Institutional Investor Cliques and Governance

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Abstract

We examine the impact of coordination among investors on the governance of the firms they own. We identify highly connected groups of institutional investors ("cliques" per network theory). Members of the same clique tend to vote together on proxy items, and improve governance through voting. Some cliques show preferences for specific corporate policy objectives; e.g., their ownership predicts payout and M&A activity. In theory, coordination among owners hurts governance via threat of exit. We find evidence consistent with the trade-off between governance through exit versus voice. Overall, we provide an alternative view of the relation between ownership structure and governance by taking into account coordination between owners.

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1. Introduction

If investors act independently, then ownership dispersion will impede governance, all else equal, because owners of small positions do not have the incentive to monitor individually (Shleifer and Vishny, 1986). However, recent evidence suggests that some investors do not act independently, but instead work together to influence corporate policies in the firms they own (Edmans and Holderness, 2016; McCahery et al., 2016; Brav et al., 2014). Recent anecdotal evidence also supports the view that some owners explicitly work in concert to affect firm outcomes.[1] For the purposes of governance, such coordinated groups can effectively act as single blocks of ownership.

In this paper, we examine the relationship between ownership structure and firm governance, taking into account investor interactions. We empirically identify groups of investors that are likely to be working together to influence the firms they own. We then examine how the presence of these coordinating owners relates to governance. Our results support a more complex view of the relation between ownership structure, coordination, and governance. Shareholder coordination increases governance via "voice" by overcoming the free-riding problem, consistent with Shleifer and Vishny (1986). At the same time, coordination weakens governance via threat of exit as predicted in Edmans and Manso (2011).

While some coordination requires explicit disclosure, informal communication and tacit coordination are generally unobservable to the econometrician. We turn to recent work at the intersection of network theory, evolutionary biology and game theory. A standard finding in this literature is that networks of highly clustered communities support coordination (see e.g., Assenza et al., 2008; Marcoux and Lusseau, 2013). Highly clustered communities, known as "cliques", capture groups of network members that are closely connected to all

[1] See, for example, *Top US financial groups hold secret summits on long-termism* (Foley and McLannahan, 2016), *Mondelez Stake Brings Ackman Into Orbit of Food Investing Giants* (Das, 2015), and *Activist Investors Secret Ally: Big Mutual Funds* (Benoit and Grind, 2015).

other members of that group. Using these insights and techniques borrowed from graph theory, we identify investor cliques in the network of institutional ownership, where network connections are driven by common equity ownership positions. We present a variety of different analyses to establish that these cliques are related to investor coordination and are not merely an outcome of correlated institutional preferences or information. We then present results which suggest that coordination among owners has important implications for firm governance.

We find that there are roughly 20 institutional investor cliques each year. The top institutional clique in each firm has a 13% stake on average. Coordinated groups, in total, own close to 30%. Approximately 35% of institutional investors are members of a clique and membership is highly persistent from year to year. Consistent with the idea that the cliques are measuring coordination, institutions in cliques are more likely to disclose explicit coordinated ownership positions with other investors and their proxy votes are correlated with other members of their clique. Institutions that belong to cliques are most likely to be dedicated investors and least likely to be quasi-indexers (as classified by Bushee, 1998). Clique members tend to be neither large nor small in terms of assets under management, and on average they hold large stakes in firms. They are unlikely to be pension funds, which are traditionally thought of as activists (Smith, 1996; Carleton et al., 1998). Moreover, institutions within the same clique tend be more similar to each other than they are to institutions outside of their clique across a variety of institutional characteristics.

We document that the nature of institutional ownership has been profoundly transformed over the last thirty years in a way consistent with substitution toward coordinated ownership. Despite the increase in overall levels of institutional ownership, the median stake of a given institutional owner in a firm in recent periods is roughly five times smaller than it was in the early 1980's. At the same time, we find that ownership by institutional investor cliques has increased significantly over the past three decades. Therefore, while institutional ownership has become more dispersed, many of these owners are now more connected to one another.

To examine the relation between ownership by cliques and governance by voice, we study shareholder voting on management proposals as this is a direct form of investor engagement (McCahery et al., 2016). We expect clique members to vote together, and in particular, against proposals that are not in shareholders' interests. We find evidence consistent with this, even after controlling for other characteristics of ownership structure, including the overall level of institutional ownership, ownership by blockholders, ownership concentration, and ownership by different types of institutions (quasi-indexers, transient, etc.). We use the mutual fund scandal of the early 2000's as a shock that provides plausibly exogenous variation in clique ownership. This scandal resulted in significant outflows from and closures of certain institutions which impacted connections within the network of institutional investors.[2] Using this shock, we find that, when ownership by cliques is high, shareholders vote against management more frequently. This effect is more pronounced for proposals that appear to be against shareholders' interests.

Anecdotal evidence suggests that some institutions prefer specific corporate policies that they perceive as value-enhancing, rather than broadly improving governance across all dimensions.[3] Therefore, we examine the relation between policy outcomes and clique ownership when cliques reveal a preference for a particular policy. We focus on four outcomes that have anecdotally been shown to attract activists and institutional investors and for which outcomes are easily observable: the initiation of dividends, the initiation of repurchases, mergers and acquisitions, and divestitures. We find evidence of clique preferences and that the presence of cliques that focus on these policies has predictive power for future firm poli-

[2]This shock is used to provide plausibly exogenous variation to common ownership by Anton and Polk (2014) and Koch et al. (2016). We discuss the validity of this instrument in our setting in section 4.1.1.

[3]For example, Icahn Capital LP often focuses its activism on payout policies. Moreover, institutions that attend the Shareholder's Rights Project clinic may have a particular goal of declassifying boards. Or similarly, the Council for Institutional Investors most recent campaign focuses on majority versus plurality voting standards.

cies. For example, a firm is 5% more likely to initiate a dividend within a year in which it is owned by a clique that focuses on dividend payouts relative to firms that are not. We find similar results for firms owned by cliques with specific preferences related to acquisitions and divestitures.

One particular concern with our measure of coordination is that institutions in the same clique may not work together to govern, but instead act independently based on similar information (the correlated effects problem as in Manski, 1993). We address this alternative explanation in several ways. First, we show that institutions in cliques are more likely to disclose that they are working in concert with other investors. Second, theory predicts that correlated information will result in aggressive correlated trading, while coordination should result in less trading intensity to minimize the price impact of trades. We find evidence consistent with the latter. We also show that the exogenous loss of a formal coordination mechanism, class-action litigation, has a large impact on ownership concentration for firms without large clique ownership. Consistent with our other results, this suggests that clique ownership serves as an informal coordination mechanism.

Additionally, the ability to coordinate should facilitate governance via direct intervention (voice) because coordination helps overcome free-riding. However, instead of intervening, owners may take the "Wall Street walk", the threat of which acts as a governance mechanism (Admati and Pfleiderer, 2009; Edmans, 2009). Importantly, coordination among shareholders can have a negative effect for this type of governance. Edmans and Manso (2011) show that the free rider problem strengthens the threat of exit, and concordantly, coordination among shareholders mitigates this form of governance. This is because the threat of exit is strongest when owners are independently and aggressively trading, impounding their information into the price. If clique ownership captures coordination, then we expect the threat of exit to be weaker where clique ownership is high, whereas if it captures correlated information, this threat should be stronger because independent investors receiving the same signal will exit simultaneously.

