' median earnings forecast (Livnat and Mendenhall (2006)). Christophe, Ferri, and Angel (2004) show that short interest in periods without earnings announcements is higher for stocks with low *SUE*, leading us to expect that demand is negatively related to *SUE*. Furthermore, short selling does not increase prior to earnings announcements. Ke and Ramalingegowda (2005) show that high-turnover institutional investors trade to exploit post earnings announcement drift, while "dedicated" and "quasi-indexing" institutions, both of which are long-horizon investors, do not. Hence, we do not expect that variation in *SUE* will affect lendable supply via changes in the portfolio of long-term institutions.

Finally, following Kolasinski, Reed, and Ringgenberg (2013), we consider discretionary accruals, *ACCRUALS*, as computed in Sloan (1996), as a potential instrument. Discretionary accruals constitute a decision by management to shift earnings from one period to another, and are

therefore temporary in nature. Further, prior literature finds that short selling is positively related to discretionary accruals (e.g., Kolasinski et al. (2007)).

To identify *ONLOAN*, we consider two variables to instrument *FEE* that should be unrelated to loan demand: passive ownership (*PASSIVE*) and institutional ownership concentration (*INST CONC)*. Passive ownership is defined as the fraction of the firm held by funds that classify themselves as index funds, as reported to the SEC on the N-SAR form (see Evans, Ferreira, and Prado (2013)). These funds comprise passive investors that track a benchmark index and have long-term horizons that can earn additional income by lending their stock holdings. D'Avolio (2002) notes that how "it is the passive indexers who participate most extensively in their custodian's lending program." Evans, Ferreira, and Prado (2013) report that most index funds in their sample can and do lend their shares, while Prado, Saffi, and Sturgess (2014) show that index fund ownership explains *SUPPLY* over and above total institutional ownership. Given their passive strategies, it is unlikely that passive funds are concerned with short-term fluctuations in stock prices, and consequently the demand for shorting (*ONLOAN*), making it a suitable instrument. Stock holdings of these funds are obtained from Morningstar's holdings data and aggregated for each firm in a given quarter.

The second instrument we employ is ownership concentration (*INST CONC*), measured using the Hirschman-Herfindahl index. Prado, Saffi, and Sturgess (2014) show that institutional ownership concentration is an important determinant of *SUPPLY* even after controlling for total ownership. More concentrated ownership will result in larger shareholders having more power and more interest in impacting lendable supply. If short-sale constraints lead to overpricing as in Miller (1977), shareholders can try to limit supply to support prices of their own shares. Hence, more concentrated owners may prefer not to lend stock. Kolasinski, Reed, and Ringgenberg (2013)

argue that short-sales strategies have short horizons. Thus, if concentrated ownership tends to be associated with a long-term investment horizon, it should not be affected by demand for loans in the short term, making it a candidate instrument for *SUPPLY*.

V. Empirical Results

A. Securities Lending Market and the Borrowing Fee

We first examine the patterns in lendable supply and borrowing demand conditioning on the borrowing fee. The evidence in Table II illustrates potential issues from ignoring endogeneity and focusing on the change in fee alone in estimating the value of the vote. We split the sample of firms into those that are cheap to borrow versus those "on special" (i.e., with borrowing fee greater than 100 bps at t=-30). We also report statistics for companies that are extremely expensive to borrow, with a fee above 1,000 bps at t=-30. Of the 7,415 record dates, only 79 are associated with firms that have a borrowing fee above 1,000 bps. Panel A of Table II reports averages of the equity lending variables at t=-30. The average lendable supply as a percentage of market capitalization is 14.52% for firms on special relative to 25.02% for firms that are not. Borrowing demand is also higher for the on special group. The lower supply and higher demand results in a much higher annualized fee of 429 bps for the on special group, compared with a fee of 9.30 bps for the other group. If investors incorporate the cost of borrowing into the decision to lend or borrow, then we expect different record-date behavior across the high-fee and low-fee groups.

Panel B of Table II reports the change in lendable supply and borrowing demand on the record date compared with the average for the (-30,+30) window excluding the record date. The lendable supply of the on special group changes by less than that of the nonspecial firms in both absolute terms and percentage terms. This implies that lenders recall/restrict more shares when the borrowing fee is low partly because the potential loss of lending revenue is low. Borrowing

demand increases for the nonspecial firms but actually decreases on the record date for the on special group. These descriptive statistics illustrate not only that the borrowing fee plays a role in the decision to lend/borrow, but also that the change in fee around the record date is not a sufficient proxy for the value of the vote. Even for on special firms, the change in fees is small simply because of the slack in supply that is typical in the market for equity lending (*UTILIZATION* is near 50% even for *FEE>1000* bps split). Combined, these descriptive statistics and the slack in supply provide an important explanation for the low value of the vote based on the average fee (e.g., as reported by Christoffersen, et al. (2007)). Additionally, the fact that fee changes around the record date in response to changes in lendable supply and borrowing demand means that one should incorporate the borrowing fee in an analysis of equity lending to capture the endogenous relationship between quantities and prices.

[Table II around here]

B. OLS Estimations and Falsification Tests

Having made an a priori case for our instruments, we also conduct formal empirical falsification tests of their validity. We examine whether our prospective instruments affect *FEE* but are unrelated to *SUPPLY* (in the case of equations (1) and (2)) or *ONLOAN* (in the case of equations (3) and (4)). If this is the case, we infer that our instruments meet the exclusion restriction. To conduct our falsification tests we estimate OLS specifications for lendable supply and borrowing demand based on equations (2) and (4), and also for *FEE,* ignoring endogeneity concerns. We include firm and year fixed effects, and cluster the standard errors at the year level to ensure robustness to heteroskedasticity as well as serial and cross-sectional correlation. In

addition to providing evidence on the validity of our instruments, this exercise offers a glimpse into record-date activity in the equity lending market and further illustrates endogeneity concerns.

For each of the 7,415 record dates, we consider an event window of -30 days to +30 days, where t=0 is the proxy voting record date. We include a record date dummy (*RDATE*) to examine whether there is abnormal equity lending market activity on the record-date compared to the 30 days before and 30 days after the record date. We follow Prado, Saffi, and Sturgess (2014) by including the following variables to explain securities lending. To control for ownership, we use *INST*, institutional ownership at the end of the previous quarter measured as a percentage of market capitalization. To control for firm characteristics, we use the previous quarter's values of log of market capitalization (*SIZE*), book-to-market ratio (*BM*), turnover (*TURNOVER*), and bid-ask spread (*SPREAD*). We also include a dummy for firms with a share price below five dollars (*PRICE<$5*), and similar to Kolasinski, Reed, and Ringgenberg (2013), we include short-term momentum (*SHORT-TERM MOM*), measured as the cumulative return over the five previous days, and long-term momentum (*LONG-TERM MOM*), measured as the cumulative return over the previous 252 trading days.

In Table IV we present the OLS estimations for *SUPPLY*, *ONLOAN,* and *FEE*. In column 1, we test our candidate instruments for *ONLOAN* (i.e., *HEDGING DEMAND*, *SUE,* and *ACCRUALS*) by examining their effect on *SUPPLY*. As expected, all three potential instruments are unrelated to *SUPPLY*. Further, the results for *ONLOAN* in column 3 show that *HEDGING DEMAND* and *SUE* are negatively related to *ONLOAN,* and *ACCRUALS* is positively related to *ONLOAN.* However, examining the results in column 5 we find that while changes in *HEDGING DEMAND* and *SUE* affect *FEE* through *ONLOAN*, *ACCRUALS* do not affect *FEE*. Accordingly, we only adopt *HEDGING DEMAND* and *SUE* as instruments for *ONLOAN*.

[Table IV around here]

Switching attention to our instruments for *SUPPLY*, if candidate instruments meet the exclusion restriction then we should expect them to explain *SUPPLY* but have no explanatory power in the estimation of *ONLOAN*. Examining the coefficients on *PASSIVE* and *INST CONC* in columns 1 and 3, we find this to be the case. Further, changes in both *PASSIVE* and *INST CONC* explain changes in the borrowing fee through *SUPPLY*. Taken together, the results of the falsification tests support our choice of instruments for both the *SUPPLY* and the *ONLOAN* equations.

The OLS estimations in Table IV also present evidence of changes on the record date. The results in columns 1, 3, and 5 show respectively that *SUPPLY* decreases, *ONLOAN* increases, and *FEE* increases on the record date (as measured by the coefficient *on RDATE*). As a percentage of market capitalization, the change in lendable supply of -1.64% is approximately 20 times larger in magnitude than the increase in *ONLOAN* of 0.08%. In terms of economic significance, the record-date impact on *SUPPLY* indicates that on average, lendable supply is approximately 7% lower on the record-date compared with the mean over the (-30,+30) window. These findings suggest that investors value their vote and therefore recall shares to exercise their vote. For *ONLOAN*, the record-date increase is around 2% of the mean over the (-30,+30) window.[17]

Further examination of results for lendable supply reveals that it is higher when institutional ownership (*INST*) is higher, when institutional ownership is dispersed (*INST CONC*), for larger firms (*SIZE*), and for value firms (*BM*). Turning to columns 3 and 4, borrowing demand is higher if institutional ownership is higher, and for firms that are more liquid. Not surprisingly, there is a negative and significant association between prior performance and borrowing demand. In addition to standard control variables, we include firm-level corporate governance, *GOV41*.

Firms with better governance have higher lendable supply and lower borrowing demand. These results are consistent with better governance alleviating shareholders' concerns that share lending will be detrimental to the value of their holdings, possibly because good governance deters short selling.

