

Internalizing Governance Externalities: The Role of Institutional Cross-ownership

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Abstract

We analyze the role of institutional cross-ownership in internalizing corporate governance externalities using data on mutual fund proxy voting. Exploiting the variation in cross-ownership across institutions for the same firm at the same time as well as the variation in cross-ownership across firms within the same institution's portfolio, we show that an institution's holdings in peer firms increase the likelihood that the institution votes against management in shareholder-sponsored governance proposals. This relation is stronger for firms whose managers are likely to have more outside opportunities. Consistent with a causal interpretation of our results, we find that increases in cross-ownership induced by financial institution mergers lead to a higher likelihood that the acquirer institution votes against management. We further show that high aggregate cross-ownership positively predicts management losing a vote. Overall, our evidence suggests that institutional cross-ownership improves governance by alleviating the inefficiency resulting from corporate governance externalities.

Key words: corporate governance, externalities, cross-ownership, proxy voting, institutional investors

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1. Introduction

Corporations' governance structure does not exist in a vacuum: the governance choice of one firm can impose externalities on other firms. The existing theoretical literature has argued that corporate governance externalities can arise because firms interact with each other through various types of relationships. For example, in the theory of Acharya and Volpin (2010), firms compete against each other in the managerial labor market. When a firm's competitors adopt a low level of governance (e.g., by appointing a weak board of directors) and thus allow their managers to extract large private benefits, the outside options of the firm's managers become more valuable, which in turn forces the firm to choose a low level of governance in order to retain the managers. Since firms, as independent decision-makers, do not fully internalize this externality, Acharya and Volpin (2010) predict that in equilibrium, the chosen level of governance in the economy is inefficiently low.¹ In this paper, we examine the role of a market-based mechanism for internalizing governance externalities that has not been explored in the literature, namely, cross-ownership by institutional investors.²

Public firms have become increasingly interconnected through cross-ownership by institutions (e.g., Matvos and Ostrovsky, 2008; Harford, Jenter, and Li, 2011; He and Huang, 2016). The objective of cross-holding shareholders (or cross-owners), i.e., institutions that own equity in multiple firms that interact with one another extensively, is to maximize the combined

¹ In support of the theoretical argument for corporate governance externalities, several papers (e.g., Bizjak, Lemmon, and Naveen, 2008; Faulkender and Yang, 2010; Bereskin and Cicero, 2013) find that a firm's CEO compensation is influenced to a great extent by that of its peers. Also, there is evidence of governance spillovers in various settings (see, e.g., John and Kadyrzhanova, 2008; Albuquerque, Marques, Ferreira, and Matos, 2015; Acharya, Gabarro, and Volpin, 2016; and Foroughi et al., 2016).

² Anecdotal evidence suggests that institutional investors take governance externalities into consideration when exerting influences. For example, commenting on passive institutions' role in corporate governance, a *Financial Times* (2014) article argues that because such institutions "are invested across the entire market, [they] have an interest in raising standards everywhere, not just in individual companies." As another example, Dimensional Fund Advisors, one of the largest U.S. mutual fund firms, sent letters to about 250 of its portfolio companies *at the same time* warning that it would vote against directors who approved poison pills (*Reuters*, 2015).

value of their portfolio companies. Therefore, relative to stand-alone institutions that only invest in one of these firms, cross-owners have a stronger incentive to internalize corporate governance externalities among their portfolio companies, because for them the same marginal cost of improving governance in one company would yield a higher marginal benefit. Specifically, for each additional unit of monitoring effort exerted on a firm, the cross-owner can benefit not only from an improvement in governance in the company itself, but also from the ensuing improvement in governance in the company's peers that are in its portfolio. Thus, relative to non-cross-holding shareholders, cross-holders should play a stronger monitoring role, particularly when the potential for governance externalities is high.

In this paper, we analyze the corporate governance role of cross-holding institutions by examining their voting behavior in governance-related proposals. One unique advantage of the proxy voting setting is that it allows us to directly observe one of the most important monitoring actions taken by institutional investors. In contrast, common firm-level governance measures such as board attributes and anti-takeover provisions provide only indirect proxies for the monitoring effort exerted by the institutions and are influenced by many unobservable firm and industry characteristics. Hence, we focus on the relation between cross-ownership and institutions' tendency to vote against management on shareholder-sponsored governance proposals, the passage of which increases firm value (Cunat, Gine, and Guadalupe, 2012). Voting against management is widely recognized as one of the most important and commonly used channels through which institutional investors exert their influence (McCahery, Sautner, and Starks, 2015). If cross-holdings induce an institution to play a stronger monitoring role, we should expect that larger cross-holdings be associated with a greater likelihood that the

institution votes against management when the interests of shareholders and managers are in conflict.

To test the above prediction, we use a large sample of votes on shareholder-sponsored governance proposals cast by institutional investors for the period from 2003 through 2012. We aggregate votes by individual funds to the level of fund family. Our sample includes over 169,000 votes at the proposal-family level. The granular nature of the voting data enables us to include a rich set of fixed effects, including proposal fixed effects and family-time fixed effects. These fixed effects eliminate many potential sources of omitted variable bias that can confound inferences, such as the attributes of the proposals being voted on, the time-varying characteristics of the firms that hold these shareholder meetings, as well as the institutions' skills, performance, and funding liquidity. Our empirical setting thus allows us to identify the effect of institutional cross-ownership on governance by exploiting the variation in cross-ownership across institutions for the same firm at the same time and the variation in cross-ownership across firms within the same institution's portfolio at a given point in time.

We find that institutional shareholders with larger ownership stakes in peer firms (i.e., same-industry firms with similar size) are more likely to vote against management in shareholder-sponsored governance proposals. This result is obtained after controlling for the above-mentioned fixed effects as well as the institution's holdings in the focal firm itself. The economic magnitude is large as well. For example, according to the most stringent specification, a one-standard-deviation increase in the continuous measure of cross-holdings in peer firms is associated with an increase of 2 percentage points in the likelihood of voting against management. Also, the likelihood of voting against management increases by 7 percentage points when an institution holds a block (i.e., equity holding that exceeds 5% of the outstanding

shares) in the peers of the focal firm than when the same institution does not. These magnitudes are economically meaningful given that the standard deviation of the likelihood of voting against management is 47.0 percentage points. Since shareholder-sponsored governance proposals, which management almost always opposes, are intended to reduce managerial rents and improve shareholder value (e.g., Cunat, Gine, and Guadalupe, 2012), our results suggest that cross-ownership induces institutions to play a valuable monitoring role.

We conduct a number of robustness checks for our main results. First, we show that the governance effect of cross-ownership persists and becomes even stronger for a subsample of shareholder-sponsored proposals that are contentious (defined as those that pass or fail by a small margin, i.e., within ± 5 percentage points). Second, we expand our sample to include management-sponsored proposals that are likely associated with agency conflicts between managers and shareholders, and find similar results. Last, we find that the effects are robust to alternative measures of cross-ownership and changes in model specifications.

Since the increased monitoring incentive of cross-holding institutions is driven by corporate governance externalities, their tendency to vote against management should increase with the potential for such externalities. In particular, since managerial labor market competition is one important economic force that gives rise to corporate governance externalities (e.g., Acharya and Volpin, 2010; Dicks, 2012; Acharya, Gabarro, and Volpin, 2016), the governance effects of cross-holdings should be stronger for firms whose managers face more outside opportunities. To test this prediction, we use two proxies to capture managers' outside opportunities, namely, the industry homogeneity measure of Parrino (1997) and the number of peer firms in the industry. Managers of firms operating in more homogeneous industries and industries with a larger number of similar firms are likely to face more outside options due to

higher transportability of their skills and greater demand for their industry-specific experience and talents. Therefore, the governance externality is likely to be more severe in those industries, which provides institutional cross-owners stronger incentives to internalize such externalities and improve governance. Consistent with this prediction, we find evidence suggesting that cross-holding institutions are more likely to oppose management in industries where managers face more outside options.

It is worth noting that the various sets of fixed effects in our baseline specifications effectively control for differences in information asymmetry (i.e., the potential for adverse selection problems) across firms as well as differences in informational advantages and monitoring capabilities across institutions. For example, our family-industry-year fixed effects mitigate the concern that industry-specific governance expertise (e.g., some institutions may be better positioned to monitor managers in some industry and hence accumulate large holdings in that industry) drives our results. Also, time-varying traits of institutions (such as funding liquidity, investment skills, and governance structure) cannot explain our results either, because our institution-time fixed effects absorb observed and unobserved time-varying heterogeneity across institutions and over time. We also find that our results are robust to the inclusion of institution-firm fixed effects.