Following Bharath et al. (2013) and Edmans et al. (2013), we use a shock to liquidity to identify the impact of the threat of exit on governance. We find that the threat of exit is weaker when clique ownership is high, even after controlling for ownership structure and other firm characteristics. We also find that clique ownership is lower among firms with myopic managers, where the threat of exit is likely to be particularly effective (Edmans, 2009). Overall, our results are consistent with coordination among institutional investors facilitating governance by voice and mitigating governance by exit. They also lend support to the view that we are identifying coordinating groups rather than independent investors with correlated information.

Our paper contributes to several strands of research. Evidence in prior literature supports the view that shareholders coordinate. Shiller and Pound (1989) find that fund managers' portfolio choices are made in part based on information gleaned from communicating with other investors. Hong, Kubik, and Stein (2005) and Cohen, Frazzini, and Malloy (2008) find evidence that familiarity due to geographic proximity or education facilitate better communication.[4] There is evidence that formal coordination mechanisms, such as the United Shareholders Association (USA) or ISS (see Gillan and Starks (2000) and Bethel and Gillan (2002)), can impact voting outcomes. We provide evidence that coordination can arise endogenously between investors.[5]

Our paper is related to but distinct from three contemporaneous working papers on coordination and governance. Artiga González and Calluzzo (2016) examine activist campaigns and find that campaign success is positively correlated with the number of activists. Appel

[4]While there is substantial empirical and anecdotal evidence of shareholder coordination, there are questions about the legality of such activities. We discuss this briefly in Section 2.

[5]There is evidence of endogenous coordination between *firms* as a result of having the same owner (e.g., Azar et al., 2015; Panayides and Thomas, 2016). This is distinct from coordination between *owners* in a given firm.

et al. (2016) also examine activist campaigns and find that the presence of passive investors does not alter the frequency of activist campaigns, but does change the type of campaigns against firms. Huang (2014) finds that firms have higher values when the firm's owners are geographically proximate or have highly correlated portfolios. All papers are consistent with the view that there are important interaction effects between owners. We differ from these papers in several important ways. Rather than examine characteristics of the firm or campaign of interest, we identify sets of institutions that are likely to be working together in any firm that they own or will own in the future. In doing so, we are agnostic to the specific type of coordination (e.g., we do not rely on there being an identifiable leader as in Brav et al. (2014) and Appel et al. (2016).) Further, we address the problem that coordination is unobservable by using network measures that are specifically associated with coordination, and by exploiting a theoretical tension in the governance literature. Most importantly, our main conclusions differ. We find that governance is not strictly improved by coordination because there is a trade-off between voice and exit.

Finally, our results contribute to the recent literature on governance through exit versus voice. Both Bharath et al. (2013) and Edmans et al. (2013) provide empirical evidence supporting the view that blockholders govern through the threat of exit. Kandel et al. (2011) show that small investors also govern through the threat of exit because they trade together without agreeing to do so (what they term "unintentional coordination"). We believe we are the first to empirically document the trade-off between exit and voice as a function of coordination between shareholders, consistent with theory (Edmans and Manso, 2011). Moreover, ownership cliques form where the threat of exit is, ex ante, less effective. Overall, our results provide an alternative picture of the importance of institutional investors in the ownership structure through their ability to mobilize their peers to intervene in the firm's decisions.

2. Identifying Coordination in a Network

An ideal setting to examine the impact of coordination on governance is one in which researchers perfectly observe all forms of cooperation and coordination between investors in a large sample. Although some formal coordination mechanisms are observable (e.g., United Shareholders Association (USA), ISS), informal coordination mechanisms are difficult to observe beyond anecdotes reported in the media, joint filings or proxy fights that all remain relatively rare events.[6] To overcome the unobservability of coordination, we build proxies that capture the incentives and propensity of institutional owners to coordinate based on their interconnectedness within the network of all US institutional investors. To do so, we rely on measures of interconnectedness that favor the emergence of cooperative strategies at the expense of free-riding. First, we define connections within the network of all institutional investors. Second we present our preferred measures of interconnectedness building on the concept of complete sub-graphs, also known in network theory as 'cliques'.

We represent institutions as nodes in a network with connections between them defined by their common holdings in the fourth quarter of each calendar year. Specifically, we deem a connection to exist between two investors if each owned a large stake (at least 5%) in at least one common firm at the end of the prior year. Our definition of a connection between two institutional investors assumes that sharing large common holdings in at least one firm increases the probability of interactions relative to institutions that do not share such common ownership. This assumption is supported by Shiller and Pound (1989) and Hong et al. (2005) whose findings are consistent with the view that common holdings are correlated with prior interactions between the institutions. We then use the network of all institutional investors and identify interconnectedness using standard measures from network theory that

[6] Several papers finds evidence of coordinated governance in small samples. For example, Dimson et al. (2015) show that coordinated engagement with firms increase success in corporate social responsibility campaigns. Doidge et al. (2015) study explicit collective action by a group of Canadian institutional investors to improve firm governance.

are associated with the survival of cooperation strategies in theoretical and experimental work on coordination in networks.

A large literature at the intersection of several disciplines, including evolutionary biology, networks, and game theory, studies the survival of cooperative strategies in complex networks (see e.g., Santos and Pacheco, 2005). A robust finding in these recent literatures is that complex networks with high modularity, characterized by the presence of highly clustered communities, favor the survival of cooperative strategies over defection/free-riding strategies. Cooperative strategies are not an evolutionary stable equilibrium in random or unclustered networks, but they are sustainable in highly clustered networks (Assenza et al., 2008; Marcoux and Lusseau, 2013). By definition, these highly clustered networks contain a large number of 'cliques'. Intuitively, a clique is a group of nodes where all nodes are connected to one another.[7,8] Thus, to identify groups of institutional investors that are likely to coordinate, we identify cliques of institutional investors.

In social networks, a clique exists if a certain individual's friends are also friends with each other. In our settings, a given institution belongs to a clique if all institutions to which it is connected to are also connected to each other. In Figure 1 below, Institution A has the same network connections in the examples given in both Panel (a) and Panel (b). However, A belongs to a clique (that includes all other nodes) only in the left subgraph, despite the fact that A's connections are the same across the two examples. This makes intuitive sense as a proxy for coordination. Information can move more easily from all nodes in a clique to all other nodes in the left subgraph. In Panel (b), information must move through A, the

[7]Clustering measures how close a network is to being a clique by computing the density of ties among all nodes in the network (global clustering) or in the neighborhood (local clustering). Cliques and clustered networks are therefore close concepts, cliques being networks with the highest clustering coefficient possible.

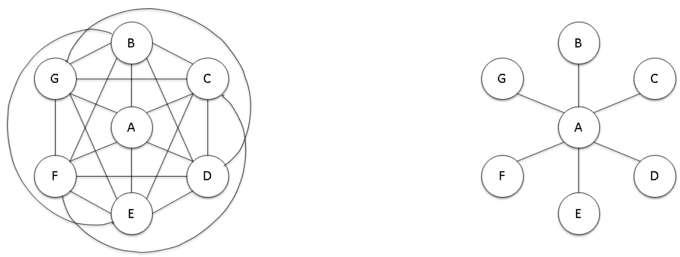
[8]Additional evidence in experimental economics also points to similar network configurations referred to as 'small world' networks, favoring the emergence of cooperation in repeated prisoners' dilemma games (see e.g., Cassar, 2007). Small world networks are characterized by short path length between nodes and high clustering coefficients. They contain large numbers of cliques and near-cliques (Watts and Strogatz, 1998).

central node in the network, to other members of the network. Coordination is therefore made more difficult by the lack of interconnectedness among the other institutions in the network.