Column 5 of Table IV reports the results for *FEE*. The coefficient on *RDATE* is positive and significant at the 1% level, implying that the fee for borrowing stock increases on the record date. This corresponds to a 3.68% increase relative to the mean over the (-30, +30) sample window, suggesting that the market values voting. However, the coefficient of 1.776 implies that the value of the vote, if measured as the change in fee, is economically small.

In columns 2 and 4 we also include *FEE* directly in the OLS estimations of *SUPPLY* and *ONLOAN,* respectively. In the absence of endogeneity concerns one should expect *SUPPLY* (*ONLOAN*) to be increasing (decreasing) in *FEE*. However, the estimated coefficients are precisely the opposite of this, reflecting instead the endogenous relationship between *FEE* and quantity. This result reinforces our endogeneity concerns highlighted in Section 5.1. The borrowing fee itself changes around the record date in response to changes in supply and demand, and therefore one should not only incorporate the borrowing fee in an analysis of equity lending quantities but also address the endogenous relationship between quantity and prices.

C. Securities Lending around Proxy Record Dates

Focusing on lendable supply, our empirical strategy estimates *SUPPLY* as a function of the simultaneously determined price (*FEE)*, a record-date dummy (*RDATE*), and the interaction between price and the record-date dummy (*RDATE***FEE*), as in specification (2). In the first stage, we employ instruments for *ONLOAN* to estimate exogenous shifts in *FEE*. The previously estimated equation shown in column 5 of Table IV gives the first-stage estimates for *FEE*.

Table V displays our main second-stage results for equations (2) and (4) using the instrumented fee from the first stage. All equations include the firm characteristics described above as control variables, firm and year fixed effects, and standard errors clustered by firm. Columns 1 and 2 show estimates for *SUPPLY* with and without the *RDATE*FEE* coefficient. In column 1, the record-date effect equals -1.625%, close to the effect presented in Table IV. This recall in lendable supply indicates that lenders of shares recall their shares because they value their vote. Further, we find that, in general, *SUPPLY* is insensitive to the fee on within-firm basis, consistent with a flat supply curve. This is in stark contrast to the negative association documented using OLS estimates in Table IV. In column 2, we include the interaction term *RDATE*FEE*. The coefficient on *RDATE*FEE* is positive and statistically significant at the 10% level, implying that the recall of shares at the record date is sensitive to the borrowing fee and that recall is lower if the fee received by lenders is higher. The Kleibergen-Paap statistic tests whether the instruments are sufficiently correlated with the included endogenous regressors. We can safely reject the null that endogenous variables are underidentified and obtain similar conclusions using the Cragg-Donald Wald statistic. Because there are two or more instruments for lending supply and borrowing demand, we also perform the J-test of overidentifying restrictions under the assumption that at least one instrument is exogenous. The results show that we cannot reject the null hypothesis that our instruments are exogenous.

[Table V around here]

Next, we turn our attention to those participants that borrow stock around the record date. Columns 3 and 4 report results for specification (4) using *ONLOAN* as the dependent variable. The positive and statistically significant *RDATE* coefficients indicate an increase in borrowing demand on the record date. However, borrowing demand is lower for firms with a higher borrowing fee.

The statistically significant coefficient on *RDATE*FEE* implies that, for very expensive firms, demand may actually decrease on the record date, in line with the descriptive statistics for on special firms in Table 2.

Overall, the estimated change in lendable supply on the record date is much larger than the change in borrowing demand. These results support the hypothesis that lenders, such as pension funds and mutual funds, weigh their vote and the potential lending income before restricting lendable supply. The decrease in lendable supply means that investors assign a higher value to voting than the potential income they could earn from lending.

D. Heterogeneity in Preferences of Institutional Investors

Institutional investors differ along several dimensions that affect their willingness to exert governance through voting (e.g., Matvos and Ostrovsky (2010) and Duan and Jiao (2014)). Heterogeneity in voting preferences depends on several factors including the institution's overall investment philosophy, investment horizon, fiduciary responsibility, and ability or incentives to engage with management and/or invest in the private information necessary to effectively monitor. These differences in ownership composition are likely to be reflected in equity lending market activity on the record date. For example, institutions with larger economic stakes, such as blockholders, should be better able to overcome the free-rider problem highlighted by Shleifer and Vishny (1986) and thus have greater incentives to both monitor and govern through voting. Accordingly, we focus on blockholdings when examining the preferences of institutional investors.

Table VI presents results on the heterogeneity of institutional preferences by examining alternative ownership structures. We examine the composition of institutional ownership, rather than the composition of institutional lending, because the securities lending data do not provide the identity of the lender and borrower. Consequently, our empirical analysis on investor

heterogeneity relies on differences in ownership at the firm level, rather than heterogeneity at the lending level. We repeat the IV estimations presented in Table V but replace the *RDATE* dummy with *RDATE*HIGH* and *RDATE*LOW*, where *HIGH* (*LOW*) takes the value of one if the measure of institutional ownership is above (below) the median. This setup allows us to examine the change in lendable supply and borrowing demand based on different types of institutional investors. To provide a benchmark, we examine total institutional ownership in Panel A. In Panel B we focus on aggregate blockholdings and in Panels C to E we focus on, respectively, mutual funds, banks and insurance companies, pension funds and endowments using the classification in Bushee and Goodman (2007). In Panel F, we consider the proportion of long-term investors as in Chen, Harford, and Li (2007).

In Panel A, we find no significant difference in the change in *SUPPLY* or *ONLOAN* on the record-date between firms below and above the median. This result changes, however, when we focus on blockholders in Panel B. Large blockholders have more incentives to monitor the firm, which results in greater record date recall. In the lendable supply equation, the coefficient on *RDATE*HIGH* is -2.915 while that on *RDATE*LOW* is -1.688, with the difference statistically significant. The negative and significant coefficients imply that both high and low blockholders recall shares, but we find the recall to be greater for firms with greater blockholdings. In Panels C, D, and E, pension funds and endowments,, these types of institutional investors have more fiduciary responsibilities than other types of institutions. Further, both mutual funds and the pension funds and endowments groups are active participants in the securities lending market. In Panels C, D, and E, we again find that larger holdings by these groups of institutions results in higher recall. In Panel F, we show that long-term investors, who are more likely to be interested in corporate governance and have incentives to engage with management, recall more of their

shares on the record date. The results are similar if the high/low categories are based on total ownership rather than blockholdings.

[Table VI around here]

In each case, we repeat the analysis for borrowing demand and find that the demand to borrow shares increases for each type of investor. The difference between high and low ownership type, however, is not significant.

E. Heterogeneity in Firm and Proposal Characteristics

The benefits of shareholder intervention may vary not only with their individual stake but also with the value originating from such intervention. Consequently, recall should also be a function of both firm and proposal characteristics. In Table VII, we examine changes in lendable supply and borrowing demand on the record date based on several firm characteristics: corporate governance, stock returns during the past 12 months, and market capitalization. For each of these characteristics, we expect the interest in voting to vary. For example, the value of the vote is likely to be greater for firms with weak governance when compared to firms with strong governance. Within firm, there may be time-series variation in voting rights. For example, in periods of low returns investors may place higher value on implementing change through voting. Finally, the value of the vote might vary with size because the vote may hold more influence in smaller firms where ownership is less dispersed. Panel A of Table VII splits firms into low and high corporate governance based on *GOV41*. Institutional investors prefer not to lend out shares on the record date for firms with weak governance. The coefficient on *RDATE* LOW* based on firm-level corporate governance is -2.446 and that on *RDATE* HIGH* is -1.727. Both coefficients and the difference are statistically significant. Again, the results suggest that on average, the recall of lendable supply occurs for all firms, and is higher for firms with weak governance. In the case of

firms with weaker governance, institutional investors are even more interested in recalling their shares and voting with their voice.

[Table VII around here]

In Panel B, we present splits by low and high monthly returns over the preceding 12 months. Share lenders are particularly interested in exercising their vote in firms that are not performing well, where they can use the vote to bring about change at the firm. We find that the recall is larger for firms that have performed below the median. In Panel C, the sample is split based on market capitalization and we find that recall is significantly higher in smaller firms. These firms likely face bigger information asymmetry problems and we would expect lenders to have more incentives to exercise their opinions through voting. In all panels, the difference between low and high groups is not significant for borrowing demand.

In Panels D to G we also examine changes in lendable supply and borrowing demand around record dates associated with proxy events that are deemed to be more "important" to shareholders. We report results using four alternative splits based on the presence of at least one of the following types of proposals: nonroutine, compensation-related, antitakeover, and corporate control (proxy contests and mergers). We split the sample based on whether the record date is associated with a proxy event in the ballot. However, we omit firms from both subsamples that do not have at least one proxy event in question.

In Panel D of Table VII, we report results for record dates with and without nonroutine proposals. Nonroutine proxy proposals include proposals related to antitakeover provisions, stock capitalization, and mergers. For *SUPPLY*, we find higher recall when at least one nonroutine proposal is present in the ballot but find no statistical difference for *ONLOAN*.

Panel E splits the sample according to the presence of at least one compensation-related proposal and yields similar results. With the increased prominence of corporate governance concerns, managerial compensation policies have become a focus of investor attention, which we expect to be reflected in a higher value of the vote. The results confirm the importance of compensation-related proxy proposals. The estimated *SUPPLY* change on record dates with compensation-related proposals, -2.608*,* is 16% more negative than on record dates without such proposals. Again, we find no significant difference on the demand side.

The third group of contentious proposals we consider in Panel F is based on antitakeover provisions (*G-INDEX*) included in the G-Index developed by Gompers, Ishi, and Metrick (2003). We find that record dates with *G-INDEX* related proposals have higher recalls than non-*G-INDEX* related proposals, and the difference is statistically significant.