While the inclusion of a large set of fixed effects enables us to rule out alternative interpretations based on proposal-specific factors, time-varying characteristics of fund families, and time-invariant factors that are specific to institution-firm pairs, it remains possible that omitted variables, e.g., time-varying factors that are specific to pairs of institutions and firms, drive both cross-ownership and voting decisions. To address these potential endogeneity concerns, we exploit a quasi-natural experiment of financial institution mergers using a

difference-in-differences (DiD) approach (following recent studies, e.g., He and Huang, 2016). When two institutions merge, the acquirer institution is likely to experience an increase in the holdings of peer firms after the completion of the merger simply because the target institution holds these peer firms in its portfolio before the merger. Thus, a larger increase in cross-ownership induced by the merger should lead to a higher likelihood that the acquirer institution votes against management after the merger than before the merger. We find evidence consistent with this prediction. These results allow us to get closer to a causal interpretation of the relation between cross-ownership and institutional investors' governance decisions.

The results on the voting behavior at the institution level raise a natural question: do cross-holding institutions have aggregate effects on actual vote outcomes? To explore this question, we construct cross-ownership measures at the firm level by aggregating cross-holdings by individual institutions. We find that institutional cross-ownership positively predicts that management loses to shareholders in a proxy vote. The economic magnitude is large as well. For example, a one-standard-deviation increase in firm-level cross-ownership is associated with an increase of 6.2 percentage points in the likelihood that management loses a vote. This result provides suggestive evidence that institution-level voting behavior we observe above has aggregate effects on governance outcomes.

Our paper makes several contributions to the literature. First, to the best of our knowledge, this is the first study to examine the role of institutional cross-holders in internalizing corporate governance externalities. Our results highlight the importance of a market-based mechanism, i.e., institutional cross-ownership, in reducing the inefficiency induced by governance externalities. In particular, the finding that cross-ownership is associated with a stronger disciplining role played by institutional investors in proxy voting indicates that firms

choose an inefficiently low level of corporate governance in the absence of cross-holders, which is consistent with the equilibrium depicted in recent theoretical studies (e.g., Acharya and Volpin, 2010; Dicks, 2012). Second, while much of the existing literature on cross-ownership focuses on various outcomes at the portfolio firms (such as their product market behavior), it is still largely unknown *how* institutional cross-holders exert influence on corporate decision-making. By investigating the voting behavior of institutional cross-owners, our study sheds light on a specific channel through which these investors affect corporate policies. Our approach enables us to provide direct tests of the influence of cross-ownership on institutional investors' monitoring behavior. The granular nature of the institutional voting data allows us to focus on the variation within a governance proposal and within an institution's portfolio and thus rule out many potential alternative explanations based on omitted variables. Third, while recent studies (e.g., Appel, Gormley, and Keim, 2016a, 2016b) show that passive institutions, e.g., index funds, play an active role in corporate governance, it remains unclear *why* these institutions care about good governance in the first place. Our paper suggests one particular reason for passive institutions' active involvement in corporate governance, namely, their cross-holding positions that induce them to exert monitoring efforts to internalize governance externalities.

Our study has important policy implications. The finding that cross-ownership induces institutional investors to play a stronger monitoring role suggests a "bright side" of cross-ownership, which provides an important alternative perspective to the current policy debate that centers on the potential anticompetitive effects of cross-owners (e.g., *New York Times*, 2016). Our results also have implications for regulatory policies that seek to address corporate governance externalities. One motivation for corporate governance regulations such as the Sarbanes-Oxley Act of 2002 is to reduce negative externalities (Acharya and Volpin, 2010;

Dicks, 2012). Given that institutional cross-holders are likely better positioned to collect and produce information about firms and better incentivized to internalize governance externalities, cross-ownership, as a market-based solution, may be more effective than government regulations in addressing governance externalities.

The rest of the paper is organized as follows. Section 2 discusses the related literature. Section 3 describes sample selection and reports summary statistics. Section 4 examines the influence of institutional cross-holdings on the likelihood of voting against management. Section 5 examines whether the voting behavior we observe at the institution level has aggregate effects on actual vote outcomes and stock returns. Section 6 concludes.

2. Related literature

Our paper is related to three strands of literature, with the first being the recent one that examines the role of institutional investors in corporate governance through the lens of voting behavior. For example, Davis and Kim (2007), Ashraf, Jayaraman, and Ryan (2012), and Cvijanović, Dasgupta, and Zachariadis (2016) examine the effect of pension-related business ties on mutual funds' proxy voting decisions, whereas Matvos and Ostrovsky (2010), Butler and Gurun (2012), and Dimmock, Gerken, Ivkovic, and Weisbenner (2016) explore the effects of peer institutions, social connections, and capital gains lock-in, respectively, on institutional investors' incentive to oppose management in proxy voting. Iliev and Lowry (2015) examine the influence of proxy advisory firms on mutual fund voting.³ Our paper contributes to this literature by investigating the implications of cross-ownership for institutions' proxy voting behavior and firms' governance outcomes.

³ Other studies that examine institutional investors' governance role through proxy voting include Gillan and Starks (2000), Morgan and Poulsen (2001), and Morgan et al. (2011).

The second literature our paper is connected to is the one on corporate governance externalities. Acharya and Volpin (2010) and Dicks (2012) argue that managerial labor market competition generates corporate governance externalities. In their models, a firm needs to find an optimal combination of managerial compensation and corporate governance to solve the agency problem between shareholders and managers. Strong governance reduces a manager's expected private benefits from misbehaving, which decreases the optimal level of pay that the firm needs to offer to the manager to induce effort (i.e., to make the compensation contract "incentive compatible"). This suggests that a firm with weak corporate governance has to offer high pay to its managers, which increases the outside option of its rival firms' managers. As a result, its rivals have to offer higher pay to their managers and adopt weaker governance, leading to negative corporate governance externalities. Such inefficiencies arising from corporate governance externalities provide an important justification for recent developments in corporate governance regulations (e.g., Hermalin and Weisbach, 2006).⁴ Nevertheless, Acharya and Volpin (2010) argue that market-based mechanisms that would enable firms to internalize the governance externality might be more effective in mitigating the inefficiency than government regulations, because regulators may not have the incentive and expertise to adequately assess the nature and extent of governance externality, which is complicated and hard to quantify in practice.

A number of studies provide evidence consistent with these theories. For example, Acharya, Gabarro, and Volpin (2016) find evidence that managerial labor market competition leads some firms to choose a lower level of corporate governance. John and Kadyrzhanova (2008), Albuquerque et al. (2015), and Foroughi et al. (2016) find evidence of spillovers of

⁴ There has been a wave of regulations in the U.S. targeting various corporate governance issues such as proxy access, majority voting in director elections, and say-on-pay votes.

governance practices from one firm to another. In the context of executive compensation, Bizjak, Lemmon, and Naveen (2008, 2010) and Faulkender and Yang (2010) find that a firm's CEO compensation is significantly positively affected by that of its peer firms. Additionally, Bereskin and Cicero (2013) find that firms increase their CEO compensation when other firms in the same industry experience positive shocks to CEO compensation. Our paper contributes to this literature by highlighting the moderating role played by cross-holding institutions.

Our paper also connects to the literature on passive ownership. Recent studies (e.g., Appel, Gormley, and Keim, 2016a, 2016b; Crane, Michenaud, and Weston, 2016) show that passive institutions, e.g., index funds, play an active role in corporate governance. For example, Appel, Gormley, and Keim (2016a) find evidence that passive institutions use their voting power to positively influence corporate governance and firm performance. However, it remains unclear *why* passive institutions care about good governance in the first place. Our evidence suggests that one particular reason for passive institutions' active involvement in corporate governance is that their cross-holdings induce them to exert monitoring efforts to internalize corporate governance externalities.

Last but not least, our paper is related to the burgeoning literature on cross-ownership. Hansen and Lott (1996) provide a theory whereby cross-holders maximize their portfolio values by inducing their portfolio firms to internalize externalities. Matvos and Ostrovsky (2008) find that cross-holders, i.e., institutions that hold shares in both the acquirer and the target in an acquisition, are more likely to approve acquisitions, especially those in which the acquirer has negative announcement returns. Harford, Jenter, and Li (2011) show that cross-ownership is positively correlated with the probability of a firm being targeted in a takeover, but they do not find that cross-ownership significantly affects bidder returns or the bidders' share of synergies.