Figure 1: Examples of sub-graphs

(a) Clique

(b) Not a clique



We estimate our measure of coordination from the entire network of overlapping ownership positions. This includes more information about institutional relationships relative to other measures that identify co-ownership only in the firm of interest (e.g., Appel et al., 2016; Artiga González and Calluzzo, 2016). This is important because investors in a given clique are likely to be connected through a variety of different firms. Institutions 1 and 2 might be connected through a common large stake in Microsoft, and Institutions 2 and 3 might each have a large stake in Google. Institutions 1, 2 and 3 will therefore belong to a clique if institutions 1 and 3 have a common large stake in any firm. In this case, we treat the ownership of these three institutions in any firm that they own as being owned by that clique.

Exact identification of cliques in a network is a difficult computing problem which cannot be feasibly solved given the size and complexity of the network of institutional investors.[9]

[9]The "clique problem" is what is termed an NP complete problem. It is easy to check whether a group of nodes is in a clique, but actually identifying all cliques in a network results in computing time that increases

However, network theorists have developed a variety of algorithms to approximate solutions to the problem of identifying cliques. We use the most recent and arguably best performing of these algorithms, the Louvain algorithm, developed in Blondel et al. (2008).

Intuitively, the algorithm determines how to partition the graph such that the density of connections on one side of the partition are highest relative to the density on the other side. It does this with respect to each node such that if there are 3,000 institutions, the network is partitioned 3,000 times. Then, if any two institutions have not been separated by any of the partitions, those institutions are combined into a single node. This process is repeated until no nodes are combined. The output is an assignment of each institution either to a specific clique or to no clique at all. The number and size of cliques is determined by the data and algorithm. The algorithm is static in that each cross section (based on reported holdings at the end of the year) is treated independently.

Once the cliques are identified annually in the network of institutional investors, we construct several measures that aggregate clique ownership at the firm-year level in different ways. We measure the total ownership in each firm of only the single clique with the largest ownership stake in the firm. This measure provides a proxy for the top clique within which all clique members are likely to cooperate. A second measure aggregates ownership by all clique members at the firm level. This provides an alternative coordination proxy given that prior research shows that networks with high numbers of cliques better support coordination. We also measure an Herfindahl index of clique ownership which measures the concentration of clique ownership. These measures are defined and discussed in section 3.

It is important to note that a clique's ownership in a firm need not be made of 5% individual stakes. Common 5% stakes are used to identify connected pairs of institutions, but in a given firm, the members of a given clique may not have any common 5% positions

in non-polynomial (NP) time as a function of the network size. As a result, this cannot be feasibly computed for a network our size.

at all. For example, in our sample Icahn Capital LP only owned 0.5% of Apple stock when they campaigned for higher payout in 2013. Their 0.5% ownership is counted as part of total clique ownership along with that of other members of their clique. In fact, we can exclude the $\geq$ 5% positions from clique ownership after we have used them to identify the cliques. Our results are virtually unchanged under this specification.

Cliques are arguably the purest network ingredient that characterizes networks where coordination and cooperation emerge as a sustainable equilibrium. However, the definition of a clique is somewhat restrictive because it requires all network members to be connected. Along with cliques, 'near-cliques' are also present in small-world networks or scale-free networks in which cooperation thrives. These networks all exhibit a high density of connection among network members, as measured by clustering. However with our strict definition of interconnectedness, we miss some institutions that belong to these 'near-cliques'. As an alternative to our clique measure, we also use a cluster coefficient to identify coordination in a network. An institution's cluster coefficient captures how close an institution is to being a member in a clique. One advantage of this measure is that one can apply different weighting mechanisms and definitions of connections to measure how 'cliquish' the average ownership of a given firm is. A significant drawback of this measure, however, is that it does not allow us to identify the near-cliques themselves. It is therefore impossible to observe whether these clusters of investors in the firm are connected and thus likely to work together. With this caveat in mind, we present results with the clustering coefficients in our Internet Appendix, and find that our main conclusions are unchanged.

While our proxy is motivated directly from network theory, we still face the same challenge inherent in the literature; coordination is not observable, so validating such a measure is difficult. One concern of particular importance is that it is difficult to distinguish institutions acting similarly via coordination from institutions acting independently, but similarly, simply because they have similar information sets ("correlated effects" in Manski (1993)).[10]

We address this concern in several ways. First we document that members of cliques are more likely to file joint 13G or 13D filings, showing that, on average, they are more likely to engage in explicit and disclosed coordination with other investors. Second, we rely on prior theoretical work that has distinct predictions for coordination versus correlated information. Foster and Viswanathan (1996) show that when investors have similar signals, they should trade aggressively in the same direction, resulting in positively correlated trading with large price impacts. However, if investors are coordinating, they may trade in ways to minimize price impact (Edmans and Manso, 2011). We find evidence of the latter. Institutions closing out a position in a given stock are more likely to close out slowly over time if they are in a clique. This is consistent with coordination and inconsistent with correlated information. Furthermore, Edmans and Manso (2011) show that coordination among blockholders reduces the threat of exit, while blockholders with overlapping holdings that are not coordinating actually improve that threat. We find that ownership by clique members weakens the threat of exit. Finally, we find that clique ownership substitutes for other types of coordination among owners. We show that when firms experience an exogenous loss in the ability of small investors to coordinate, ownership structure endogenously concentrates in firms with low clique ownership but not in firms with high clique ownership. Overall, these different pieces of evidence support the view of coordination among clique members and are inconsistent with the correlated information alternative interpretation. We discuss these tests in detail in Section 5.

An additional concern regarding our measure of coordination relates to the underlying legality of such activities. Coordination may be tacit as in Brav et al. (2014), it may entail

[10]This same problem affects much of the literature on peer effects. Managers with educational ties might make similar investment decisions today because they are actively communicating and working together, or they may act independently but in similar ways as a result of their correlated training.

formal arrangements (e.g., the Council of Institutional Investors), or it may result from informal conversations as in Shiller and Pound (1989). The legality of such coordination arrangements is murky. McCahery et al. (2016) find that institutions consider the legal implications of coordination and yet still interact. They can ensure legality of their actions by simply jointly filing a 13D should their joint ownership cross the 5% threshold. Perhaps not surprisingly, we find that the tendency to file joint 13D's is seven times greater for members of cliques relative to non-members.

However, not all governance-related actions require joint filings, even if a group is working together and owns more than 5%. For example, after 1992, institutions are specifically allowed to communicate during a proxy contest about their voting intentions without the need to file jointly. Moreover, recent legal rulings have pointed out that other interactions beyond voting communications do not require joint disclosures of interest.[11] This is supported by a recent number of anecdotes of investors coordinating, even in the absence of joint ownership disclosures (see, for example, recent news articles by Foley and McLannahan (2016), Das (2015), and Benoit and Grind (2015)). Therefore, relying on joint filings alone will underestimate coordinated investor efforts.

3. Data

We obtain institutional ownership data from Thomson-Reuters 13F database. To generate annual, calendar year-end holdings data, we first filter out cases in which the manager reports multiple positions in the same stock on the same report date and use only the holdings with the latest filing date. We split adjust reported holdings if the split occurs between the report date and filing date.[12] Following Griffin and Xu (2009), we carry holdings for-

[11]See, for example, the ruling in *CSX v. Children's Investment Fund Management*, "[t]he Rule does not encompass all 'concerted action' with an aim to change a target firm's policies."