Finally, in Panel G of Table VII, we consider record dates with proposals related to corporate control by examining proxy contests and mergers. In a proxy contest, shareholders vote to resolve a conflict between the firm's management and board of directors, referred to as "incumbents," and a group of shareholders, referred to as "dissidents." Examples of high profile proxy contests include Carl Icahn's efforts to unseat Yahoo's board in 2008, and the Hewlett Packard – Compaq merger in 2001. Dissident shareholders can initiate a proxy contest by filing a preliminary proxy statement PREC14A and definitive proxy statement in connection with contested solicitations DEFC14A. Data on proxy contests are hand-collected and supplemented with data from Sharkrepellent.net, an organization that covers proxy fights and activism; for mergers we identify proposals for targets and acquirers in the ISS database. The change in *SUPPLY* on record dates with corporate control-related proposals is almost 40% larger than that on record-

dates without such proposals. For borrowers, the difference in demand between corporate control and noncorporate control related proposals is not statistically significant.

In summary, we show that the value of the vote varies based on the type of investor, firm characteristics, and proposal types on the lendable supply side. These results provide evidence that institutional investors monitor firms and selectively recall shares to vote, and rule out the possibility that institutional investors recall their shares mechanically for window dressing purposes.

F. Estimating the Value of the Vote for Institutional Investors

The results on the recall of lendable supply around the record date illustrate that while some institutions recall shares to exert governance through voting, other institutions continue to lend shares. This finding has significant implications for estimating the value of the vote using the equity lending market: so long as some institutions continue to provide enough shares to meet the demand, the recall in supply or an increase in demand may have little impact on the borrowing fee. As shown by Kolasinski, Reed, and Ringgenberg (2013) and Prado, Saffi, and Sturgess (2014), this slack supply situation is the norm in this market.

To provide a meaningful estimate on the value of a vote, we examine the change in borrowing fee on the record date that would offer lenders sufficient compensation to continue lending at the same levels observed on nonrecord date days rather than recall shares.[18] Methodologically, in terms of equation (2) this is equivalent to setting the combined record-date effect on estimated quantities to zero and solving for fee given the estimated parameters. Specifically, we solve $\gamma^S + \beta_2^S Fee = 0$, such that the value of the vote, *VVOTE*, is defined as

$$`VVOTE_{Supply} = -\frac{\gamma^S}{\beta_2^S} \quad (5)$$

Since *VVOTE* is determined as a function of estimated coefficients, representing the average shift in quantity and price-elasticity across record dates, it is equivalent to the fee required to ensure zero recall, relative to nonrecord-date days, for the average stock. Consequently, one might interpret *VVOTE* as the value of the vote for the institution with the highest valuation rather than the marginal institution. The nonlinear combination of parameters required to estimate *VVOTE* leads us to use the delta method to compute standard errors and test for statistical significance. The estimate for $VVOTE_{Supply}$ is equal to 267.8 bps in annualized terms (1.06 bps per day) with an estimated standard error equal to 119 bps, significant at the 1% value. We find that lenders assign almost twice as much value to votes than borrowers on the record date. The fact that investors start to recall their shares around 20 days (Figure 1) before the record date affects the economic interpretation of the value of the vote. This implies that lenders are willing to give up ((20/252)*267.8/100=) 0.2% of the value of shares available to borrow to vote.

While our focus is on institutional investors, we can also estimate *VVOTE* for those investors that demand shares around the record date. We find that $VVOTE_{Demand}$ is equal to 111.4 bps in annualized terms (0.44 bps per day) and has a standard error equal to 17 bps, also significant at the 1% level.

The fact that institutions spend time and resources to set up policy, monitor, and selectively recall indicates that they care about their vote.[19] This is another reason why the value of the vote may not be fully captured by the fee, and our estimates are likely a lower bound since they do not fully capture these unobservable costs.

VI. Voting Outcome

To understand how institutional voting shapes proxy outcomes, in this section we examine whether the recall of supply by institutional investors has any impact on the vote outcome at the

shareholder meeting. We estimate regressions for the 6,887 nonroutine proposals, where the dependent variable is *FOR*, the percentage of votes in favor of a proposal.[20] For each proposal we test whether the restriction in lendable supply and the increase in demand around the record date play a role in how votes are cast on the subsequent meeting date. Importantly, the meeting date is on average 53 days after the record date. If institutions recall lendable supply to exercise their vote, then we should expect the voting outcome to be associated with recalled supply.

The independent equity lending variables are the change in lendable supply, *ΔSUPPLY*, and the change in borrowing demand, *ΔONLOAN*. These changes are based on the average lendable supply on loan during days (-30, -20) relative to the record date (t=0). We include indicator variables for management proposals that management supports and the proxy advisory service ISS opposes (*DISS*), for shareholder-sponsored proposals (*DSHR*), and for the proposals related to compensation (*COMP*), G-INDEX (*G-INDEX*), and corporate control (*CORP CONTROL*) that we examined in Section V. We also interact the change in supply and the change in supply on loan with these characteristics to better understand when equity lending activity is important to determine support for a proposal. Further, we include the firm-specific characteristics and proposal fixed effects included in the earlier estimations, but omit these for brevity in Table VIII. All regressions include firm fixed effects, time dummies, and standard errors double clustered at the firm and year levels.

In column 1 of Table 8, we present evidence that shows the record-date change in lendable supply is positively associated with more votes against the proposal. The coefficient on *ΔSUPPLY,* 0.350, implies that a recall in lendable supply (i.e., a decrease in *ΔSUPPLY*) is negatively associated with support for nonroutine proposals; however, significance is only at the 10% level. We find no relation between borrowing demand and a larger proportion of *FOR* votes for

proposals. Further, shareholder-sponsored proposals exhibit 44% less *FOR* votes, on average, than management-sponsored proposals for the same firm. However, the significant coefficient of -2.444 on *ΔSUPPLY* * *DSHR* shows that the record-date recall in supply is positively associated with more votes being cast in favor of shareholder-sponsored proposals.

Next, in column 2, we introduce proposal characteristics and advice from proxy advisory services. Consistent with Alexander et al. (2010), we find that the recommendations of proxy advisors play an important role in proposal outcomes. In general, proposals that ISS recommends against management are associated with significantly lower support. Further, the significant coefficient of 1.545 on *ΔSUPPLY* * *DISS* implies that a higher recall (negative *ΔSUPPLY*) at the record date leads to fewer votes being cast in favor of a proposal if ISS opposes management. This is consistent with institutional investors responsibly fulfilling a monitoring role, acting prudently on behalf of shareholders. Switching focus to proposal characteristics, we find greater support for compensation, G-Index, and corporate control proposals. However, where the recall of lendable supply is higher the support for these proposals is lower: the coefficients on the interactions between *ΔSUPPLY* and these three proposal types are all positive and significant. In Section V we show that institutional investors place a higher value on voting rights for these types of proposals; here we show that when institutions do recall shares, they tend to vote against the proposal. This finding is consistent with institutional investors monitoring managerial activities via the proxy process. We also find evidence that higher borrowing is associated with less support for proposals that ISS recommends against but not much for compensation, G-Index, and corporate control.

[Table VIII around here]

The results in columns 1 and 2 of Table VIII provide indirect evidence that a recall in lendable supply is positively associated with votes for shareholder proposals, and against

management proposals related to compensation, governance, and corporate control. An alternative explanation is that institutions recall shares to vote with management when support for management is low. Because we do not know the identity of the institutions that recall shares, we try to rule out this alternative explanation by examining the voting behavior of mutual funds, who are among the largest lenders of shares.

We obtain data on mutual fund voting behavior from SEC Form N-PX. Form N-PX identifies all proposals on which the fund has voted, and discloses how the fund voted on each proposal (the number of shares voted is not required to be disclosed). Our sample includes mutual fund voting data for 6,651 individual funds that are part of 308 institutions (mutual fund families) for the 3,826 record dates that include nonroutine proposals. In total we have 1,524,290 observations on fund voting behavior in our sample. In column 3 of Table VIII, we examine how the voting outcome is affected by the recall in supply for mutual funds by estimating whether the mutual fund voted *FOR* the proposal, where *FOR* is equal to 100 if the fund voted in favor of the proposal and zero otherwise.[21] We repeat the estimation of *FOR* presented in column 2 but at the mutual fund level, and include fund family fixed effects in addition to firm fixed effects to control for fund family-level policies on both voting and lendable supply recall. The results show that mutual fund voting is associated with support for proposals where there is a greater recall in general. However, where ISS recommends against the proposal or the proposal is related to compensation or anti-takeover provisions, a larger recall in supply is associated with less support from mutual funds. This result alleviates the concern that mutual funds are recalling shares to vote with management when other shareholders are following ISS's advice and voting against management.

Taken together, these results show that institutional investors that choose to retain voting rights have a meaningful impact on voting outcomes. While the lower number of votes in favor of proposals may not result in the proposal being rejected, there is evidence that votes recorded against proposals have spillover governance effects. Cai, Garner, and Walkling (2009) and Fischer et al. (2009) show that meaningful vote totals against director election proposals, even where the proposal passes, are followed by changes in the board, management, or corporate actions within the next year.

VII. Conclusion

The preferences of institutional investors tend to be private and usually cannot be studied because actions that would reveal preferences are often conducted behind the scenes. In this paper, we use the unique setting of the equity lending market to observe the role of institutional investors in corporate governance. The lending fee is an important source of revenue for many institutional investors and enhances their performance. For example, in 2012 Vanguard reported that securities lending increased annual fund returns by more than one bp for over 60% of its funds, by more than five bps for nearly a third of funds, and by more than 10 bps for over 15% of funds.[22] However, if institutions have loaned out their shares on the record date, they cannot exercise their vote. Institutional investors must therefore decide whether to restrict lending and even recall shares already on loan in the event of an upcoming vote. Just prior to the proxy record date, we find a significant reduction in lendable supply, because institutions restrict or call back their loaned shares in order to vote.