He and Huang (2016) show that institutional cross-ownership offers strategic benefits by fostering product market coordination. Azar, Schmalz, and Tecu (2016) find evidence of anticompetitive effects associated with cross-ownership in the airline industry. Kang, Luo, and Na (2017) show that firms whose large institutional investors hold more blocks in other firms are associated with better governance outcomes such as higher CEO turnover-performance sensitivities, suggesting that informational advantages and governance experience obtained from multiple blockholdings enable institutions to play a more effective monitoring role. Edmans, Levit, and Reilly (2017) theoretically show that, since diversified investors holding multiple (potentially unrelated) assets have the choice of which assets to sell upon a liquidity shock, their trades increase price informativeness and their ex ante incentives to acquire information and improve firm value may increase. However, none of these papers consider corporate governance externalities among portfolio firms. Our paper thus fills the gap in the literature by highlighting the role of cross-holders in internalizing governance externalities. In contrast to the existing studies in this literature that focus on outcomes at portfolio firms (such as product market performance and pricing of products), our paper examines *actions* by institutional investors, thus providing direct evidence on the influence of cross-holders.

3. Data, Sample, and Variable Construction

3.1 Data and Sample

We obtain mutual fund voting data for the period from 2003 through 2012 from the Institutional Shareholder Services (ISS) Voting Analytics database. The detailed voting information becomes available following the Securities Exchange Commission (SEC) ruling requiring all mutual funds registered in the U.S. to report their proxy votes in all shareholder

meetings of their portfolio companies using Form N-PX starting from April, 2003. The unit of observation of the database is a proposal-fund. For each proposed agenda item (proposal) voted by each mutual fund, the data report the firm that receives the proposal, the date of the shareholder meeting during which the proposal is considered, the issue being voted upon (e.g., board declassification, managerial compensation policies, or the elimination of poison pills), the sponsor of the proposal (i.e., management or shareholder), management's recommendation, the ISS recommendation, and the fund's vote (i.e., "for", "against", or "abstain").

We obtain data on the aggregate votes cast for or against a given proposal as well as the voting result (i.e., "pass" or "fail") from the ISS Voting Outcome dataset. Proposals can be sponsored by shareholders or management. Following prior literature (e.g., Davis and Kim, 2007, Morgan et al., 2011, Ashraf, Jayaraman, and Ryan, 2012, Butler and Gurun, 2012, and Cunat, Gine, and Guadelupe, 2012), we mainly focus on shareholder-sponsored proposals, which are more likely to be motivated by an attempt to reduce managerial agency problems. For example, Cunat, Gine, and Guadelupe (2012) show that the passing of shareholder-sponsored governance proposals has a positive effect on firm value, despite the fact that firm management almost always opposes such proposals. In addition, Cvijanović, Dasgupta, and Zachariadis (2016) contend that management has significant control and influence over management-sponsored proposals (e.g., by withdrawing or modifying proposals that are likely to be contested), which implies less uncertainty about the outcome of such proposals and hence a lesser need for institutional investors to exert monitoring efforts. Thus, our main analyses focus on shareholder-sponsored governance proposals, though we also include contentious management-sponsored governance proposals in our robustness tests. To identify proposals on governance-related issues, we adopt the same classification scheme as that in Cunat, Gine, and Guadelupe (2012) by

including those related to antitakeover provisions, executive compensation, board structure, and voting.

We merge the voting data with Thomson Reuters Institutional Holdings (13F) database. Because there is no common identifier across the two databases, we manually merge them using fund family names and aggregate votes at the fund family level. The unit of observations in the final dataset is a proposal-fund family.

3.2 Variable Construction

Since funds affiliated with the same family tend to vote in the same direction, we focus on the voting decision at the fund family level.⁵ We follow the literature to define our main dependent variable, $VoteAgainstMgmt_{f,p,c,t}$, as the fraction of votes against management by funds affiliated with fund family f on proposal p of company c at time t . Specifically,

$$VoteAgainstMgmt_{f,p,c,t} = \frac{\sum_{i=1}^N (FundVoteAgainstMgmt_{i,f,p,c,t})}{N}, \quad (1)$$

where $FundVoteAgainstMgmt_{i,f,p,c,t}$ is a dummy variable that equals one if fund i from family f votes against management recommendation on proposal p at company c 's shareholder meeting at time t and N is the total number of funds in family f voting on that proposal.⁶

Since corporate governance externalities can arise from various types of interfirm relationships such as competing for managerial talents in the same labor market, we need to identify the set of peer firms that are likely to interact with each other extensively. Hence, we define a firm's peers as those that are in the same industry and with similar size (i.e., those in the

⁵ For example, Iliev and Lowry (2015) show that in over 96% of the cases, funds within the same family vote in the same direction on governance-related proposals.

⁶ While a proposal is uniquely identified by p , we keep the subscripts c (for each firm) and t (for each period) because, as will be described below, we construct our cross-ownership measures at the firm-quarter level for each institution.

same two-digit SIC industry and with sales revenue between 50% and 200% of that of the focal firm), because they are likely to interact directly with the focal firm, e.g., through the managerial labor market.⁷ Indeed, same-industry firms with similar size are commonly used as peer firms when setting executive compensation. For example, Bizjak, Lemmon, and Naveen (2008) show that “most peer groups appear to be based on firms of similar size (usually based on revenues) and in similar industries.” Thus, our peer-group definition is likely to capture the extent of interfirm relationships reasonably well.

Our main measure for cross-ownership, $HoldingPeers_{f,c,t}$, is defined as the sum of fractional ownership of fund family f in firm c 's peer firms, weighted by the peers' market capitalization, as of the quarter-end immediately before the shareholder meeting that occurs at time t . We also construct several alternative measures of cross-ownership, including a dummy variable for whether the institution holds blocks (i.e., equity stakes of 5% or more) in the focal firm *and* at least one of the peer firms ($CrossDummy$) and the natural logarithm of one plus the number of blocks the institution holds in peer firms ($LnNumBlocks$). We also use a variant of our main cross-ownership measure, i.e., $HoldingPeersEW$, defined as a simple (equal-weighted) sum of fractional ownership by the institution in peer firms.

In addition, we consider two ownership measures as control variables in our analysis. $HoldingOwn_{f,c,t}$ is fund family f 's fractional ownership in firm c at time t . $PortHoldingOwn_{f,c,t}$ is the dollar value of fund family f 's equity holdings in firm c as a fraction of the total dollar value of the family's equity portfolio at time t .

⁷ Prior studies on managerial labor markets contend that industry-specific knowledge and experience and firm size are important considerations in the matching between firms and managers. In particular, Parrino (1997) suggests that industry-specific human capital is highly valuable in the market for CEOs. He also finds that most of the newly hired CEOs come from the same industry or have industry-relevant experience (see also Cremers and Grinstein, 2014). Moreover, firms with different sizes may require different sets of managerial skills. In the assignment model of Gabaix and Landier (2008), firm size is the most important firm-level determinant of CEO-firm matching.

Table 1 reports the summary statistics for our sample of votes cast by fund families. The fraction of votes against management, i.e., *VoteAgainstMgmt*, has a mean of 58.2% and a standard deviation of 47.0 percentage points. The market-capitalization-weighted sum of fractional ownership in peer firms, i.e., *HoldingPeers*, has a mean of 2.0% and a standard deviation of 6.3%. In terms of the alternative cross-ownership measures, 0.9% of the votes are cast by cross-holding fund families that hold blocks in the focal firm and at least one of the peer firms; the average fund family holds 0.115 blocks in peer firms and has a sum of fractional ownership in peer firms of 4%. The average fractional ownership of fund families in the focal firm is 0.4%, and the holdings in the focal firm on average account for 0.3% of the family's equity portfolio value.

[Insert Table 1 about here]

4. Cross-ownership and Voting Behavior

4.1 Baseline Results

We run linear regressions to test the relation between the tendency to vote against management and cross-ownership. The main regression takes the following form,

$$VoteAgainstMgmt_{f,p,c,t} = \alpha + \delta_p + \delta_f + \beta \times HoldingPeers_{f,c,t} + \gamma X + \varepsilon, \quad (2)$$

where *VoteAgainstMgmt* is the fraction of votes against management at the fund family level; δ_p is the proposal fixed effects; δ_f is the fund family fixed effects; *HoldingPeers* is the cross-ownership measure as of the quarter-end immediately before the shareholder meeting; and *X* is a vector of controls. Following previous literature on mutual fund voting behavior (e.g.,

Cvijanović, Dasgupta, and Zachariadis, 2016; Dimmock, Gerken, Ivkovic, and Weisbenner, 2016), we cluster standard errors at the fund family \times year level.

Table 2 presents the regression results. In column (1), we use both proposal fixed effects and fund family fixed effects. With proposal fixed effects, the identification comes from variations across fund families of different cross-ownership for a given proposal. These fixed effects control for the characteristics of the proposal (e.g., issues being voted upon and recommendations by proxy advisors) as well as time-varying firm characteristics (e.g., prior performance, ownership structure, and governance quality) and overall time trends. Fund-family fixed effects control for time-invariant fund family level heterogeneity (e.g., whether the fund family is an activist or passive indexer and whether the family votes with or against management in general). We find that the coefficient of *HoldingPeers* is positive and significant at the 1% level, indicating that fund families with greater cross-ownership in peer firms tend to vote against management at the focal firm.