[12]Thomson Reuters adjusts the number of shares held for splits that occur after the report date. To recover the number of shares held at the report date, we undo this adjustment using the CRSP share adjustment factor.

ward one quarter if an institution is missing a single reporting period. Finally we retain the holdings reported closest to the end of each calendar year for each institution if the report date is no earlier than October (or July in the case of a reporting gap).

We merge these annual holdings with share prices and shares outstanding in December of each year from CRSP. This results in 62,821,424 institution-stock-year observations over the period 1980-2013. From these data we construct annual bi-partite graphs (B_t), NxM matrices of institution-firm relationships where a one indicates that institution n has a position in firm m in the fourth calendar quarter of that year, and zero otherwise. We can also adjust the weights of these relationships by replacing the zero or one with either the portfolio weight of the relationship or the ownership weight of the position (i.e., the percentage the institution owns of the firm.) We create a standard adjacency representation of the graph $A = B_t * B_t'$, setting the diagonal to zero. This represents the relationships between each institution in the graph where the off-diagonal elements indicate a weighted or unweighted connection between two institutions. From this network representation, we estimate cliques within the network using the Louvain algorithm of Blondel et al. (2008) discussed above.

We define connections between two nodes based on common large ownership stakes. Our primary clique measure is based on connections defined as common block (5% or more of the firm's shares) positions. This measure simplifies the network, helping the algorithm to converge. This results in membership lists, in which each institution is either assigned to a specific clique or to no clique at all.[13]

We then aggregate institutional ownership by cliques for each firm-year using the fraction of the firm owned by each institution. The extent to which a given firm's ownership is made

[13]One drawback is that any individual institution working with a group of others may specifically avoid accumulating a block position. For robustness, we lower the ownership threshold to 1% and use only the 50 largest positions for each institution (to avoid high network complexity). Our conclusions are unchanged under this specification. Results are available from the authors on request.

up of institutional cliques is:

$$Clique\ Ownership_{j,t} = \sum_{i}^{N} \lambda_{i,t} \mathbb{1}(Clique\ Institution_{i,t}) \tag{1}$$

where $\lambda_{i,t}$ is institution i's percent holdings in firm j at time t and $Clique\ Institution_{i,t}$ is a dummy variable set to one if institution i belongs to a clique at time t. In addition to the aggregate ownership by cliques for each firm, we measure the concentration of clique ownership in a firm. $Clique\ Herfindahl_{j,t}$ takes the total fraction owned by each clique present in firm j, squares them and then sums them. Last, we compute the total ownership in each firm of only the single clique with the largest ownership stake in the firm, *Clique Own. Top 1*$_{j,t}$. Note that investors do not need to be blockholders of the firm of interest to be included in its clique ownership. The 5% common ownership stake that identifies a connection between institutions can be in any firm. As a result, our aggregation of clique ownership is not simply a sum of blockholders' ownership in a given firm.

As an alternate measure, we calculate a cluster coefficient for each institution-year. A cluster coefficient is designed to reflect how close a node's neighbors are to being a clique. The primary benefit of this alternative measure is that it is easily calculable and adaptive to a wide variety of assumptions regarding what constitutes a connection. Our findings are robust to this alternate measure and to a variety of weighting schemes in the network. These results are presented in the Internet Appendix. The primary drawback of this alternative measure is that it cannot distinguish the clique to which each institution belongs. Therefore we focus on the more detailed output from the Louvain algorithm.

Our sample consists of clique membership lists that cover 59,648 institution-year observations (including institution-years that are not assigned to a clique) from 1980-2013. After requiring data on institutional 'type', we have 51,699 observations. We aggregate clique and non-clique ownership to the firm-level and merge with Compustat and CRSP. After requiring lagged book equity from Compustat and lagged returns from CRSP, and removing firms with institutional ownership over 100%, we have 218,351 firm-year observations. In some tests we use voting data from ISS for the period 2003-2013. This includes both voting outcomes at the firm level, and for mutual funds, specific ballot level voting results.

4. Results

We present summary statistics for institution-level observations in Table 1. The average institution in our sample has 17.6 billion in assets under management and 1,137 stocks in their portfolio. Seventy four percent of our sample institutions are investment companies, 12% are banks, and the remaining are split between insurance companies, pensions, endowments, and unidentified (miscellaneous).

In Table 2 we examine the characteristics of institutions that belong to cliques. We regress *Clique institution* on lagged institutional characteristics in a linear probability model with time-effects and standard errors clustered at the institution-level. The point estimates on assets under management (AUM) are negative and insignificant, indicating that there is no relation between portfolio size and the tendency to belong to a clique. It is therefore not the case that large investors that tend to have common overlapping positions with many others (e.g. Blackrock or Vanguard) are more likely to belong to cliques. This may be because a clique requires all pairwise connections to exist between all others, and large investors may simply be connected to too many others for a clique to exist. Controlling for AUM, clique members tend to have more positions and own larger positions in firms, on average. Most institution types are more likely to belong to cliques relative to pensions (the omitted type), a potentially interesting result given that pensions are traditionally thought of as activist investors. Institutions that belong to cliques are most likely to be dedicated investors and least likely to be quasi-indexers (as classified by Bushee, 1998).

In addition to measuring differences between clique and non-clique members, we also examine if institutions within the same specific clique tend to have similar characteristics to each other. We compute the standard deviation across the full sample of institutions for each year of a variety of institutional characteristics. We then compute the standard deviation within each clique in each year as well. The within-clique standard deviation is smaller than the full sample for most institutional characteristics. This is particularly true for institutional type indicators, e.g., endowments work with other endowments, etc. These results are presented in detail in the Internet Appendix Table IA.1.

Explicitly identifying coordination within these groups is one of the main empirical challenges that we face. This is difficult to do in a systematic way, which is why we rely on a variety of different tests, including several motivated by the theoretical predictions in Foster and Viswanathan (1996) and Edmans and Manso (2011). However, we also find that our cliques are consistent with some of the anecdotal evidence. For example, a *Wall Street Journal* article describes a history of managers at Trian, Berkshire Hathaway, Pershing Square, and 3G working together to influence the firms they own (Das, 2015). In our estimation, Trian first enters a clique in 2009. In this same year, Berkshire Hathaway and Pershing Square are also in that clique. Berkshire and Trian remain in the same clique for the next three years.[14]

To investigate the nature of our cliques further, we randomly sample 100 institutions in 2013. For these institutions, we manually collect all of their 13D and 13G filings. For each filing, we determine whether the institution is acting individually in the given company, or is filing jointly with some other investor(s). We then examine if the propensity to file jointly is related to clique membership. We present these results in Table 3. In this table we regress the log number of joint filings on an indicator for whether the filing institution is in a clique. We control for the total number of filings as well as a variety of institution level characteristics. We find strong statistical evidence that clique membership is positively

[14]3G, a Brazilian hedge fund, is not in any of the cliques we identify in any years. This is perhaps not surprising because it reports only a handful of positions with the SEC each year.

associated with the number of joint filings. This evidence supports the view that clique members are more likely to engage in explicit, disclosed, coordinated actions.