We find heterogeneity in the share recall based on institutional investor composition, firm and characteristics and proposal characteristics. In particular, recall is higher for firms with a higher proportion of investors with stronger incentives to monitor and exert governance, for stocks

where governance is more valuable, and for proposals where the returns to governance are likely higher. Finally, to understand how institutional voting shapes proxy outcomes, we examine the subsequent vote outcome and find higher recall to be associated with less support for management proposals such as those related to compensation and corporate control, and more support for shareholder proposals. Our results are therefore consistent with shareholder voting acting as an effective governance mechanism, but only when the economic stake is large enough or economic benefit great enough to overcome the free-rider problem that arises from the dispersed ownership.

Overall, our findings imply that institutional investors value their vote and use the proxy voting process as an important channel for affecting corporate governance. Our analysis suggests that policy makers should address several issues related to proxy voting, including the need for investors to learn about proxy items before the record date so that they can decide whether to lend their shares.

REFERENCES

Aggarwal, Reena, Isil Erel, Miguel Ferreira, and Pedro Matos, 2011, Does governance travel around the world? Evidence from Institutional Investors, *Journal of Financial Economics* 100, 154-182.

Alexander, Cindy, Mark Chen, Duane Seppi, and Chester Spatt, 2010, Interim news and the role of proxy voting advice, *Review of Financial Studies* 23, 4419-4454.

Angrist, Joshua D., Kathryn Graddy, and Guido W. Imbens, 2000, The interpretation of instrumental variables estimators in simultaneous equations models with an application to the demand for fish, *Review of Economic Studies* 67, 499-527.

Angrist, Joshua D., and Jörn-Steffen Pischke, 2009*, Mostly Harmless Econometrics* (Princeton Press, Princeton, NJ).

Becker, Gary S., and Julio Jorge Elias, 2007, Introducing incentives in the market for live and cadaveric organ donations, *Journal of Economic Perspectives* 21, 3-24.

Blau, Francine D., and Lawrence M. Kahn, 2007, Changes in the labor supply behavior of married women: 1980–2000, *Journal of Labor Economics* 25, 393-438.

Blocher, Jesse, Adam V. Reed, and Edward D. Van Wesep, 2013, Connecting two markets: an equilibrium framework for shorts, longs and stock loans, *Journal of Financial Economics*, 108, 302-322.

Blundell, Richard, Alan Duncan, and Costas Meghir, 1998, Estimating labor supply responses using tax reforms, *Econometrica* 66,827-862.

Blundell, Richard, and Thomas E. Macurdy, 1991, Labor supply: A review of alternative approaches, in: Orley Ashenfelter & David Card, eds., *Handbook of Labor Economics*, edition 1, volume 3, chapter 27, 1559-1695

Brav, Alon, Wei Jiang, Frank Partnoy, and Randall Thomas, 2008, Hedge fund activism, corporate governance, and firm performance, *Journal of Finance* 63, 1729-1775.

Brickley, James A., Ronald C. Lease, and Clifford W. Smith, 1988, Ownership structure and voting on antitakeover amendments, *Journal of Financial Economics* 20, 267-291.

Bushee, Brian J., 1998, The influence of institutional investors on myopic R&D investment behavior, *Accounting Review* 73, 305-353.

Bushee, Brian J., 2001, Do institutional investors prefer near-term earnings over long-run value? *Contemporary Accounting Research* 18, 207-246.

Bushee, Brian J., Mary Ellen Carter, and Joseph Gerakos, 2013, Institutional investor preferences for corporate governance mechanisms, *Journal of Management Accounting Research*, forthcoming.

Bushee, Brian J., and Theodore H. Goodman, 2007, Which institutional investors trade based on private information about earnings and returns? *Journal of Accounting Research* 45, 289-321.

Cai, Jie, Jacqueline L. Garner, and Ralph A. Walkling, 2009, Electing directors, *Journal of Finance* 64, 2389-2421.

Chen, Xia, Jarrad Harford, and Kai Li, 2007, Monitoring: Which institutions matter? *Journal of Financial Economics* 86, 279-305.

Christoffersen, Susan Kerr, Christopher Géczy, David K. Musto, and Adam V. Reed, 2007, Vote trading and information aggregation, *Journal of Finance* 62, 2897-2929.

Christophe, Stephen E., Michael G. Ferri, and James J. Angel, 2004, Short-selling prior to earnings announcements, *Journal of Finance* 59, 1845–1876.

Clifford, Christopher P., 2008, Value creation or destruction: Hedge funds as shareholder activists, *Journal of Corporate Finance* 14, 323-336.

Cuñat, Vincente, Mireia Gine, and Maria Guadalupe, 2012, The vote is cast: The effect of corporate governance on shareholder value, *Journal of Finance* 67, 1943-1977.

D'Avolio, Gene, 2002, The market for borrowing firm, *Journal of Finance Economics* 66, 271-306.

Duan, Ying, and Yawen Jiao, 2014, The role of mutual funds in corporate governance: Evidence from mutual funds' proxy voting and trading behavior, *Journal of Financial and Quantitative Analysis*, Forthcoming.

Edmans, Alex, 2009, Blockholder trading, market efficiency, and managerial myopia, *Journal of Finance* 64, 2481-2513.

Edmans, Alex, 2014, Blockholders and corporate governance, *Annual Review of Financial Economics*, forthcoming.

Eissa, Nada, and Hilary W. Hoynes, 2004, Taxes and the labor market participation of married couples: The earned income tax credit, *Journal of Public Economics* 88, 1931-1958.

Eissa, Nada, and Jeffrey B. Liebman, 1996, Labor supply response to the earned income tax credit, *Quarterly Journal of Economics* 111, 605-637.

Evans, Richard B., Miguel A. Ferreira, and Melissa P. Prado, 2013, Equity lending, investment restrictions and fund performance, Working paper, University of Virginia.

Fischer, Paul E., Jeffrey D. Gramlich, Brian P. Miller, and Hal D. White, 2009, Investor perceptions of board performance: Evidence from uncontested director elections, *Journal of Accounting and Economics* 48, 172-189.

Fos, Vyacheslav, 2011, The disciplinary effects of proxy contests, Working paper, University of Illinois at Urbana-Champaign.

Gantchev, Nickolay, 2013, The costs of shareholder activism: Evidence from a sequential decision model, *Journal of Financial Economics* 107, 610-631.

Gaspar, Jose-Miguel, Massimo Massa, and Pedro P. Matos, 2005, Shareholder investment horizons and the market for corporate control, *Journal of Financial Economics* 76, 135-165.

Gillan, Stuart L., and Laura T. Starks, 2000, Corporate governance proposals and shareholder activism: The role of institutional investors, *Journal of Financial Economics* 57, 275-305.

Gompers, Paul, Joy Ishii, and Andrew Metrick, 2003, Corporate governance and equity prices, *Quarterly Journal of Economics* 118, 107-155.

Grene, Sophia, September 12, 2010, Guide issued on securities lending, FT.Com, http://www.ft.com/cms/s/0/5da3c26c-bd04-11df-954b-00144feab49a,dwp_uuid=571fa9ea-b6a7-11db-8bc2-0000779e2340.html.

Hall, Robert E., and Charles I. Jones, 2007, The value of life and the rise in health spending, *Quarterly Journal of Economics* 122, 39-72.

Hanemann, W. Michael, 1994, Valuing the environment through contingent valuation, *Journal of Economic Perspectives* 8, 19-43.

Hartzell, Jay C., and Laura T. Starks, 2003, Institutional investors and executive compensation, *Journal of Finance* 58, 2351-2374.

Helwege, Jean, Vincent J. Intintoli, and Andrew Zhang, 2012, Voting with their feet or activism? Institutional investors' impact on CEO turnover, forthcoming, *Journal of Corporate Finance*.

Hu, Henry T.C., and Bernard S. Black, 2006, The new vote buying: Empty voting and hidden ownership, *Southern California Law Review* 79, 811-908.

Hu, Henry T.C., and Bernard S. Black, 2008, Equity and debt decoupling and empty voting ii: Importance and extensions, *University of Pennsylvania Law Review*, 156, 625-739.

Hwang, Byoung-Hyoun, Baixiao Liu, and Wei Xu, 2013, Can short selling help correct under-pricing? Working Paper, Purdue University.

Iliev, Peter, and Michelle Lowry, 2013, Are mutual funds active voters? Working Paper, Pennsylvania State University.

Kahn, Charles, and Andrew Winton, 1998, Ownership structure, speculation, and shareholder intervention, *Journal of Finance* 53, 99-129.

Kalay, Avner, Oguzhan Karakas, and Shagun Pant, 2014, The market value of corporate votes: Theory and evidence from option prices, *Journal of Finance* 69, 1235-1271.

Ke, Bin, and Santhosh Ramalingegowda, 2005, Do institutional investors exploit the post-earnings announcement drift? *Journal of Accounting and Economics*, 39, pages 25-53.

Klein, April, and Emanuel Zur, 2009, Entrepreneurial shareholder activism: Hedge funds and other private investors, *Journal of Finance* 64, 187-229.

Kling, Catherine L., Daniel J. Phaneuf, and Jinhua Zhao, 2012, From Exxon to BP: Has some number become better than no number? *Journal of Economic Perspectives* 26, 3-26.

Kolasinski, Adam C., Bing Cao, Adam V. Reed, and Dan S. Dhaliwal, 2007, Bears and numbers: Investigating how short sellers exploit and affect earnings-based pricing anomalies, Working paper.