In column (2), we follow the literature on mutual fund voting (e.g., Iliev and Lowry, 2015) to add two control variables— *HoldingOwn* , the fractional ownership of the fund family in the focal firm, and *PortHoldingOwn* , the dollar value of the fund family’s equity holding of the focal firm as a fraction of the total dollar value of the family’s equity portfolio. The coefficient on our cross-ownership measure continues to be positive and significant. Consistent with the findings in Cvijanović, Dasgupta, and Zachariadis (2016), the coefficient of *HoldingOwn* is negative and significant.

The specifications in column (3) and (4) are more restrictive: In addition to proposal fixed effects, we include fund family \times year fixed effects. With fund family \times year fixed effects, each combination of fund family and year gets a separate fixed effect. Thus, identification in this

specification comes from variations in cross-ownership across proposals within a fund family-year. An advantage of this specification is that we are able to control for both time-invariant and time-varying fund family unobservable heterogeneity such as a family's governance preferences in general. As with our previous specifications, we find that cross-ownership in peers has a positive and significant effect on the fund family's tendency to vote against management.

We present the most restrictive specifications in columns (5) and (6), which include fund family \times year \times industry fixed effects. Thus, identification in this specification comes from variations in cross-ownership across proposals within a fund family \times year \times industry triplet. Including these fixed effects enables us to rule out alternative explanations such as time-varying industry specialization of fund families. The coefficients of cross-ownership continue to be positive and significant, suggesting that our results are not driven by fund families with industry-specific informational advantages and/or governance expertise being more likely to discipline management (as documented in Kang, Luo, and Na, 2017). In terms of economic significance, column (6) suggests that a one-standard-deviation increase in cross-ownership (0.063) is associated with an increase of 2.3 percentage points in the fraction of votes against the focal management by fund families, which is nontrivial considering that the fraction of votes against management has a standard deviation of 47.0 percentage points.

Overall, our baseline results in Table 2 show that institutions with larger total equity holdings in the peers of a focal firm are more likely to vote against management on governance-related shareholder proposals at the focal firm, consistent with the view that cross-holding institutions have stronger incentives to internalize corporate governance externalities.

It is worth noting that the fixed effects in our baseline specifications rule out many potential sources of variation across proposals and across institutions. For example, our proposal

fixed effects absorb any observed and unobserved heterogeneity across proposals as well as across firms at which the proposals are being voted on, such as the extent of agency problems and stock liquidity (e.g., Back, et al., 2017), thereby ruling out differences in proposal and time-varying firm attributes as potential explanations. Our family \times industry \times year fixed effects remove the possibility that industry-specific governance expertise (e.g., some institutions may be better positioned to monitor managers in some industry and hence accumulate large holdings in that industry) drives our results. Also, time-varying traits of institutions (such as funding liquidity, investment skills, and governance structure) cannot explain our results either, because our family \times year fixed effects absorb observed and unobserved time-varying heterogeneity across institutions.

[Insert Table 2 about here]

We conduct various robustness checks of the voting behavior analysis and report the results in Table 3. First, we focus on a sample of closely contested proposals, defined as those that pass or fail by a small margin, i.e., within ± 5 percentage points around the threshold. Contested proposals are likely associated with severe agency conflicts between managers and shareholders, for which the monitoring role of cross-holders is particularly important. This requirement reduces our sample size to 29,225 votes. Panel A of Table 3 shows that the coefficients on the cross-ownership measure continue to be positive and highly significant despite the reduction in sample size. For example, the coefficient on *HoldingPeers* ranges from 0.169 to 0.441, depending on the model specifications, which is similar to our baseline results in Table 2.

Second, we expand the sample of proposals to include contentious management-sponsored governance proposals in addition to shareholder-sponsored governance proposals. We define contentious management-sponsored governance proposals as those that ISS recommends against (following Dimmock, Gerken, Ivkovic, and Weisbenner, 2016) because such proposals are likely associated with agency conflicts between managers and shareholders. We repeat our tests using the expanded sample. The results, reported in Panel B of Table 3, show that the coefficient on the cross-ownership measure continues to be significant and positive.

Third, we repeat the baseline tests using alternative measures of cross-ownership. The results, reported in Panel C of Table 3, show that the governance effects of cross-holding institutions we identify are robust to these alternative cross-ownership measures. The economic magnitudes are large as well. For example, columns (1) and (4) show that an institution is 7.5 to 11.7 percentage points more likely to vote against management when it holds a block in the focal firm and at least another block in peer firms than when the same institution does not.

Last, we include different sets of fixed effects in our regression models. In particular, we include firm \times fund-family fixed effects in addition to proposal fixed effects in column (1) and further add fund-family \times year fixed effects in column (2). In column (3), we control for firm \times fund-family fixed effects in addition to proposal fixed effects and fund-family \times year \times industry fixed effects. Firm \times fund-family fixed effects remove time-invariant heterogeneity in voting decisions across firm-institution pairs. To further control for the time-varying attitudes of a given fund family towards different types of shareholder-sponsored proposals, we control for fund-family \times year \times proposal-type fixed effects (as well as proposal fixed effects) in column (4), where proposal types are defined by the ISS Voting Analytics database (i.e., “ISSAgendaItemID”). Finally, we control for proposal fixed effects, firm \times fund-family fixed

effects, and fund-family \times year \times proposal-type fixed effects together in column (5). Panel D of Table 3 shows that our results are robust to these changes in model specifications, which largely mitigates the concern for omitted variables at various levels.

[Insert Table 3 about here]

4.2 Cross-sectional Tests

As discussed above, a cross-holding institution can benefit from monitoring a portfolio firm in two ways. The first is a direct gain from the improvement in the governance of the focal firm. The second is an indirect gain from the governance improvement at the peer firms in the institution's portfolio because of governance externalities, i.e., peer firms' tendency to follow the governance choices of the focal firm. Since the second benefit of monitoring depends on the extent of governance externalities, a cross-holding institution may have stronger monitoring incentives when governance externalities are more pronounced.

According to theoretical models such as Acharya and Volpin (2010) and Dicks (2012), corporate governance externalities could arise from firms competing for the same pool of managerial talents. Their models predict that the inefficiencies associated with governance externalities are stronger when the managerial labor market is more competitive in the sense that each individual manager possesses more and better outside options due to the higher demand for his or her talent. To better compete with peer firms in retaining or attracting talented managers, each firm in competitive managerial labor markets adopts poorer governance than what it would do in the absence of such competition. Since the indirect gain a cross-holding institution derives from monitoring a portfolio firm increases with the strength of governance externalities, which in

this case is determined by the extent of labor market competition, we predict that the positive relation between cross-ownership and institutions' monitoring intensity should be more pronounced when the managers face more outside opportunities.

To examine this channel, we use two measures to capture managers' outside options in the labor market. The first is the industry homogeneity index developed by Parrino (1997), which is defined as the industry average of the partial correlation coefficients between a firm's stock returns and industry returns after controlling for market returns.⁸ This measure has also been used by Gillan, Hartzell, and Parrino (2009) and Kale, Reis, and Venkateswaran (2009) as a proxy for managerial labor market competitiveness. An industry with a higher value of the homogeneity index is likely to have greater demand and thus enhanced competition for the same pool of managerial talents, because the managers' industry-specific skills and knowledge can be more easily transferable across firms in such an industry. The second measure is the natural logarithm of one plus the number of peer firms (again defined as those in the same industry and with similar size as the focal firm). When there are more peer firms that require similar managerial skills to those possessed by the focal firm's managers, the managers are likely to face a larger labor market and thus have access to more outside options (Taylor 2013; Gao, Luo, and Tang, 2015).

Panel A of Table 4 presents the results using the industry homogeneity index as a proxy for managers' outside opportunities. The specifications follow those in Table 2 except that we add an interaction term between the cross-ownership measure and the industry homogeneity

⁸ The industry homogeneity measure is calculated at the industry-quarter level: following Kale, Reis, and Venkateswaran (2009), we use a five-year rolling window prior to the quarter of a firm's shareholder meeting to estimate the partial correlation coefficients between this firm's stock returns and its industry returns over the same window. In order to obtain a meaningful estimate of the industry returns, we follow the literature to require an industry to have at least 35 firms in our estimation window. Please see Parrino (1997) for more details about the construction of the index.

index. Note that the industry homogeneity index itself is dropped from the models because it has been fully absorbed by the proposal fixed effects which control for all time-varying firm and industry characteristics. We find that the coefficients of the interaction term are positive and significant at the 1% or 5% level in all model specifications, which is consistent with our prediction that the effect of cross-ownership on the tendency to vote against management is more pronounced for firms whose managers face more outside options in the labor market. In Panel B of Table 4, we replace the industry homogeneity index with the number of peer firms. The results again suggest that the governance effect of cross-ownership increases with managers' outside opportunities.