We are ultimately interested in the effect of clique membership by owners on firm level outcomes. Therefore, Table 4 presents summary statistics at the firm level. Panel A summarizes the full sample, and Panel B splits the sample into quartiles based on *Clique Ownership*. *Clique Ownership* is 0.29 for the average firm. There is substantial variation; the inter-quartile range is 0.03 - 0.63. *Clique Ownership* is also related to other ownership structure variables. *Clique Ownership* is high when the level of institutional ownership is high, but also when the concentration is low. This is suggestive of a possible substitution effect between ownership concentration and ownership by cliques, similar to the aggregate results presented in Figure 2, where we plot the average institutional ownership concentration (defined as in Hartzell and Starks, 2003) each year. While total institutional ownership has gone up dramatically over this period, so too has the number of institutions. As a result, the average position size of the top institutional owners in each firm has dropped dramatically over time. We contrast this with the ownership by cliques. *Clique Ownership* has risen substantially over this same time period.

Regarding the concentration of clique ownership, *Clique Herfindahl* is 0.06 on average. The clique with the largest aggregate position in the firm (*Clique Own. - Top 1*) owns 13% of the firm on average. If members of this clique are, in fact, acting as one, this is a substantial blockholding, one that has so far been overlooked in the governance literature.

4.1. Clique Ownership and Shareholder Voting

Shareholder voting is a natural setting in which to examine the relation between shareholder coordination and governance. Voting is ultimately the way in which shareholders exercise their control rights. McCahery et al. (2016) find that institutions view voting as an engagement mechanism that directly affects governance. Consistent with this, results in Gillan and Starks (2000) suggest that coordinated voting can impact governance outcomes.

Matvos and Ostrovsky (2010) document that mutual funds are more likely to vote against management when other funds are more likely to vote against management. On the other hand, there is evidence that institutional investors vary substantially on how they vote, even within the same mutual fund family (Morgan et al. (2011)). In this section we examine if voting is a function of the presence of ownership by cliques.

Prior literature has shown that activist governance is associated with more votes in favor of governance proposals often opposed by managers (Gillan and Starks, 2000). If this is true, and if members in a clique work together to provide governance through voting, then we expect high clique ownership to be associated with more votes against management. This unconditional prediction ignores the possibility that management may adjust the quality of proposals put forth as a function of the presence of governing owners. To mitigate the issue, and validate that our clique proxy captures coordination, we first focus on all votes put on the ballot, irrespective of the quality of proposals. In this setting, we expect members of the same clique to vote in the same direction. We therefore do not need to rely on assumptions regarding the average quality of management proposals.

To examine whether clique members vote together, we first turn to data on mutual fund voting. For this subset of institutional investors, we are able to observe how they vote on each ballot item for each firm in their portfolio due to a 2003 SEC rule that requires such disclosures for mutual funds. For each proxy ballot item, we create an indicator variable equal to 1 if the mutual fund votes yes and zero otherwise. We then aggregate these items to the institution level to match our clique definitions, averaging our vote indicator across all funds in the mutual fund's family. In general, there is very little variation within mutual fund families in terms of votes, but for some family-item pairs the average falls between 0 and 1 when all funds managed by an institution do not vote the same.

We then examine all pairs of institutions that vote on the same ballot item. We regress the voting variable of institution A on that of institution B (the peer institution). We include an indicator equal to 1 if the two institutions are in the same clique, and 0 otherwise. If either institution is not assigned to a clique, then this takes a value of zero. We include this indicator, and the interaction between the peer vote and the same clique indicator. We run this regression for all unique ballot item-pair combinations. We present the results in Table 5.

The significant positive coefficient on *Peer Vote* represents the linear relationship between the votes of institutions not in the same clique. In general, mutual funds not in the same clique seem to vote in the same direction between 44% and 51% of the time. The negative coefficient on *Same Clique* shows that when there are institutions pair-items observations that are within the same clique they vote in favor of the ballot item less frequently all else being equal. Importantly, the interactions term *Same Clique* × *Peer Vote* shows that the correlation between the voting of institutions in the same clique is significantly higher than when the institutions are not in the same clique. This is robust to the inclusion of year effects and fixed effects for both institutions in the pair. This also holds using only variation within specific shareholder meetings as evidenced in column 5 where we include meeting fixed effects. The economic magnitude of this difference in correlation is large. It represents an 8-10% increase in the correlation relative to pairs that are not in the same clique.

While we find that mutual fund families in the same clique vote together, this represents only a subsample of all institutional investors. Unfortunately, we do not have institution-level voting data for all institutions. This is potentially important given that cliques are composed of different types of institutions. We can, however, observe the overall voting outcome for each ballot item at the firm level. These overall voting outcomes include votes from all types of institutions, not just mutual funds. Therefore, we use these data to determine if clique ownership impacts voting at the firm level.[15] In Table 6 we use a fixed effects regression to

[15]Because voting is aggregated at the firm-level, we cannot directly examine if institutions are voting together with others in their clique. However if clique members are voting together, all else equal, voting

examine whether voting outcomes at the firm level are a function of the extent to which the firm is owned by cliques. Our dependent variable, the fraction of votes against management, is bounded between zero and one, so we may face a censoring problem of some latent voting outcome. Our conclusions are unchanged when we estimate the effect using a Tobit model. However, due to the non-linear nature of the Tobit model, under this specification we cannot include firm fixed effects. We also control for a variety of ownership characteristics included in prior literature, including several measures of ownership structure. This ensures that the effects we measure related to clique ownership are different from total institutional ownership, blockholder ownership, index-type institution ownership, etc. All explanatory variables are measured the year before the election event.

Not all management proposals should fail, and in many cases informed and coordinated investors may help high quality proposals to pass. We proxy for the quality of the proposal in two ways. To proxy for low quality proposals, we use proposals that ISS has recommended against. ISS recommendations are a standard proxy for quality in the literature (e.g., Bethel and Gillan, 2002; Morgan et al., 2006; Cai et al., 2009; Cotter et al., 2009; Morgan et al., 2011). We present results using this proxy for bad management proposals, $\textit{Bad Proposal}_{ISS}$, in Panel A. In Panel B, we proxy for good proposals, $\textit{Good Proposal}_{DK2007}$, based on six items identified in Davis and Kim (2007) (and used in Morgan et al. (2011)) as having the most significant positive impact on shareholder value. These include proposals for: (1) declassifying the board, (2) establishing cumulative voting, (3) establishing an independent chairman of the board, (4) repealing shareholder rights plans (poison pills), (5) giving shareholders voice on golden parachutes, and (6) expensing stock options.

In Panel A, we find that our proxy for coordinated ownership is related to voting out-

outcomes (e.g., the percent of shares voting against the item) in the tails of the distribution should be more likely to occur when ownership by cliques is high relative to when cliques are not present in the firm. We find that the standard deviation of voting outcomes is bigger for firms with high clique ownership (12.52% vs. 11.31% within firms with low clique ownership).

comes. Specifically, we find that when ISS disagrees with management, i.e. proposal quality is likely to be poor, coordinated ownership is associated with an increase in the number of votes against, suggesting that the coordinated ownership goes against the passage of these proposals. This is true for director elections (columns 1, 3, and 5) and other ballot items (columns 2, 4, and 6). The direction of this effect is consistent across all three proxies for coordinated ownership (ownership level of the cliques, the Herfindahl of clique ownership, and the ownership of the top clique) and for both director elections and agenda items not related to director elections. It is statistically significant in five of the six specifications. We find the opposite effect when ISS recommends against management's position. In all specifications, coordinated ownership is associated with a significant increase in the votes against management for poor proposals. The economic magnitudes of these effects are large. From column 1, firms with *Clique Ownership* one standard deviation above the mean have 6.2 percentage points more votes against management when ISS recommends against. This is economically large compared to the average percentage of votes against management of 5.8%.