Kolasinski, Adam C., Adam V. Reed, and Matthew Ringgenberg, 2013, A multiple lender approach to understanding supply and demand in the equity lending market, *Journal of Finance* 68, 559-595.

Livnat, Joshua, and Richard R. Mendenhall, 2006, Comparing the post-earnings announcement drift for surprises calculated from analyst and time-series forecasts, *Journal of Accounting Research* 44, 177–205.

Maug, Ernst, 1998, Large shareholders as monitors: Is there a trade-off between liquidity and control? *Journal of Finance* 53, 65-98.

Matvos, Gregor, and Michael Ostrovsky, 2010, Heterogeneity and peer effects in mutual fund proxy voting, *Journal of Financial Economics* 98, 90-112.

McCahery, Joseph A., Zacharias Sautner, and Laura T. Starks, 2011, Behind the scenes: The corporate governance preferences of institutional investors, Working paper, University of Amsterdam.

Meyer, Bruce D. and Dan T. Rosenbaum, 2001, Welfare, the earned income tax credit, and the labor supply of single mothers, *Quarterly Journal of Economics*, 116, 1063-1114.

Miller, Edward M., 1977, Risk, uncertainty, and divergence of opinion, *Journal of Finance* 32, 1151-1168.

Miller, Klaus M., Reto Hofstetter, Harley Krohmer, and Z. John Zhang, 2011, How should consumers' willingness to pay be measured? An empirical comparison of state-of-the-art approaches, *Journal of Marketing Research* 48.

Moser, Shane S., Bonnie F. Van Ness, and Robert A. Van Ness, 2013, Securities lending around proxies: Is the increase in lending due to proxy abuse, or a result of dividends? *Journal of Financial Research* 36, 1-17.

Parrino, Robert, Richard W. Sias, and Laura T. Starks, 2003, Voting with their feet: Institutional ownership changes around forced CEO turnover, *Journal of Financial Economics* 68, 3-46.

Prado, Melissa P., Pedro A. C. Saffi, and Jason Sturgess, 2014, Ownership structure, limits to arbitrage and stock returns: Evidence from equity lending markets, Working paper, DePaul University.

Rothstein, Jesse, 2010, Is the EITC as good as an NIT? Conditional cash transfers and tax incidence, *American Economic Journal: Economic Policy* 2, 177-208.

Saffi, Pedro A. C., and Kari Sigurdsson, 2011, Price efficiency and short selling, *Review of Financial Studies* 24, 821-852.

Shleifer, Andrei, and Robert W. Vishny, 1986, Large shareholders and corporate control, *Journal of Political Economy* 94, 461 - 88.

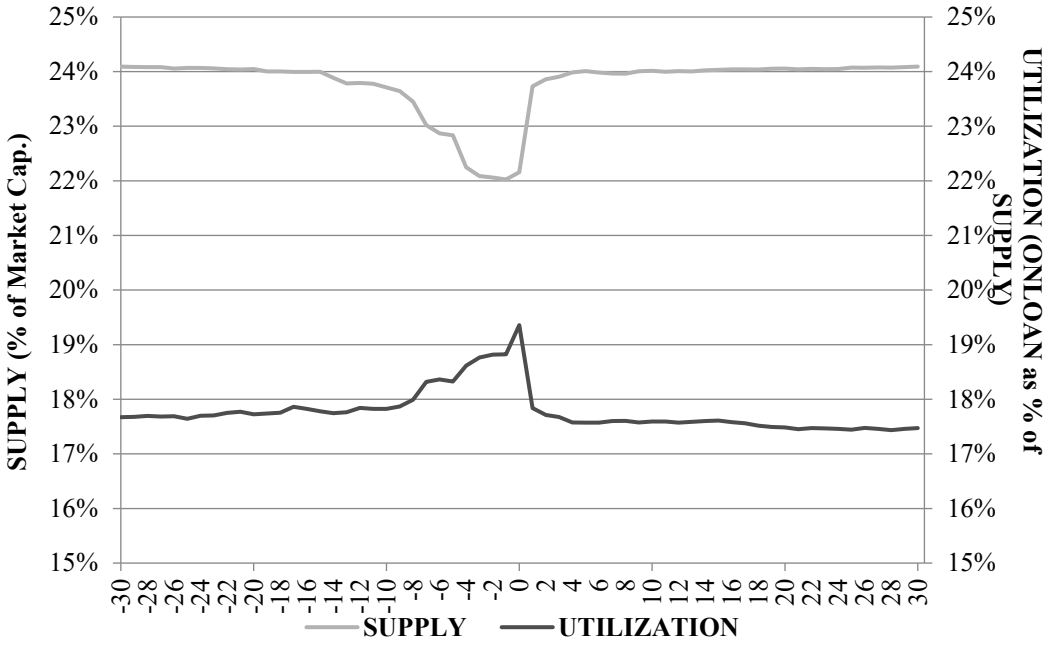
Sloan, Richard G., 1996, Do stock prices fully reflect information in accruals and cash flows about future earnings? *The Accounting Review* 71, 289-315.

Wooldridge, Jeffrey M., 2001, *Econometric Analysis of Cross Section and Panel Data* (The MIT Press).

Figure 1. Equity lending market activity around record date.

The figure presents a daily plot of lendable supply, supply on loan, utilization, and loan fees for the period (-30,+30) for 7,415 record dates (where day *t*=0 is the proxy voting record date) during the years 2007 to 2009. *SUPPLY* is the percentage of market capitalization available to lend; *ONLOAN* is the percentage of market capitalization actually borrowed; *UTILIZATION* is the ratio of *ONLOAN* to *SUPPLY* expressed as a percentage; and *FEE* is the annualized borrowing fees expressed in bps. In Panel A, *SUPPLY* is shown on the left-hand axis and *UTILIZATION* is shown on the right-hand axis. In Panel B, the left-hand axis shows *ONLOAN* and the right-hand axis shows *FEE*.

Panel A



Panel B

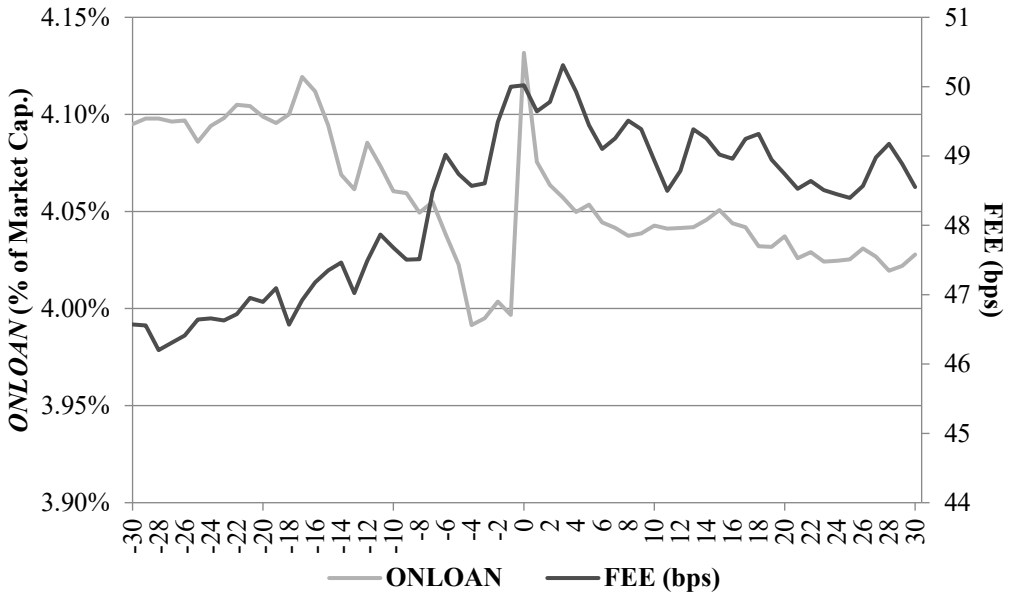

4.15%
4.10%
4.05%
4.00%
3.95%
3.90%
ONLOAN (% of Market Cap.)
51
50
49
48
47
46
45
44
FEE (bps)
-30 -28 -26 -24 -22 -20 -18 -16 -14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
ONLOAN
FEE (bps)

Table I
Equity Lending Characteristics

This table presents characteristics of the equity lending market around the record dates of Russell 3000 firms from 2007 to 2009. *SUPPLY* is the percentage of market capitalization available to lend; *ONLOAN* measures borrowing demand and is the percentage of market capitalization actually borrowed; *FEE* is the annualized borrowing fee expressed in bps; and *UTILIZATION* is the ratio of *ONLOAN* to *SUPPLY* expressed as a percentage. *SPECIAL* includes firms with a borrowing fee in excess of 100 bps. *SUPPLY*, *ONLOAN*, and *FEE* are winsorized at the 1% level.

Equity Lending Characteristics						
	Obs.	Mean	Median	Std Dev	Min	Max
SUPPLY	7,415	23.78%	24.23%	10.71%	1.65%	48.57%
ONLOAN	7,415	4.06%	2.63%	4.22%	0.01%	20.49%
FEE	7,415	48.28	9.90	158.25	-50.84	1113.81
UTILIZATION	7,415	17.78%	12.59%	16.25%	0.23%	68.90%
SPECIAL	7,415	9.41%	0.00%	29.48%	0.00%	100.00%

Table II
Lendable Supply, Borrowing Demand, and Fee for Firms "On Special"

Panel A reports the averages of equity lending variables at *t*=-30 and Panel B reports the percentage point change in each lending attribute on the record date compared with the average over the (-30, +30) window (excluding the record date). On Special includes firms with a borrowing fee in excess of 100 bps, measured on *t*=-30. *SUPPLY* is the percentage of market capitalization available to lend. *ONLOAN* is the percentage of market capitalization actually borrowed; *FEE* is the annualized borrowing fee expressed in bps; and *UTILIZATION* is the ratio of *ONLOAN* to *SUPPLY* expressed as a percentage.