[Insert Table 4 about here]

Overall, these results provide suggestive evidence that institutional cross-owners help internalize governance externalities arising from managerial labor market competition. It is worth pointing out that governance externalities may arise through other channels. For example, in the model of Levit and Malenko (2016), directors' reputational concerns (i.e., their desires to be invited to other boards) generate corporate governance spillovers across firms. Their model shows that there can be two types of governance equilibria depending on the aggregate quality of corporate governance. In the weak-governance equilibrium (i.e., when the aggregate quality of governance is low), the decision of whom to invite to serve on the board is controlled by managers. Thus, directors have an incentive to pursue management-friendly policies in the hope of obtaining board seats at other companies. The opposite is true in the strong-governance equilibrium. If monitoring by institutional investors and that by the board are substitutes (complements), the monitoring incentive of cross-owners should be stronger (weaker) in the

weak-governance equilibrium, and vice versa in the strong-governance equilibrium. Thus, the sign of the effect of cross-ownership on monitoring is indeterminate, depending on whether the strong-governance equilibrium or the weak-governance equilibrium prevails *and* whether shareholder monitoring and board monitoring are substitutes or complements. Because the theory does not provide unambiguous predictions in our empirical setting, we do not test this alternative channel for governance externalities.

Another possible channel for governance externalities is product market competition and its potential disciplining effect on managerial behavior (e.g., Schmidt, 1997). Governance improvements at a focal firm may intensify product market competition and increase the incentives of managers at peer firms, which provides cross-holders an increased incentive to exert monitoring efforts at the focal firm. As Schmidt (1997) argues, increasing product market competition can have both a positive effect (through increased liquidation probabilities) and a negative effect (through reduced profits and thus reduced rents for managers) on managerial incentives. Thus, whether increased product market competition induced by a focal firm's governance improvement leads to greater managerial effort at peer firms depends on whether the positive or the negative effects dominate. Our results are consistent with the net effect being generally positive. However, lacking a compelling theoretical rationale for how the effect should vary in the cross-section of firms, we do not test the cross-sectional implications of this channel.

4.3 Identification Using Financial Institution Mergers

While the granular nature of our voting data enables us to include a large set of fixed effects and rule out alternative interpretations based on proposal-specific factors, time-varying characteristics of fund families, and time-invariant factors that are specific to institution-firm

pairs, it remains possible that omitted variables, e.g., time-varying factors that are specific to pairs of institutions and firms, drive both cross-ownership and voting decisions. One possibility is that a fund family's decision to invest in a focal firm's peers is influenced by the focal firm's governance quality. That is, when the focal firm has worse governance than its peers, the fund family may shift its holdings more towards the peer firms and at the same time vote against management at the focal firm. This might explain the observed positive relation between holdings in peer firms and voting against focal firm management. To address such endogeneity concerns, we follow the recent literature (e.g., He and Huang, 2016) to use financial institution mergers as plausibly exogenous shocks to cross-ownership.

As argued by He and Huang (2016), financial institutions typically merge for reasons unrelated to the performance and characteristics of individual firms in their portfolios. Hence, these mergers are plausibly exogenous to the governance practices of individual firms in the merging institutions' portfolios and thus provide a nice quasi-experimental setting for analyzing the causal effect of cross-ownership on institutional monitoring. When two institutions merge, the portfolio of the target institution typically gets absorbed by the acquirer after the completion of the deal. Therefore, the acquirer institution is likely to experience an increase in the holdings of peer firms simply because the target institution holds the peer firms before the merger. We expect that a larger increase in cross-ownership induced by the merger leads to a higher likelihood that the acquirer institution votes against management after the merger than before the merger.

We follow the procedure in He and Huang (2016) to construct our financial institution merger sample using SDC's Mergers and Acquisitions database. We require that: (1) the merger is between two 13F institutions (or their parent firms) in the financial sector (with primary SIC

codes in the 6000 to 6999 range) and announced during the period between 2004 and 2011; (2) the merger is completed within one year after the initial announcement; and (3) the target institution stops filing 13F forms within one year after the completion of the deal. We then perform a difference-in-differences (DiD) analysis of the effect of cross-ownership on the acquiring institution's tendency to vote against the management of its portfolio firms.

Specifically, we run the following DiD regression,

$$\begin{aligned}
 VoteAgainstMgmt_{f,p,c,t} = & \alpha + \delta_p + \gamma_1 \times TargetHoldingPeers_{f,c} \times Post_t \\
 & + \gamma_2 \times TargetHoldingPeers_{f,c} + \gamma_3 Post_t + \vartheta X + \varepsilon, \quad (3)
 \end{aligned}$$

where $VoteAgainstMgmt_{f,p,c,t}$ is the fraction of votes cast by fund family f (i.e., the acquirer) on proposal p at company c 's annual shareholder meetings at time t , δ_p is the proposal fixed effects; $TargetHoldingPeers_{f,c}$ is the sum of fractional ownership in the peer firms of firm c held by the target of fund family f , weighted by the peers' market capitalization, in the quarter immediately before the merger announcement date; $Post_t$ is an indicator variable that equals one if the meeting is in the one-year period after the effective date of the merger, and zero if it is in the one-year period before the announcement of the merger; and X is a vector of controls. Similar to our baseline OLS analysis, in some model specifications we control for *HoldingOwn*, the acquiring fund family's fractional ownership in the focal firm, and *PortHoldingOwn*, the dollar value of the acquiring fund family's holding of the focal firm as a fraction of the total dollar value of the family's portfolio. We also control for proposal fixed effects, fund family fixed effects, merger fixed effects (as one family may be involved in several mergers in our sample), and merger \times year fixed effects in certain specifications. We cluster standard errors by merger.

A higher value of *TargetHoldingPeers* indicates a higher treatment intensity, because the focal firm is likely to experience a greater increase in cross-ownership by the acquiring institution around the merger event. It is important to note that we define the treatment variable based solely on target holdings prior to the announcement of the merger, as opposed to actual holdings of the acquirer after the completion of the merger, the latter of which likely reflect active portfolio decisions of the acquirer. Our treatment effect is captured by the estimated coefficient before the interaction term between *TargetHoldingPeers* and *Post*. If cross-ownership induced by financial institution mergers increases the tendency to vote against management, we expect the coefficient, i.e., γ_1 , to be positive and significant.

Panel A of Table 5 reports the results. The estimated coefficient before *TargetHoldingPeers* \times *Post* is significantly positive in all model specifications, suggesting that a greater increase in cross-ownership induced by the merger makes the acquiring institution more likely to vote against management. In terms of economic significance, the coefficient of 0.524 in Column (2) indicates that a one-standard-deviation increase in the target institution's holdings of peer firms before the merger (i.e., 7.29 percentage points) leads to an increase of 3.82 percentage points ($=0.524 \times 7.29$) in the acquirer institution's tendency to vote against the focal firm's management after the merger than before the merger.

The premise of our quasi-natural experiment is that firms whose peer firms are more heavily held by the target institution before the merger should receive more intense treatment (i.e., the acquirer institution should experience a larger increase in its holdings in these peers after the completion of the merger). To test this, we run the following DiD regression at the stock level,

$$AcquirerHoldingPeers_{f,c,t} = \alpha + \varphi_1 \times TargetHoldingPeers_{f,c} \times Post_t$$

$$+\varphi_2 \times TargetHoldingPeers_{f,c} + \varphi_3 Post_t + \varepsilon, \quad (4)$$

where $AcquirerHoldingPeers_{f,c,t}$ is the sum of fractional ownership by fund family f (i.e., the acquirer) in the peer firms of firm c , weighted by the peers' market capitalization, at time t (either the quarter immediately before the merger announcement date or the quarter immediately after the merger effective date); $TargetHoldingPeers_{f,c}$ is the sum of fractional ownership in the peer firms of firm c held by the target of fund family f , weighted by the peers' market capitalization, in the quarter immediately before the merger announcement date; and $Post_t$ is an indicator variable that equals one if the observation is in the quarter immediately after the merger effective date, and zero if it is in the quarter immediately before the merger announcement date. We cluster standard errors by merger.