The concentration of clique ownership is also strongly related to votes against. A firm with *Clique Herfindahl* one standard deviation above the mean is associated with 24 percentage points more votes against management in director elections when ISS also recommends against (column three), roughly five times the unconditional average. The economic effect of ownership by the clique with the largest position in the firm (column 5) is similar to that of *Clique Ownership*.

In Panel B, we present results using our proxy for high proposal quality. We do not present results from director elections separately as this proxy applies only to other agenda items. In general, we find results consistent with Panel A. Unconditionally, high clique ownership is associated with more votes in favor of management (negative point estimates imply fewer votes against). This is not surprising. Our good proposals are those identified in Davis and Kim (2007) as having the most significant positive impact on value. This does not necessarily mean that all other proposals are, on average, bad. What is important in this specification is that the point estimate on the interaction between our measures or clique ownership and *Good Proposal*$_{DK2007}$ are all robustly negative and significant. This means that when proposals are particularly good, high clique ownership is associated with fewer votes against the proposals.

In general, our findings are consistent with an interpretation that ownership by cliques is associated with stronger governance through shareholder voting. It is important to note that all specifications in this regression include firm- and year-fixed effects, as well as controls for many ownership structure and firm characteristics. Therefore, for these results to be driven by unobserved firm or ownership characteristics, such factors would have to be time-varying and unrelated to standard measures of ownership structure such as the level of institutional ownership, the number of blockholders, the ownership of the top five institutions, etc.

An additional concern is reverse causality. Large ownership stakes by cliques may form endogenously in expectation of future improvements in governance through voting. Moreover, managers may adjust the quality of their proposals as a function of their ownership. To better understand the direction of causality, we examine shocks to the network.

4.1.1. Exogenous Changes to the Network

To address both the omitted variable and reverse causality problems, we use a plausibly exogenous shock to the network and the resulting firm-level changes in *Clique Ownership*. We use the mutual fund scandal in 2003 as an exogenous shock to the network. Twenty fund families were implicated in a late trading scandal due to what has been argued to be, at least to some extent, random prosecutions (Zitzewitz, 2006, 2009; Anton and Polk, 2014; Koch et al., 2016).[16] The prosecuted institutions experienced large outflows and were forced

[16]Even if such prosecutions were not wholly random, they are unlikely to be related to the relationship between the equilibrium network of ownership across all institutions and voting outcomes in the future.

to sell assets. A number of them went out of business or were acquired by other institutions as a result. These changes in ownership allocations began in 2003 and lasted through 2005. We use these changes as plausibly exogenous variation in the network.

The network also changed over the same period for reasons unrelated to the prosecutions. Therefore, we first identify the investors who were not themselves implicated in the scandal, but were connected to scandal institutions. Specifically, for each institution we proxy for an individual institution's exposure to a specific scandal fund by identifying if they have overlapping holdings. We then aggregate this indicator of exposure across all scandal funds resulting in a single measure reflecting the institution's exposure to the scandal as a whole. Using this measure as a continuous treatment identifier, we distinguish network changes resulting from the scandal from those that did not using an instrumental variables framework. We then aggregate the treatment identifier to the firm-level such that treatment firms are those owned to a high degree by institutions that are highly connected to institutions implicated in the scandal. Since one of our main variables of interest is the interaction between clique ownership and proposal quality, we also instrument for this interaction using scandal exposure interacted with ISS recommendations.

We find that institutions with stronger exposure to the scandal institutions experienced a decrease in the likelihood of being in a clique during 2003-2005. We argue this is exogenous as the scandal funds are unlikely to be dropping out of cliques as a result of future voting outcomes in specific firms. As a result of this decrease in the exposed institutions' probability of being a clique, firms that these institutions owned experienced an exogenous decrease in *Clique Ownership*. In Table 7 we exploit this variation and show a difference in voting against management after (*Post*) the scandal for firms with exogenously lower clique ownership (*Treatment*). Columns one and two correspond to columns one and two of Table 6 Panel A. Column three corresponds to column one of Table 6, Panel B.

Consistent with prior results, the interaction between *Clique Ownership* and ISS recommending against management is positively related to voting against management. One difference in these results from Table 6 is that when using exogenous variation, *Clique Ownership* is unconditionally positively related to voting against management. These results are consistent with ownership cliques causing more voting against management. This is true not only for director elections, but also for other management proposals, and all proposals combined. In column three, we show that using the IV framework firms with high clique ownership vote against good proposals less. This is an economically large effect that is significant at the 11% level.

There is evidence in the literature that institutions may vote in ways that do not maximize shareholder value, either due to private benefits or myopia. While Del Guercio and Hawkins (1999) and Davis and Kim (2007) suggest conflicts of interest are not a problem generally, Butler and Gurun (2012) show that coordination in voting can arise when fund managers and CEOs share educational ties, leading to a better flow of information between owners and managers but resulting in arguably worse governance outcomes as a result of a *quid pro quo* in CEO pay. On balance, we believe our results are consistent with improvements in governance. In general, conflict of interest alternatives would result in more votes in favor of management, which we do not find. Given that cliques vote against management more when proposals are bad according to ISS, our result is consistent with cliques leading to better governance, unless ISS is also systematically biased in the same direction as these conflicts. Further, clique ownership is not dominated by short-term investors and therefore the results are inconsistent with the institutional myopia alternative in Bushee (2001).

4.2. The Specialization of Cliques

Anecdotal evidence suggests that some groups of investors may coordinate and specialize in governing to achieve specific corporate actions. This may be because they share similar views on governance, or because some institutions may be subject to prudent investor rules and have preferences for certain policies, like payout. We select several firm outcome variables that have been associated with activist governance. We examine the extent to which each institution owns firms that i) initiate a dividend, ii) initiate a repurchase, iii) divest either through a spin-off or by selling the entire firm and iv) do not make acquisitions. We identify dividend and repurchase activity from CRSP and Compustat and divestitures and acquisitions from SDC.

We create indicator variables for each of these four outcomes, and aggregate these for each institution based on its holdings. For example, if $d_{i,t}$ is an indicator set to one if firm i initiates a dividend in year t, then an institution's tendency to own firms that initiate dividends in period t is represented by $\sum \lambda_{i,t} d_{i,t}$, where $\lambda_{i,t}$ is the institution's portfolio weight in stock i at time t. We do the same for the other three outcome variables.

After generating these institution-year measures, we then compute medians across all institutions within each clique in each year, resulting in measures of the extent to which each individual clique tends to be associated with these firm outcomes. We plot these yearly clique characteristics in Figure 3. Each red dash represents the median characteristic of a unique clique. The blue diamond indicates the median for all institutions that do not belong to a clique. For example, in Panel (a) of Figure 3, the blue diamond in the year 2000 indicates that among institutions that do not belong to a clique, the median institution has a little over 1% of its portfolio in firms that initiated a dividend during that year. The red dashes indicate that all but one of the individual cliques have a larger fraction of their ownership in firms that initiated dividends.

There are two observations worth noting from these figures. First, there is considerable variation across cliques in their tendencies to own firms that exhibit these characteristics. Second, it is clear that for both dividends and acquisitions, clique ownership differs on average from non-clique ownership. Panel (a) shows that the firms owned by cliques are much more likely to initiate dividends compared to firms owned by institutions that are not members of cliques. Similarly, in Panel (d), it is clear that most cliques own firms that do not make acquisitions compared to firms owned by institutions that do not belong to cliques. These findings are consistent with cliques either improving agency problems through governance, or choosing firms that, in the future, exhibit behavior consistent with a reduction in agency problems.