Panel A: Lendable Supply, Borrowing Demand, and Fee at t=-30

On Special	#(Record Dates)	*SUPPLY*	*ONLOAN*	*FEE*	*UTILIZATION*
No	6,756	25.02%	3.83%	9.30	15.20%
Yes	659	14.52%	6.85%	428.68	42.96%
FEE>1000 bps	79	12.40%	6.44%	1108.37	50.81%

Panel B: Record Date Change from the Average Level for the Event Window

On Special	#(Record Dates)	*SUPPLY*	*ONLOAN*	*FEE*	*UTILIZATION*
No	6,756	-1.73%	0.10%	0.92	1.64%
Yes	659	-0.80%	-0.21%	4.45	1.13%
FEE>1000 bps	79	-0.68%	-0.29%	5.30	0.63%
Full Sample	7415	-1.91%	0.07%	2.40	1.78%

Table III
Descriptive Statistics – Voting Proposals

This table presents descriptive statistics for 56,220 proxy proposals of Russell 3000 firms over the 2007 to 2009 period. Panel A shows data for all proposals while Panel B shows voting outcome statistics for different types of non-routine proposals. *VOTES CAST* is the percentage of the total votes cast relative to shares outstanding. *FOR, AGAINST,* and *ABSTAIN* are the total number of votes for, against, and abstained, respectively, relative to the *BASE, against* which the proposal outcome is measured (expressed as a percentage). *VOTE MARGIN* is defined as *FOR* minus the minimum threshold required for the proposal to pass. Voting outcome variables are winsorized at the 1% level. In Panel B, Obs. refers to the number of proposal observations and RDATE Obs. refers to the number of record date proposals (there may be multiple proposals on each record date). *NONROUTINE* proposals are proposals not relating to operational or uncontested directorships. *MGT* are management-sponsored proposals, and *SHDR* are shareholder-sponsored proposals. *G-INDEX*, *COMP,* and *CORP CONTROL* are dummies for, respectively, anti-takeover, compensation and merger/proxy contest-related proposals.

Panel A: Voting Outcome for All Proposals

	Obs.	Mean	Median	Std Dev	Min	Max
VOTES CAST	56,220	86.62%	88.74%	9.49%	37.42%	100%
FOR	56,220	91.86%	97.37%	14.15%	18.94%	100%
AGAINST	56,220	7.54%	2.48%	13.25%	0.00%	75%
ABSTAIN	56,220	0.41%	0.00%	1.56%	0.00%	11.9%
VOTE MARGIN	56,220	70.16%	87.10%	30.79%	-31.37%	100%

Panel B: Voting Outcome by Proposal Type for NonRoutine Proposals

	Obs.	*RDATE Obs.*	*VOTES CAST*	*FOR*	*AGAINST*	*ABSTAIN*	*VOTE MARGIN*
NONROUTINE	6,887	3,719	77.65%	73.24%	23.02%	1.86%	23.43%
- *MGT*	5,127	3,717	78.82%	84.61%	11.73%	0.97%	35.01%
- *SHDR*	1,760	824	74.27%	39.99%	55.91%	4.44%	-10.50%
- *COMP*	4,024	2,854	77.76%	80.67%	18.02%	1.34%	30.48%
- *G-INDEX*	1,190	1,034	79.54%	65.23%	28.19%	1.10%	9.96%
- *CORP CONTROL*	588	371	72.31%	80.60%	14.64%	3.53%	51.35%

Table IV
Abnormal Lendable Supply, Borrowing Demand, and Borrowing Fee around Proxy Voting Record Dates

This table presents results from an event study on the effect of proxy voting on equity lendable supply, loan demand, and the borrowing fee in the (-30, +30) window around 7,415 voting record dates where the record date is t=0. *SUPPLY* is the percentage of market capitalization available to lend. *ONLOAN* is the percentage of market capitalization actually borrowed and *FEE* is the annualized borrowing fee expressed in bps. *RDATE* is a dummy equal to one on the record date. Control variables comprise governance index (*GOV41*), institutional ownership (*INST*), concentration of institutional ownership as measured by the Herfindahl index (*INST CONC*), the natural log of market capitalization (*SIZE*), book to market (*BM*), stock turnover (*TURNOVER*), bid-ask spread (*SPREAD*), a small firm dummy (*PRICE<$5*), and SHORT-TERM MOM and LONG-TERM MOM, the cumulative returns over the previous five and 252 days, respectively. All regressions include year and firm fixed effects and robust standard errors clustered at the firm level, presented in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Dependent Variable				
	SUPPLY		*ONLOAN*		*FEE*
	(1)	(2)	(3)	(4)	(5)
FEE		-0.0011**		0.0034***	
		[0.000]		[0.000]	
RDATE	-1.6358***	-1.6337***	0.0822***	0.0760***	1.7755***
	[0.036]	[0.036]	[0.010]	[0.010]	[0.330]
INST	22.8365***	22.9008***	12.2682***	12.0799***	54.6799**
	[0.896]	[0.896]	[0.618]	[0.598]	[23.860]
SIZE	0.6895***	0.6940***	0.2138	0.2004	3.0226
	[0.202]	[0.202]	[0.135]	[0.132]	[5.661]
BM	0.4482***	0.4623***	0.0830	0.0407	9.2589
	[0.158]	[0.160]	[0.104]	[0.101]	[6.134]
TURNOVER	0.1307***	0.1339***	0.3736***	0.3638***	2.3021**
	[0.031]	[0.031]	[0.022]	[0.021]	[0.963]
SPREAD	-0.0574	-0.0589	-0.0323	-0.0286	-0.1665
	[0.040]	[0.040]	[0.023]	[0.022]	[1.623]
PRICE<$5	0.4390**	0.4495**	-0.5344***	-0.5662***	5.0738
	[0.206]	[0.206]	[0.135]	[0.132]	[6.771]
SHORT-TERM MOM	-0.0158***	-0.0158***	-0.0026***	-0.0026***	-0.0207
	[0.002]	[0.002]	[0.001]	[0.001]	[0.045]
LONG-TERM MOM	-0.0026	-0.0027	-0.0045***	-0.0043***	-0.0357
	[0.002]	[0.002]	[0.001]	[0.001]	[0.050]
GOV41	9.8038***	9.7859***	-7.0214***	-7.0181***	-20.2775
	[1.875]	[1.873]	[1.221]	[1.204]	[41.791]
PASSIVE	15.9453***	15.8619***	-0.6034	-0.3855	-72.0027*
	[1.519]	[1.525]	[0.962]	[0.933]	[40.268]
INST CONC	-24.1798***	-23.9192***	-1.6306	-2.3999	246.3017***
	[2.614]	[2.619]	[1.536]	[1.483]	[82.562]
HEDGING DEMAND	0.2966	0.2452	-0.0242**	-0.0231**	-38.7274***
	[0.247]	[0.247]	[0.010]	[0.010]	[11.901]
SUE	0.7869	0.4197	-6.2332**	-5.0768*	-345.9800**
	[4.447]	[4.467]	[2.805]	[2.668]	[154.770]
ACCRUALS	-0.6254	-0.5947	1.5697**	1.4662**	16.2272
	[1.225]	[1.224]	[0.730]	[0.711]	[38.044]
Constant	-3.0902	-3.1017	-1.6785	-1.5455	-3.4367
	[2.013]	[2.011]	[1.367]	[1.338]	[55.918]
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.90	0.90	0.77	078	0.75
# of Firms	3,053	3,053	3,053	3,053	3,053

Table V
Lendable Supply and Borrowing Demand around Voting Record Dates

This table presents our main second-stage results using the instrumented fee estimated in the first stage to control for the endogeneity of the fee. *SUPPLY* is the percentage of market capitalization available to lend. *ONLOAN* is the percentage of market capitalization actually borrowed. *FEE* is the annualized borrowing fee expressed in bps. *RDATE* is a dummy variable equal to one at the record date and zero otherwise. Control variables include institutional ownership (*INST*), institutional ownership concentration (*INST CONC*), the natural logarithm of market capitalization (*SIZE*), book to market (*BM*), stock turnover (*TURNOVER*), bid-ask spread (*SPREAD*), a small firm dummy (*PRICE<$5*), the cumulative return over the previous five days (*SHORT-TERM MOM*), the cumulative return over the previous 252 days (*LONG-TERM MOM*), and the internal governance measure (*GOV41*). *HEDGING DEMAND* is defined as the equal-weighted cumulative return over the past 252 days of related firms with the same four-digit GICS industry classification. *VVOTE* is defined as the ratio between the *RDATE* and *RDATE*FEE* coefficients as shown in Section 3. The significance of *VVOTE* is computed using the delta method. All regressions include year and firm fixed effects and robust standard errors clustered at the firm and year level, presented in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Dependent Variable			
	SUPPLY		*ONLOAN*	
	(1)	(2)	(3)	(4)
FEE	-0.0061	-0.0056	-0.0045	-0.0045
	[0.006]	[0.006]	[0.006]	[0.006]
*RDATE*FEE*		0.0074*		-0.0015***
		[0.004]		[0.000]
RDATE	-1.6250***	-1.9874***	0.0903***	0.1637***
	[0.038]	[0.207]	[0.016]	[0.024]
INST	23.1808***	21.4098***	12.5380***	12.5378***
	[0.960]	[0.949]	[0.675]	[0.675]
SIZE	0.7046***	0.9696***	0.2539*	0.2540*
	[0.206]	[0.203]	[0.144]	[0.144]
BM	0.5153***	0.3795**	0.1124	0.1125
	[0.182]	[0.181]	[0.133]	[0.133]
TURNOVER	0.1448***	0.0932***	0.3844***	0.3843***
	[0.034]	[0.033]	[0.028]	[0.028]
SPREAD	-0.0585	-0.1390***	-0.0305	-0.0307
	[0.042]	[0.041]	[0.027]	[0.027]
PRICE<$5	0.4684**	0.5011**	-0.5257***	-0.5260***
	[0.210]	[0.206]	[0.150]	[0.150]
SHORT-TERM MOM	-0.0160***	-0.0193***	-0.0028***	-0.0027***
	[0.002]	[0.002]	[0.001]	[0.001]
LONG-TERM MOM	-0.0028	0.0030	-0.0050***	-0.0050***
	[0.002]	[0.002]	[0.001]	[0.001]
GOV41	9.6655***	2.7658	-7.1928***	-7.1926***
	[1.875]	[1.848]	[1.273]	[1.273]
INST CONC	-22.6961***	-22.3641***		
	[3.135]	[3.046]		
PASSIVE	15.5213***	7.1410***		
	[1.670]	[1.602]		
HEDGING DEMAND			-0.0262**	-0.0262**
			[0.011]	[0.011]
SUE			-1.6317***	-1.6316***
			[0.578]	[0.578]
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Kleibergen-Paap rk LM	13.54	26.55	9.54	9.92
P-Value	0.001	0.000	0.001	0.019
Cragg-Donald Wald F	1727.85	416.89	968.33	484.16
Sargan-Hansen Statistic	0.145	0.94	1.047	1.21
P-Value	0.703	0.624	0.306	0.547