Panel B of Table 5 reports the results. We use the same set of firms as in Panel A (i.e., we require the firm to have shareholder-sponsored governance proposals voted on by the acquirer institution during the one year period before or after the merger). As we can see, the estimated coefficients before $TargetHoldingPeers*Post$ are positive and significant at the 1% or the 5% level in all columns, suggesting that firms with higher $TargetHoldingPeers$ are indeed more intensely treated (i.e., experience a greater increase in cross-ownership by the acquiring institution) due to the plausibly exogenous shock of financial institution mergers. The coefficient estimate of 0.416 in Column (3) suggests that a one-percentage-point increase in the target institution's holdings of peer firms before the merger leads to an increase of 0.416 percentage points in the acquirer institution's holdings of peer firms after the merger than before the merger.

Overall, the results using the setting of financial institution mergers show that an increase in cross-ownership induced by financial institution mergers leads to a greater likelihood that the acquirer institution votes against management. Since cross-ownership changes due to institution

mergers are plausibly exogenous to the governance practices of individual portfolio firms, this test allows us to get closer to a causal interpretation of the positive relation between cross-ownership and institutional monitoring. The findings suggest that our main results are unlikely to be driven by omitted time-varying characteristics of institution-firm pairs that drive both cross-ownership and institutions' voting behavior.

[Insert Table 5 about here]

5. Aggregate Cross-ownership and Vote Outcomes

While our results suggest that cross-ownership increases the likelihood of voting against management at the institution (i.e., fund family) level, it remains an open question whether cross-holding institutions have aggregate effects on actual vote outcomes, which might lead to changes in corporate governance policies. To explore this question, we construct cross-ownership measures at the firm level by aggregating cross-holdings by individual institutions. Specifically, we first calculate, for a given institutional investor in a firm, the product of the fractional ownership by the institution in the firm and the ownership of the institution in peer firms. We then take the sum of these products across all institutions holding shares in the firm as our measure of aggregate cross-ownership at the firm level. Specifically, the firm level cross-ownership measure for firm c at time t is defined as,

$$HoldingPeers_Firm_{c,t} = \sum_{f=1}^F HoldingOwn_{f,c,t} \times HoldingPeers_{f,c,t}, \quad (5)$$

where $HoldingOwn_{f,c,t}$ is the fractional ownership of institution f in firm c at time t ; $HoldingPeers_{f,c,t}$ is the firm-institution level cross-ownership measure used in the baseline specification; and F is the total number of fund families holding shares in firm c at time t .

To examine the relation between voting outcomes and aggregate cross-ownership, we regress the outcome of a governance proposal, i.e., whether management loses a vote, on our firm-level cross-ownership measure and control variables. Specifically, the dependent variable is a dummy variable equal to one if the voting outcome is different from the management recommendation and zero otherwise. Following previous literature (e.g., Dimmock, Gerken, Ivkovic, and Weisbenner, 2016), we control for various firm characteristics including firm size, operating performance, past stock returns, market-to-book ratio, leverage, capital expenditures, cash flows, institutional ownership, number of blockholders, S&P 500 membership, as well as managerial and board characteristics such as the age and tenure of the CEO, board size and independence, and executive ownership and an indicator for CEO-chairman duality. Following Dimmock, Gerken, Ivkovic, and Weisbenner (2016), we also include a dummy variable that equals one if the recommendations of ISS and those of the management on the proposal are the same, and zero otherwise, as a control. We also include different sets of fixed effects, including firm fixed effects, time fixed effects, industry fixed effects, and industry-time fixed effects. We cluster standard errors by firm.

To show a robust relation between cross-ownership and vote outcome, we add different sets of control variables in the regression, starting from the relatively more parsimonious specification and then extending to the full model. The results, presented in Table 6, show that institutional cross-ownership positively predicts that management loses to shareholders in a proxy vote on governance proposals. The economic magnitude is large as well. For example, column (3), our most stringent model specification (with both firm and time fixed effects), shows that a one-standard-deviation increase in firm-level cross-ownership (i.e., 0.063) is associated with an increase of 6.2 percentage points ($=0.978*0.063$) in the likelihood that management loses

a vote, which is large compared to the unconditional mean probability of management losing a proxy vote of 27.7%.

Consistent with prior studies (e.g., Bethel and Gillan, 2002; Malenko and Shen, 2016), management is less likely to lose a vote when ISS and management recommendations are the same. For example, column (3) shows that the likelihood of management losing a vote is 30.5 percentage points lower when ISS and management recommendations are the same than when they are different.

[Insert Table 6 about here]

Overall, the results in this section provide suggestive evidence that the voting behavior we observe at the institution level seems to have aggregate effects on voting outcomes, which in turn might lead to changes in corporate governance (Cunat, Gine, and Guadalupe, 2012).

6. Conclusion

In this paper, we examine the role of institutional cross-holders in alleviating the inefficiency associated with corporate governance externalities. Exploiting the variation in cross-ownership across institutions for the same firm at the same time as well as the variation in cross-ownership across firms within the same institution's portfolio, we show that an institution's holdings in peer firms increase the likelihood that the institution votes against management in shareholder-sponsored governance proposals. We also find evidence that this effect is stronger for firms whose managers are likely to have more outside opportunities, suggesting that cross-ownership reduces governance externalities arising from managerial labor market competition. Exploiting financial institution mergers that generate plausibly exogenous shocks to cross-

ownership, we find that the relation between cross-ownership and institutions' tendency to vote against management is likely causal. We further show that high aggregate cross-ownership positively predicts management losing a vote.

Overall, our evidence highlights the importance of a market-based mechanism, i.e., institutional cross-ownership, in reducing the inefficiency induced by governance externalities, which are hard to observe and quantify in the first place. Our study also has important policy implications for regulatory entities. Given that institutional cross-holders are likely better positioned to collect and produce information about firms and better incentivized to internalize governance externalities, cross-ownership, as a market-based solution, may be more effective than government regulations in addressing governance externalities.

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Table 1: Summary statistics

This table presents the summary statistics for our sample of votes cast by fund families on shareholder-sponsored governance proposals from 2003 to 2012. The unit of observation is a proposal-fund family. *VoteAgainstMgmt* is the fraction of votes against management cast by the funds affiliated with the fund family. *HoldingPeers* is the market value-weighted sum of fractional ownership by the fund family in peer firms. *CrossDummy* is a dummy variable equal to one if the fund family holds blocks in the focal firm and at least one of the peer firms and zero otherwise. *NumBlocks* is the number of blocks in peer firms that the fund family holds. *HoldingPeersEW* is a simple (equal-weighted) sum of fractional ownership by the fund family in peer firms. *HoldingOwn* is the fund family's fractional ownership in the focal firm. *PortHoldingOwn* is the dollar value of the fund family's holdings in the focal firm as a fraction of the total dollar value of the family's portfolio.

Variable	Mean	P25	Median	P75	S.D.	N
<i>VoteAgainstMgmt</i>	0.582	0.000	1.000	1.000	0.470	169,543
<i>HoldingPeers</i>	0.020	0.000	0.000	0.008	0.063	169,543
<i>CrossDummy</i>	0.009	0.000	0.000	0.000	0.094	169,543
<i>NumBlocks</i>	0.115	0.000	0.000	0.000	0.552	169,543
<i>LnNumBlocks</i>	0.059	0.000	0.000	0.000	0.256	169,543
<i>HoldingPeersEW</i>	0.040	0.000	0.000	0.013	0.146	169,543
<i>HoldingOwn</i>	0.004	0.000	0.000	0.002	0.011	169,543
<i>PortHoldingOwn</i>	0.003	0.000	0.000	0.003	0.006	169,543

Table 2: Cross-ownership and voting behavior: Baseline results

This table reports linear regression analysis of the relation between the tendency to vote against management and cross-ownership. The dependent variable is *VoteAgainstMgmt*, defined as the fraction of votes against management cast by the funds affiliated with the fund family. *HoldingPeers* is the market value-weighted sum of fractional ownership by the fund family in peer firms. *HoldingOwn* is the fund family's fractional ownership in the focal firm. *PortHoldingOwn* is the dollar value of the fund family's holding of the focal firm as a fraction of the total dollar value of the family's portfolio. The numbers in parentheses are *t*-statistics based on standard errors that are clustered at the family \times year level. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Dep. Variable	<i>VoteAgainstMgmt</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>HoldingPeers</i>	0.199*** (5.424)	0.243*** (6.724)	0.240*** (6.125)	0.260*** (6.770)	0.362*** (7.321)	0.370*** (7.743)
<i>HoldingOwn</i>		-1.348*** (-5.100)		-1.246*** (-6.120)		-1.273*** (-5.672)
<i>PortHoldingOwn</i>		-0.758** (-2.184)		-0.438 (-1.510)		-0.483 (-1.412)
Proposal FEs	Yes	Yes	Yes	Yes	Yes	Yes
Fund family FEs	Yes	Yes	No	No	No	No
Fund family \times Year FEs	No	No	Yes	Yes	No	No
Fund family \times Year \times Ind FEs	No	No	No	No	Yes	Yes
Observations	169,543	169,543	169,497	169,497	160,771	160,771
R-squared	0.497	0.497	0.548	0.548	0.628	0.628