Next we test if the cliques that tend to be strongly associated with, for example, initiating firm payouts in one period, are the same cliques associated with initiating firm payouts in subsequent periods. We first define a specialized clique as any clique in the top (or bottom, in the case of making acquisitions) quartile along a given corporate outcome in a given year. For instance, cliques that specialize in initiating dividends are represented by the red dashes that are in the top quartile in a given year in Panel (a) of Figure 3. Similarly, cliques that specialize in preventing empire-building acquisitions are represented by the red dashes in the bottom quartile in a given year in Panel (d).

Then, we examine institution-level transition probabilities and present these results in Table 8. We find significant persistence in clique membership. Ninety percent of institutions that do not belong to a clique in year t also do not belong in year $t+1$. This is highly significant compared to the overall average non-clique membership of 65%. Among institutions that belong to a clique, we distinguish membership in a specialized clique from others. We find significant persistence in these roles as well. For example, a firm that belongs to a clique in year t that specializes in initiating dividends belongs to no clique 20% of the time, a non-specialized clique 62% of the time, and a clique that specializes in initiating dividends 18% of the time. These are highly statistically significant relative to a null based on the unconditional sample average in each group. Economically, the likelihood that a firm remains in a specialized clique from one year to the next is roughly twice what would be expected due to chance.

Last, we examine if the presence of specialized cliques has predictive power for future firm outcomes associated with activist governance. For each firm, we measure the total fraction owned by specialized cliques separately for dividends (Dividend Clique Ownership), repurchases (Repurchase Clique Ownership), acquisitions (Anti-acquisition Clique Ownership), and divestitures (Divestiture Clique). We then examine future policy outcomes as functions of lagged ownership by specialized cliques.

Table 9 presents estimates of the effect of ownership of specialized cliques on future dividend initiations, repurchase initiations, acquisitions, and divestitures respectively. In these regressions, we continue to include overall ownership by coordinating investors (*Clique Ownership*). Generally, we find that ownership by the specific type of clique is associated with changes in the firm policy along that dimension in the next period. For example, the first column estimates the effect of clique ownership at t on dividend initiations at $t+1$. We see that the probability of initiating a dividend is increasing in the ownership of the dividend cliques in the year before. The overall effect is economically small. A one standard deviation increase in Dividend Clique Ownership is associated with a less than 1% absolute increase in the probability of dividend initiation. However, this represents an increase of 4% over the unconditional probability of initiation.

We see little evidence that clique ownership by institutions is related to repurchases. However, we find that ownership by anti-acquisition cliques is related to a lower probability of future acquisitions, and that ownership by cliques that specialize in divestitures is related to a higher probability of divestitures going forward. However, results in column 4 indicate that dividend and anti-acquisition cliques also avoid firms that conduct divestitures. We cannot distinguish whether these results are picking up the fact that specialized cliques are better at forecasting future policy changes or whether they are actually causing those changes. Both interpretations may be of interest, as each suggests that clique ownership has important implications for understanding firm policies as a function of ownership.

5. Distinguishing Coordination from Independent Correlated Actions

Our results so far are consistent with clique members coordinating to facilitate governance in the firms they own. An alternative interpretation is that clique members are acting independently but give the appearance of coordinating, e.g., vote together, because they have independently acquired correlated information. In this section we provide additional evidence on the distinction between coordination and independent correlated actions.

5.1. Exit versus Voice

Coordination can help owners share monitoring costs, mitigating free-riding. As such, in a typical setting of governance by "voice" (e.g., voting) the ability to coordinate facilitates governance. However, Edmans and Manso (2011) show that the free rider problem actually helps governance through the threat of exit, and by alleviating free-riding, coordination among owners weakens the threat of exit. This is because the threat of exit is strongest when owners are independently and aggressively trading, as in the independent correlated information version of the reflection problem described earlier.

We first provide evidence on realized exit. As discussed in Holden and Subrahmanyam (1992) and Foster and Viswanathan (1996), if multiple agents receive similar information and cannot credibly commit to cooperate, this information will quickly be impounded into prices, as the agents trade contemporaneously and aggressively to exploit the value of their information. On the other hand, if the agents can coordinate with each other, then they will unwind their positions slowly to minimize price impact (Edmans and Manso, 2011). We examine these distinct predictions in Table 10.

Using all institution-stock pairs each quarter, we identify all positions that are closed out completely by the institution and examine the institution's trading prior to the exiting trade. If institutions in cliques are coordinating, then we expect them to walk down their position prior to exiting with a higher probability than if they are acting independently. We regress the change in the fraction of the firm owned by the institution on an variable indicating whether the institution belongs to a clique. Results are presented in columns 1-3. Clique members walk down their positions 3 to 3.8% more often than non-clique members. Institutions not in cliques reduce their positions prior to closing them out 38% of the time; the clique effect is roughly 10% of this baseline. The result is highly statistically significant and robust to including stock-quarter fixed effects, institution fixed-effects, or both stock-quarter and institution fixed effects.

In columns 4-6, we look at variation in selling behavior prior to exiting only among the sample of institutions that are clique members. We expect that the institution will walk down a position more frequently when other clique members are also exiting that firm, relative to cases in which no other clique members are present. This corresponds closely to column 4 which includes institution-quarter fixed effects. We find that the probability of walking down a position prior to closing it completely is 5.2% greater when there are other clique members also exiting that stock. The results are robust to different fixed effect specifications. Overall, our results support the view of coordination among clique members and are inconsistent with independent correlated information.

We also examine the threat of exit as a governance mechanism. This type of analysis is challenging because the threat is unobservable. However, prior literature has developed tests of the threat of exit, and we use these empirical strategies while also incorporating measures of clique ownership. Table 11 examines the threat of exit as function of the presence of ownership cliques. Following Bharath et al. (2013) and similar to the approach of Edmans et al. (2013), we examine changes in firm value around decimalization. To test for evidence of governance via threat of exit, Bharath et al. (2013) examine if the value of firms with blockholders responds differently to liquidity shocks than that of firms without blockholders. A single owner trading a large position will influence the price greatly, thus providing greater governance ex ante through the threat of exit. Identification comes through the liquidity shock because greater liquidity also increases the productivity of governance via threat of exit.

We confirm the results in Bharath et al. (2013) in our sample. Results in columns 2, 4 and 6 indicate that firm value increased around decimalization more for firms with blockholders relative to those without. Economically, the effect we estimate is similar to that estimated in Bharath et al. (2013). After controlling for this effect of blockholdings, we also interact decimalization with *Clique Ownership* and find the opposite effect. A one standard deviation increase in *Clique Ownership* (interacted with decimalization) results in a drop in q of about 0.5. The economic magnitude is roughly equivalent, but of the opposite sign, to that of ownership by blockholders.

Columns 3 through 6 use measures of the concentration of clique ownership. We find similar results for the Herfindahl measure, and the ownership of the single largest clique in the firm. Under the same identifying assumptions as Bharath et al. (2013), this result suggests that cliques weaken the threat of exit. This is consistent with the view that members in cliques are coordinating, and do not simply have common information sets.

If clique presence weakens the threat of exit, then we expect that, in equilibrium, investor cliques will own firms in which the relative productivity of governance by voice is high, and they should avoid owning firms in which the relative productivity of governance by exit is low. To examine this, we distinguish firms in which the threat of exit is particularly important from those where it is not. Edmans (2009) shows that the threat of exit as a governing device is strongest when management assigns a high weight to the short term stock price. Following Edmans et al. (2013) we measure managerial myopia using soon-to-vest stock options, which proxies for exogenous variation in managerial myopia.[17] To complement this, we also proxy for managerial myopia using CEO age.