Table VI
Institutional Ownership Composition and Equity Lending Activity on the Record Date

This table reports coefficients on the *RDATE* dummy variable using the instrumental variables framework similar to Table V, where *RDATE* is conditional on being below (Low) or above (High) median for several ownership structure characteristics. *SUPPLY* is the percentage of market capitalization available to lend. *ONLOAN* is the percentage of market capitalization actually borrowed. *RDATE* is a dummy equal to one on the record dates. Panel A uses total institutional ownership, Panel B uses blockholders defined as those institutional investors with greater than 5% of market capitalization, Panel C uses on blockholdings owned by mutual funds, Panel D uses blockholdings owned by banks and insurance companies, Panel E uses blockholdings owned by pension and endowment funds, and Panel F uses long-term blockholders as defined by Chen, Harford and Li (2007). Regressions include the High/Low variable of interest where this is not included in the main specification. All regressions include year and firm fixed effects and robust standard errors clustered at the firm and year level. *Diff* captures the difference between the *High* and *Low* estimates. We report *p*-values in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	High	Low	Diff (P-value)
Panel A: Institutional Ownership			
SUPPLY	-1.961***	-2.067***	0.107
	(0.182)	(0.375)	(0.613)
ONLOAN	0.170***	0.146***	0.024
	(0.023)	(0.033)	(0.329)
Panel B: All Blockholders			
SUPPLY	-2.915***	-1.688***	-1.227***
	(0.435)	(0.142)	(0.000)
ONLOAN	0.194***	0.163***	0.031
	(0.058)	(0.023)	(0.487)
Panel C: Mutual Fund Blockholders			
SUPPLY	-2.530***	-1.580***	-0.949***
	(0.271)	(0.159)	(0.000)
ONLOAN	0.161***	0.169***	-0.008
	(0.036)	(0.023)	(0.775)
Panel D: Bank and Insurance Companies Blockholders			
SUPPLY	-2.279***	-1.803***	-0.476***
	(0.229)	(0.197)	(0.000)
ONLOAN	0.167***	0.162***	0.004
	(0.025)	(0.029)	(0.839)
Panel E: Pension and Endowment Blockholdings			
SUPPLY	-2.450***	-1.909***	-0.541***
	(0.374)	(0.184)	(0.013)
ONLOAN	0.209***	0.164***	0.045
	(0.087)	(0.024)	(0.565)
Panel F: Long-Term Blockholders (based on Chen, Hartford, and Lee (2007))			
SUPPLY	-2.401***	-1.736***	-0.665***
	(0.189)	(0.332)	(0.007)
ONLOAN	0.155***	0.172***	-0.017
	(0.024)	(0.028)	(0.444)

Table VII
Firm Characteristics, Proposal Types, and Equity Lending Activity on the Record Date

This table reports coefficients on the *RDATE* dummy using the instrumental variables framework similar to Table V, with the sample split into below (*Low*) and above (*High*) median for several firm characteristics and proposal types. *SUPPLY* is the percentage of market capitalization available to lend. *ONLOAN* is the percentage of market capitalization actually borrowed. *RDATE* is a dummy equal to one on the record dates. Panel A is based on the GOV41 measure of internal corporate governance; Panel B uses cumulative returns over the previous 12 months; Panel C is based on stock market capitalization; Panel D is based on nonroutine proposals; Panel E is based on compensation proposals related to managerial compensation policies; Panel F is based on the G-INDEX of antitakeover provisions (Gompers, Ishi, and Metrick (2003)); and Panel G is based on corporate control proposals defined as those record dates with a proxy contest or merger. All regressions include year and firm fixed effects and robust standard errors clustered at the firm and year level. *Diff* captures the difference between *Low* and *High* estimates in Panels A to C and *With Proposal* and *Without Proposal* in Panels D to G. We report *p*-values in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Low	High	Diff (P-value)
Panel A: Corporate Governance			
SUPPLY	*-2.446****	*-1.727****	*-0.719****
	(0.252)	*(0.183)*	*(0.000)*
ONLOAN	0.188***	0.155***	0.033
	(0.055)	(0.023)	(0.575)
Panel B: Previous 12- Month Returns			
SUPPLY	*-2.145****	*-1.912****	*-0.233***
	(0.251)	(0.179)	(0.029)
ONLOAN	0.229***	0.106***	0.123
	(0.037)	(0.026)	(0.004)
Panel C: Size			
SUPPLY	*-3.155****	*-1.255****	*-1.900****
	(0.315)	*(0.117)*	*(0.000)*
ONLOAN	*0.152****	*0.168****	*-0.026*
	(0.043)	*(0.022)*	*(0.670)*

	With Proposal	Without Proposal	Diff (P-value)
Panel D: Nonroutine			
SUPPLY	*-2.307****	*-2.188****	*-0.119**
	(0.235)	*(0.215)*	*(0.077)*
ONLOAN	*0.161****	*0.176****	*-0.015*
	(0.033)	*(0.033)*	*(0.498)*
Panel E: Compensation-Related			
SUPPLY	*-2.608****	*-2.184****	*-0.424****
	(0.269)	*(0.219)*	*(0.009)*
ONLOAN	*0.153**	*0.153****	*0.001*
	(0.093)	*(0.033)*	*(0.994)*
Panel F: G-Index			
SUPPLY	*-2.666****	*-2.394****	*-0.272**
	(0.413)	*(0.317)*	*(0.084)*
ONLOAN	*0.074*	*0.093**	*-0.019*
	(0.062)	*(0.051)*	*(0.806)*
Panel G: Mergers and Proxy Contests			
SUPPLY	*-2.774****	*-1.995****	*-0.779***
	-0.400	*-0.265*	*(0.032)*
ONLOAN	*0.306***	*0.183**	*0.123*
	(0.149)	*(0.095)*	*(0.188)*

Table VIII
Voting Outcome

This table presents results from a regression analysis of voting outcomes for nonroutine proposals. The dependent variable is *VOTES FOR*, the percentage of votes FOR the proposal. *NONROUTINE* proposals are defined by NYSE Rule 452 as those in which broker voting is not allowed. Columns 1 and 2 present results for all voting; column 3 presents results only for mutual funds voting. The independent variables are: *ΔSUPPLY* and *ΔONLOAN,* the change in lendable supply and supply on loan from days (-30, -20) to the record date (*t*=0). *DSHR* is a dummy equal to one if shareholders sponsor the proposal, and zero otherwise. *DISS* is a dummy equal to one when management is in favor and ISS is against the proposal. *DSHR* equals one for shareholder-sponsored proposals. *G-INDEX*, *COMP,* and *CORP CONTROL* are, respectively, dummies for antitakeover, compensation, and merger/proxy contest related proposals. All estimations include proposal fixed effects and firm-level controls. Control variables include governance (*GOV41*), institutional ownership (*INST*), concentration of institutional ownership as measured by the Herfindahl index (*INST CONC*), the natural logarithm of market capitalization (*SIZE*), book to market (*BM*), stock turnover (*TURNOVER*), bid-ask spread (*SPREAD*), a small firm dummy (*PRICE<$5*), and prior 12-month return (*RETURN*). All regressions include year and firm fixed effects and robust standard errors clustered at the firm level (firm-record date level in column 3), presented in parentheses. *** , **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Dependent Variable: % of Votes FOR proposal		
	All Voting		Voting by Mutual Funds
	(1)	(2)	(3)
ΔSUPPLY	0.350*	-0.103	-0.795**
	(0.218)	(0.333)	(0.322)
ΔONLOAN	0.151	0.711	
	(0.413)	(0.726)	
DISS		-19.831***	-49.218***
		(1.182)	(0.798)
COMP		11.050***	0.133
		(0.982)	(0.702)
G-INDEX		11.297***	9.984***
		(1.409)	(1.514)
CORP CONTROL		9.333***	9.393***
		(2.095)	(1.175)
DSHR	-43.595***	-42.660***	-36.987***
	(1.781)	(1.761)	(0.961)
*ΔSUPPLY * DISS*		1.545***	1.178***
		(0.395)	(0.272)
*ΔSUPPLY * COMP*		1.859***	0.466*
		(0.445)	(0.304)
*ΔSUPPLY * G-INDEX*		1.642***	1.233**
		(0.550)	(0.593)
*ΔSUPPLY * CORP CONT*		2.131**	0.380
		(0.870)	(0.406)
*ΔSUPPLY * DSHR*	-2.444***	-1.997***	0.162
	(0.556)	(0.569)	(0.342)
*ΔONLOAN * DISS*		-2.269**	
		(0.952)	
*ΔONLOAN * COMP*		-0.989	
		(1.151)	
*ΔONLOAN * G-INDEX*		-1.632	
		(1.429)	
*ΔONLOAN * CORP CONT*		-0.644	
		(1.907)	
*ΔONLOAN * DSHR*	0.280	0.320	
	(1.563)	(1.641)	
Firm FE	Yes	Yes	Yes
Fund Family FE	No	No	Yes
Observations	6,887	6,887	1,524,290
Adjusted R^2	0.599	0.727	0.791