Table 3: Cross-ownership and voting behavior: Robustness checks

This table reports robustness checks of the results on the relation between the tendency to vote against management and cross-ownership. The dependent variable is *VoteAgainstMgmt*, defined as the fraction of votes against management cast by the funds affiliated with the fund family. *HoldingPeers* is the market value-weighted sum of fractional ownership by the fund family in peer firms. *HoldingOwn* is the fund family’s fractional ownership in the focal firm. *PortHoldingOwn* is the dollar value of the fund family’s holding of the focal firm as a fraction of the total dollar value of the family’s portfolio. *CrossDummy* is a dummy variable equal to one if the fund family holds blocks in the focal firm and at least one of the peer firms and zero otherwise. *NumBlocks* is the number of blocks in peer firms that the fund family holds. *HoldingPeersEW* is a simple (equal-weighted) sum of fractional ownership by the fund family in peer firms. Panel A restricts the sample of proposals to closely contested ones, i.e., those that pass or fail by a small margin, i.e., within ± 5 percentage points around the threshold. Panel B expands the sample to include both shareholder-sponsored proposals and contentious management-sponsored proposals. We define contentious management-sponsored proposals as those that ISS recommends against (following Dimmock, Gerken, Ivkovic, and Weisbenner, 2016). Panel C uses alternative cross-ownership measures. The first three columns use the full sample of shareholder-sponsored governance proposals and the last three columns use the sample of closely contested shareholder-sponsored governance proposals. Panel D uses alternative model specifications with different sets of fixed effects. The numbers in parentheses are *t*-statistics based on standard errors that are clustered at the family \times year level. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Contested proposals

Dep. Variable	<i>VoteAgainstMgmt</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>HoldingPeers</i>	0.169*** (2.944)	0.226*** (3.912)	0.196*** (3.266)	0.225*** (3.764)	0.422*** (4.946)	0.441*** (5.137)
<i>HoldingOwn</i>		-1.736*** (-3.263)		-1.775*** (-4.268)		-1.800*** (-3.020)
<i>PortHoldingOwn</i>		-0.797 (-1.298)		0.053 (0.099)		0.027 (0.034)
Proposal FEs	Yes	Yes	Yes	Yes	Yes	Yes
Fund family FEs	Yes	Yes	No	No	No	No
Fund family \times Year FEs	No	No	Yes	Yes	No	No
Fund family \times Year \times Ind FEs	No	No	No	No	Yes	Yes
Observations	29,225	29,225	29,045	29,045	21,199	21,199
R-squared	0.470	0.471	0.567	0.567	0.714	0.714

Panel B: Expanded sample that includes contentious management-sponsored proposals

Dep. Variable	<i>VoteAgainstMgmt</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>HoldingPeers</i>	0.135*** (3.541)	0.192*** (4.988)	0.176*** (5.444)	0.206*** (6.560)	0.247*** (5.943)	0.270*** (6.840)
<i>HoldingOwn</i>		-2.229*** (-9.237)		-2.162*** (-11.657)		-2.277*** (-11.813)
<i>PortHoldingOwn</i>		-0.540 (-1.493)		-0.264 (-0.845)		-0.394 (-1.087)
Proposal FEs	Yes	Yes	Yes	Yes	Yes	Yes
Fund family FEs	Yes	Yes	No	No	No	No
Fund family × Year FEs	No	No	Yes	Yes	No	No
Fund family × Year × Ind FEs	No	No	No	No	Yes	Yes
Observations	247,710	247,710	247,673	247,673	237,410	237,410
R-squared	0.454	0.456	0.505	0.507	0.583	0.585

Panel C: Alternative cross-ownership measures

Dep. Variable	<i>VoteAgainstMgmt</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>CrossDummy</i>	0.075*** (4.285)			0.069 (1.439)		
<i>LnNumBlocks</i>		0.041*** (4.535)			0.060*** (3.079)	
<i>HoldingPeersEW</i>			0.151*** (6.791)			0.163*** (4.528)
<i>HoldingOwn</i>	-1.680*** (-5.893)	-1.245*** (-5.426)	-1.308*** (-5.720)	-2.065*** (-2.941)	-1.730*** (-2.924)	-1.858*** (-3.063)
<i>PortHoldingOwn</i>	-0.602* (-1.763)	-0.662* (-1.942)	-0.516 (-1.513)	-0.253 (-0.320)	-0.253 (-0.320)	-0.033 (-0.042)
Proposal FEs	Yes	Yes	Yes	Yes	Yes	Yes
Fund family × Year × Ind FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	160,771	160,771	160,771	21,199	21,199	21,199
R-squared	0.628	0.628	0.628	0.713	0.713	0.714

Panel D: Alternative model specifications

Dep. Variable	<i>VoteAgainstMgmt</i>				
	(1)	(2)	(3)	(4)	(5)
<i> HoldingPeers</i>	0.233** (2.013)	0.161** (2.155)	0.198** (2.107)	0.072*** (2.675)	0.099* (1.851)
<i> HoldingOwn</i>	-0.934** (-2.092)	-1.062*** (-3.575)	-1.314*** (-3.530)	-1.029*** (-5.689)	-1.067*** (-4.389)
<i> PortHoldingOwn</i>	-1.098* (-1.783)	-0.226 (-0.559)	0.194 (0.398)	0.029 (0.113)	-0.519 (-1.432)
Proposal FEs	Yes	Yes	Yes	Yes	Yes
Firm × Fund family FEs	Yes	Yes	Yes	No	Yes
Fund family × Year FEs	No	Yes	No	No	No
Fund family × Year × Ind FEs	No	No	Yes	No	No
Family × Year × Proposal Type FEs	No	No	No	Yes	Yes
Observations	147,197	147,159	140,244	162,537	139,156
R-squared	0.632	0.674	0.722	0.769	0.842

Table 4: Managerial labor market competition and the influence of cross-ownership on voting

This table reports linear regression analysis of the effect of managerial labor market competition on the relation between the tendency to vote against management and cross-ownership. The dependent variable is *VoteAgainstMgmt*, defined as the fraction of votes against management cast by the funds affiliated with the fund family. *HoldingPeers* is the market value-weighted sum of fractional ownership by the fund family in peer firms. *HoldingOwn* is the fund family's fractional ownership in the focal firm. *PortHoldingOwn* is the dollar value of the fund family's holding of the focal firm as a fraction of the total dollar value of the family's portfolio. Panel A uses the industry homogeneity index, *Homo*, of Parrino (1997) as a proxy for managerial labor market competition. Panel B uses the number of peer firms as a proxy for managerial labor market competition. The numbers in parentheses are *t*-statistics based on standard errors that are clustered at the family \times year level. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Industry homogeneity as a proxy for managerial labor market competition

Dep. Variable	<i>VoteAgainstMgmt</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i> HoldingPeers*Homo</i>	1.402*** (4.071)	1.383*** (4.172)	0.838*** (3.119)	0.850*** (3.212)	1.095** (2.303)	1.071** (2.266)
<i> HoldingPeers</i>	-0.225** (-2.022)	-0.176* (-1.672)	0.003 (0.035)	0.014 (0.178)	0.027 (0.210)	0.040 (0.308)
<i> HoldingOwn</i>		-1.337*** (-4.319)		-1.140*** (-4.841)		-1.018*** (-3.612)
<i> PortHoldingOwn</i>		-0.838** (-2.037)		-0.672* (-1.826)		-0.451 (-0.874)
Proposal FEs	Yes	Yes	Yes	Yes	Yes	Yes
Fund family FEs	Yes	Yes	No	No	No	No
Fund family × Year FEs	No	No	Yes	Yes	No	No
Fund family × Year × Ind FEs	No	No	No	No	Yes	Yes
Observations	89,592	89,592	89,545	89,545	83,873	83,873
R-squared	0.488	0.488	0.543	0.543	0.638	0.638

Panel B: Number of peers as a proxy for managerial labor market competition

Dep. Variable	<i>VoteAgainstMgmt</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i> HoldingPeers*LnNumPeers</i>	0.188*** (4.225)	0.144*** (3.320)	0.182*** (5.624)	0.164*** (5.056)	0.146*** (4.257)	0.152*** (4.476)
<i> HoldingPeers</i>	-0.516*** (-3.020)	-0.310* (-1.866)	-0.466*** (-4.193)	-0.378*** (-3.349)	-0.214* (-1.779)	-0.227* (-1.905)
<i> LnNumPeers</i>		0.004 (0.213)		-0.003 (-0.140)		-0.035 (-1.439)
<i> HoldingOwn</i>		-1.205*** (-4.759)		-1.172*** (-5.762)		-1.291*** (-5.761)
<i> PortHoldingOwn</i>		-0.775** (-2.236)		-0.449 (-1.549)		-0.498 (-1.456)
Proposal FEs	Yes	Yes	Yes	Yes	Yes	Yes
Fund family FEs	Yes	Yes	No	No	No	No
Fund family × Year FEs	No	No	Yes	Yes	No	No
Fund family × Year × Ind FEs	No	No	No	No	Yes	Yes
Observations	169,543	169,543	169,497	169,497	160,771	160,771
R-squared	0.497	0.497	0.548	0.548	0.628	0.628