Appendix

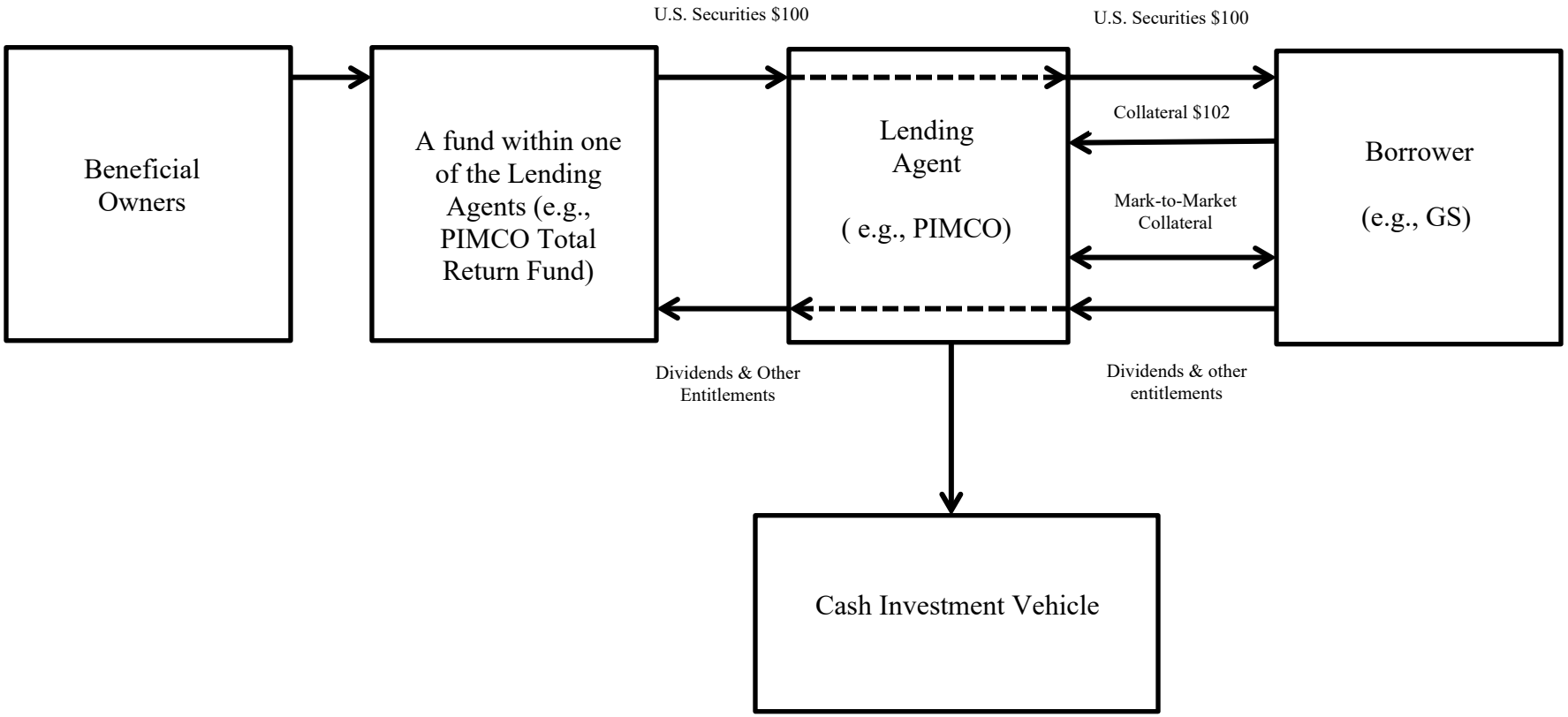


Figure A1. How Does Equity Lending Work? This figure shows:

- Borrower leaves collateral with lending agent (e.g., State Street) and pays a fee for the loan.
- Lender still receives dividends but loses voting rights; borrower gets voting rights.

Table AI
Cash Flows on a Securities Loan with Cash Collateral

Adapted from: *Spitalfields Advisors Limited*, 2006, An introduction to securities lending.

Settlement date	June 30th
Term	Open
Security	XYZ Limited
Security price	$10.00 per share
Quantity	100,000 shares
Loan value	$1,000,000.00
Rebate rate	80 basis points
Collateral	Cash
Margin required	2%
Collateral required	$1,020,000.00
Reinvestment rate	130 basis points
Daily lending income	$13.97 ($1,020,000.00 * 0.005 * (1/365))
Daily Rebate	$22.36 ($1,020,000 * 0.008 * (1/365))

Assumption: No change in value, therefore no change due to daily mark to market, and no change in terms.

Payments to the borrower:
On July 30th $670.80 ($22.36 * 30 days)

Profit for the lender:
On July 30th $419.10 ($13.97 * 30 days)

[1] The record date determines the ownership date for voting purposes. The record date is set prior to the date of the shareholder meeting, when the voting takes place. Most states (for example, California and Delaware) require that the record date be set at a maximum of 60 days and a minimum of 10 days prior to the meeting; New York sets the maximum at 50 days.

[2] We use the terms "recall" and "restrict" interchangeably, capturing both the recall of shares actually on loan, and a restriction on shares available to lend that have not been borrowed.

[3] Edmans (2014) surveys the literature on blockholders and discusses the different incentives and costs faced by blockholders when deciding how to exert governance.

[4] The securities lending process is depicted graphically, and with a numerical example of cash flows and fees, in the Appendix.

[5] See Hu and Black (2006) for a discussion of empty voting.

[6] See http://www.riskmetrics.com/press/articles/040307boardiq.html.

[7] See https://content.putnam.com/shared/pdf/proxy_voting_guidelines.pdf.

[8] See http://www.tiaa-cref.org/ucm/groups/content/@ap_ucm_p_tcp/documents/document/tiaa01007871.pdf.

[9] See http://www.riskmetrics.com/press/articles/040307boardiq.html.

[10] We thank securities lending practitioners at J.P. Morgan and Goldman Sachs for helping us understand industry practices for recalling and restricting lendable shares.

[11] Hu and Black (2008) discuss the case of Fidelity and Morgan Stanley, who together held 10% shares of Telecom Italia and led a campaign against a takeover of Pirelli. However, they were only able to vote 1% of the shares because the remaining shares were lent out and could not be called in by the vote. The Pirelli bid was approved.

[12] See Bushee (1998, 2001), Bushee, Carter, and Gerakos (2013), and Chen, Harford, and Lee (2007) for more details.

[13] Our conclusions based on groups (2) to (5) are unaffected if we use total ownership instead of blockholdings.

[14] Note that we also must have a first-stage equation for *RDATE*FEE* because the product of an endogenous variable (*FEE*) and an exogenous variable (*RDATE*) is still endogenous (see Wooldridge (2001)).

[15] Note that a reduction in lendable supply includes both the actual recall of shares on loan and a reduction in shares made available to lend.

[16] A large body of research in the labor economics literature contains event studies of regulatory changes on labor supply. For example, Eissa and Liebman (1996), Blundell, Duncan, and Meghir (1998), Meyer and Rosenbaum (2001), Eissa and Hoynes (2004), Blau and Kahn (2007), and Rothstein (2010) study the sensitivity of tax changes on labor supply and market participation. Blundell and Macurdy (1999) provides a comprehensive survey of the labor supply literature.

[17] In contrast to the activity around voting record dates, we find that around the time of the ex-dividend record date, there is a statistically and economically significant increase in borrowing demand, with little change in the supply of lendable shares.

[18] A similar concept has been used in many fields, such as health care (e.g., Hall and Jones (2007), and Becker and Elias (2007)), marketing (e.g., Miller et al. (2011)), and environmental studies (e.g., Hanemann (1994) and Kling, Phaneuf, and Zhao (2012)). For example, Becker and Elias (2007) estimate the following in their study of organ donations: *"How much pay is required to induce an individual to sell an organ? We estimate the value or price of an organ from living donors by computing how much additional income or market consumption an individual will require to be indifferent between selling an organ or not."*

[19] For example, BlackRock has a team of 20 professionals dedicated to corporate governance in eight offices globally (Corporate Governance & Responsible Investment Report, BlackRock, 2013).

[20] FOR is defined as the percentage of FOR votes, relative to the base by which the proposal is decided. The base varies by proposal, and can be the sum of FOR, AGAINST, and ABSTAIN, the sum of FOR and AGAINST, or the number of shares outstanding, for example.

[21] We present OLS estimations to ensure that distributional assumptions do not unduly affect our results (Angrist and Pischke (2009)). The results are robust to employing logit estimations.

[22]See https://advisors.vanguard.com/VGApp/iip/site/advisor/researchcommentary/article/IWE_InvResSecuritiesLending.