Table 5: Difference-in-differences estimation based on financial institution mergers

This table reports difference-in-differences (DiD) analysis of the effect of institutional cross ownership on the tendency to vote against management in the setting of financial institution mergers. For financial institution mergers that take place between 2004 and 2011, we examine the acquiring fund family's tendency to vote against management for its portfolio firms during the one year period before the merger announcement date and the one year period after the merger effective date. In Panel A, the dependent variable is *VoteAgainstMgmt*, defined as the fraction of votes against management cast by the funds affiliated with the acquiring fund family. *TargetHoldingPeers* is the market value-weighted sum of fractional ownership by the target fund family in the peer firms of a focal firm in the quarter immediately before the merger announcement date. *Post* is a dummy variable to indicate the period after the merger effective date. *HoldingOwn* is the acquiring fund family's fractional ownership in the focal firm. *PortHoldingOwn* is the dollar value of the acquiring fund family's holding of the focal firm as a fraction of the total dollar value of the family's portfolio. The numbers in parentheses are *t*-statistics based on standard errors that are clustered at the family \times year level. In Panel B, the dependent variable is *AcquirerHoldingPeers*, which is the market value-weighted sum of fractional ownership by the acquiring fund family in the peer firms of a focal firm in the quarter immediately before the merger announcement date or the quarter immediately after the merger effective date. To be included in the sample, we require the firm to have shareholder-sponsored governance proposals voted on by the acquirer institution during the one year period before or after the merger. The numbers in parentheses are *t*-statistics based on standard errors that are clustered at the merger level. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Panel A: DiD results on voting

Dep. Variable	<i>VoteAgainstMgmt</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>TargetHoldingPeers*Post</i>	0.537*** (3.598)	0.524*** (3.344)	0.520*** (3.810)	0.506*** (3.514)	0.227** (2.211)	0.209* (1.934)
<i>TargetHoldingPeers</i>	-0.136 (-0.890)	-0.124 (-0.782)	-0.112 (-0.786)	-0.100 (-0.673)	0.120 (1.303)	0.136 (1.393)
<i>Post</i>	0.016 (0.826)	0.016 (0.825)	0.204** (2.184)	0.203** (2.176)	0.016 (0.334)	0.015 (0.303)
<i>HoldingOwn</i>		-0.356 (-0.504)		-0.356 (-0.501)		-0.310 (-0.409)
<i>PortHoldingOwn</i>		3.244** (2.077)		3.221** (2.061)		3.461** (2.142)
Proposal FEs	Yes	Yes	Yes	Yes	Yes	Yes
Fund-family FEs	Yes	Yes	No	No	No	No
Merger FEs	No	No	Yes	Yes	No	No
Merger × year FEs	No	No	No	No	Yes	Yes
Observations	4,886	4,886	4,886	4,886	4,884	4,884
R-squared	0.688	0.689	0.689	0.689	0.703	0.703

Panel B: DiD results on the extent of cross-ownership

Dep. Variable	<i>AcquirerHoldingPeers</i>		
	(1)	(2)	(3)
<i>TargetHoldingPeers*Post</i>	0.869*** (3.758)	0.609*** (3.298)	0.416** (2.705)
<i>TargetHoldingPeers</i>	-0.626 (-0.685)	-0.513 (-0.818)	
<i>Post</i>	-0.028** (-2.849)	-0.007 (-0.944)	-0.004 (-1.065)
Firm FEs	Yes	Yes	No
Merger FEs	No	Yes	No
Firm × Merger FEs	No	No	Yes
Observations	2,768	2,768	1,308
R-squared	0.477	0.732	0.994

Table 6: Aggregate cross-ownership at the firm level and vote outcomes

This table reports regression analysis of the relation between the probability that management loses to shareholders in a proxy vote and aggregate cross-ownership at the firm level. The dependent variable is *MgmtLosesVote*, defined as a dummy variable that equals one if management loses a vote and zero otherwise. *HoldingPeers_Firm* is the aggregate fractional ownership in peer firms by the focal firm's institutional shareholders. *ISSWithMgmt* is a dummy variable that equals one if ISS and management recommendations are the same and zero otherwise. *InstOwn* is the fractional ownership by institutional investors in the firm. *LnNumBlocks* is the natural logarithm of one plus the number of blockholders in the firm. We control for various firm characteristics, including the natural logarithm of the market cap (*LnMktCap*), return on assets (*ROA*), past stock returns (*StockReturn*), market-to-book ratio (*MktToBook*), leverage (*Leverage*), capital expenditures over assets (*CapexAssets*), cash flow over assets (*CashFlowAt*), and an indicator for whether the firm is included in the S&P 500 index (*SP500*). We also control for CEO and board characteristics, including the natural logarithm of the age of the CEO (*LnCEOAge*), the natural logarithm of CEO tenure (*LnCEOTenure*), the fraction of independent directors serving on the board (*PercentIndep*), the natural logarithm of one plus the number directors on the board (*LnBoardSize*), fractional ownership by the top five executives in the firm (*Top5ExecutiveOwn*), and an indicator for CEO-chairman duality (*Duality*). The numbers in parentheses are *t*-statistics based on standard errors that are clustered by firm. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Dep. Variable	<i>MgmtLosesVote</i>				
	(1)	(2)	(3)	(4)	(5)
<i> HoldingPeers_Firm</i>	0.827** (2.046)	1.125** (2.286)	0.954* (1.851)	0.900*** (3.957)	1.075*** (3.447)
<i> ISSWithMgmt</i>	-0.312*** (-11.939)	-0.305*** (-11.549)	-0.305*** (-10.430)	-0.332*** (-12.770)	-0.319*** (-11.156)
<i> InstOwn</i>	0.017 (0.519)	0.022 (0.570)	0.009 (0.195)	-0.054*** (-3.678)	-0.067*** (-3.900)
<i> LnNumBlocks</i>	0.003 (0.015)	0.083 (0.404)	0.083 (0.355)	0.355*** (2.949)	0.329** (2.434)
<i> LnMktCap</i>	0.034 (1.100)	0.033 (1.091)	0.029 (0.900)	-0.004 (-0.161)	-0.007 (-0.224)
<i> ROA</i>		0.286 (0.800)	0.061 (0.159)	-0.067 (-0.214)	-0.098 (-0.235)
<i> StockReturn</i>		0.019 (0.519)	-0.002 (-0.047)	-0.024 (-0.657)	-0.029 (-0.589)
<i> MktToBook</i>		-0.014 (-1.350)	-0.008 (-0.750)	-0.006 (-0.960)	0.001 (0.161)
<i> Leverage</i>		0.040 (0.195)	-0.002 (-0.010)	-0.204* (-1.795)	-0.248* (-1.791)
<i> CapexAt</i>		-0.622 (-1.035)	-0.763 (-1.181)	0.261 (0.653)	0.537 (1.142)
<i> CashFlowAt</i>		0.166 (0.684)	0.426 (1.636)	0.435 (1.627)	0.264 (0.856)
<i> SP500</i>		-0.011 (-0.142)	-0.028 (-0.356)	-0.006 (-0.118)	0.036 (0.678)
<i> LnCEOAge</i>			0.113 (0.501)	-0.115 (-1.053)	-0.168 (-1.242)
<i> LnCEOTenure</i>			-0.009 (-0.360)	-0.011 (-0.700)	-0.010 (-0.478)
<i> PercentIndep</i>			0.240 (1.323)	0.218* (1.913)	0.215 (1.602)
<i> LnBoardSize</i>			0.133 (1.095)	0.181** (2.336)	0.136 (1.492)
<i> Top5ExecutiveOwn</i>			1.336 (1.253)	-0.246 (-0.407)	-0.811 (-0.994)
<i> Duality</i>			0.001 (0.032)	-0.043 (-1.356)	-0.050 (-1.447)
Firm FEs	Yes	Yes	Yes	No	No
Year FEs	Yes	Yes	Yes	Yes	No
Industry FEs	No	No	No	Yes	No
Industry × Year FEs	No	No	No	No	Yes
Observations	2,308	2,189	1,956	2,126	1,952
R-squared	0.449	0.437	0.445	0.246	0.342