To examine the relation between coordinated ownership and myopia, we regress *Clique*

[17]For these tests we require data from ExecuComp that is available from 2006 forward.

Ownership on measures of myopia and firm controls. We present this analysis in Internet Appendix Table IA.3. Results show that the presence of coordinated investors is weakest among firms with myopic managers. This holds for all three measures of clique ownership. Our results are consistent with ownership endogenously adjusting such that in equilibrium investors hold firms in which their marginal productivity of governance is highest. This provides additional support to the interpretation that clique members are working together, and do not simply have correlated information.

5.2. Additional Evidence of Coordination

In addition to the results related to exit, our results on joint filings support the view that that our clique identification captures more than just correlated information or investment strategies/preferences. As discussed in Section 4 and presented in Table 3, we find evidence that clique members are more likely to disclose that they are explicitly coordinating with other parties. While such findings are not definitive evidence of coordination within the clique, they do show explicit coordination on the part of clique members.

To provide one more piece of evidence on coordination among clique members, we examine if ownership by cliques substitutes for other mechanisms by which owners might coordinate. Crane and Koch (2016) argue that private securities class action serves as coordination mechanism for small investors to monitor management. Using a court decision that provides a plausibly exogenous reduction in the ability of investors to file class action litigation, they show that ownership concentration increases as a response to an increase in the free-riding problem. We show that this effect is weaker when firms are owned by cliques.

In 1999, the 9th Circuit Court of Appeals issue a decision in *Re: Silicon Graphics* that set a more stringent hurdle for filing securities class-action litigation. This ruling disproportionately affected firms headquartered in the 9th Circuit. See Crane and Koch (2016) for a detailed discussion of the ruling and the exogenous nature of the decision. In Internet Appendix Table IA.4 we show that treatment firms subject to the ruling saw an ex post increase in institutional ownership, ownership concentration, and the number of large shareholders, consistent with ownership structure changing to overcome the free riding problem. However, we show that the interaction between *Treatment* and *Clique Ownership* is negative and significant. This is true when we include year and firm effects (Panel A) or state-year and firm effects (Panel B).[18] This is consistent with the view that clique ownership serves as a substitute for the class action coordination mechanism. That is, for the firms that had high levels of clique ownership, the shock to the coordination mechanism has relatively little effect. This is generally inconsistent with the hypothesis that clique ownership is picking up correlated information.

6. Robustness

Institutions that are working together may purposefully avoid owning large stakes individually. Therefore, we repeat the construction of clique identification and core analysis after defining connections in the network using only positions that are greater than 1% and less than 5%. In these unreported results, we find effects that are qualitatively consistent with those using blockholdings. We also recompute *Clique Ownership*, excluding positions larger than 5%. This ensures that our findings are not driven by the large positions that actually define the network, but rather the smaller positions that cliques own.[19]

Further, we also repeat analysis using a cluster coefficient instead of the Louvain algorithm. Cluster coefficients are easy to compute and easily adaptable to several different definitions of connections between institutions. The primary drawback of a cluster coefficient is that, while it reflects the likelihood that an investor belongs to a clique, it does not identify the clique to which the investor belongs. We repeat our core analysis using

[18]Note that in Panel B, because the treatment indicator is based on headquarters state, this main affect is absorbed by the state-year fixed effect. However, the triple difference, *Treatment* × *High Clique Ownership*, is still identified.

[19]These results are available from the authors.

a cluster coefficient and a variety of definitions for connections. Consistent with our main specifications, we find that clustered ownership facilitates voice and mitigates the threat of exit. The results using the cluster coefficient are presented in the Internet Appendix.

7. Conclusion

Using a novel measure of ownership coordination derived from the theory of economic networks, we show that firms with high levels of ownership by cliques of institutional investors experience more direct intervention in the form of votes against management. Using a plausibly exogenous shock to the network of institutional investors suggest that this relationship between coordination among institutional investors and governance is causal. Furthermore, we identify institutional cliques that specialize in governing through specific corporate actions (payout, divestitures, acquisitions). These cliques are highly persistent over time and the presence of these specialized cliques predicts future firm outcomes.

To distinguish a coordination interpretation of our results from one of correlated signals, we test how clique ownership relates to trading and the threat of exit. Theory suggests that strategic traders that receive similar information trade and impound their information quickly into prices. On the other hand, coordinating investors may work to minimize the price impact of their trades. As a result, coordination should reduce governance by exit at the same time it improves governance via voice. We find evidence consistent with this, suggesting that cliques reflect coordination among owners.

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Appendix A: Variable Definitions

Variable	Definition
Clique Ownership$_{j,t}$	$\sum_{i}^{N} \lambda_{i,t} \mathbb{1}(Clique\ Institution_{i,t})$, where $lambda_{i,t}$ is institution i's ownership in firm j at time t.
Clique Herfindahl$_{j,t}$	$\sum_{i}^{N} \lambda_{i,t}^2 \mathbb{1}(Clique\ Institution_{i,t})$, where $lambda_{i,t}$ is institution i's ownership in firm j at time t.
Clique Ownership - Top 1$_{j,t}$	Equal to the Clique Ownership of only institutions in the clique with most total ownership.
Annual Stock Return	Compounded monthly CRSP returns for the 12 months prior to the reporting period.
AUM	Assets under management computed as the dollar value of reported holdings using December end CRSP prices.
Average Holding Size	Average holding size is the percent of the firms market value owned by the institution averaged over all positions in the institutions portfolio .
Bad Proposal$_{ISS}$	An indicator equal to one if ISS recommends a vote against management's recommendation.
Book Equity	Compustat variables ceq+txdb, minus preferred stock, which equals Compustat pstkrv or pstkl or upstk in that order, based on data availability.
Dedicated	Indicator equal to one if the institution is classified as a dedicated investor as in Bushee (1998).
Good Proposal$_{DK2007}$	Following Davis and Kim (2007), an indicator equal to one if the proposals is for: (1) declassifying the board, (2) establishing cumulative voting, (3) establishing an independent chairman of the board, (4) repealing shareholder rights plans (poison pills), (5) giving shareholders voice on golden parachutes and, (6) expensing stock options.
Institutional Ownership	Number of shares owned by institutions (per Thomson-Reuters 13f) as a percent of total shares outstanding.
IO Concentration	The ownership of the top five institutional owners as a percentage of total institutional ownership.
ln(Market to Book)	The natural log of Compustat variables ((prcc_c*cshpri)+(dlc+dltt)+pstkl-txditc)/at)
ln(Size)	The natural of Compustat variables prcc_c*cshpri.
Ownership of Top 5	The ownership of the top five institutional owners.
Number of Blockholders	Firm level calculation of the number of positions that are at least 5% of the firm.
Number of Large Owners	Count of the number of institutional owners with positions greater than 2% of the firm's value.
Number of Stocks in Owners Portfolio	Calculated as the average of the number of stocks held by the institutions that own the firm.
Quasi-Indexer	Indicator equal to one if the institution is classified as a quasi-indexer investor as in Bushee (1998).
Transient	Indicator equal to one if the institution is classified as a transient investor as in Bushee (1998).

Figure 2: Institutional Ownership Concentration and Ownership by Cliques Over Time
This figure presents the time series of cross sectional means of the concentration of institutional ownership and the fraction of firms owned by cliques. *Inst. Concentration* and *Ownership by Cliques* are defined in Section 3.

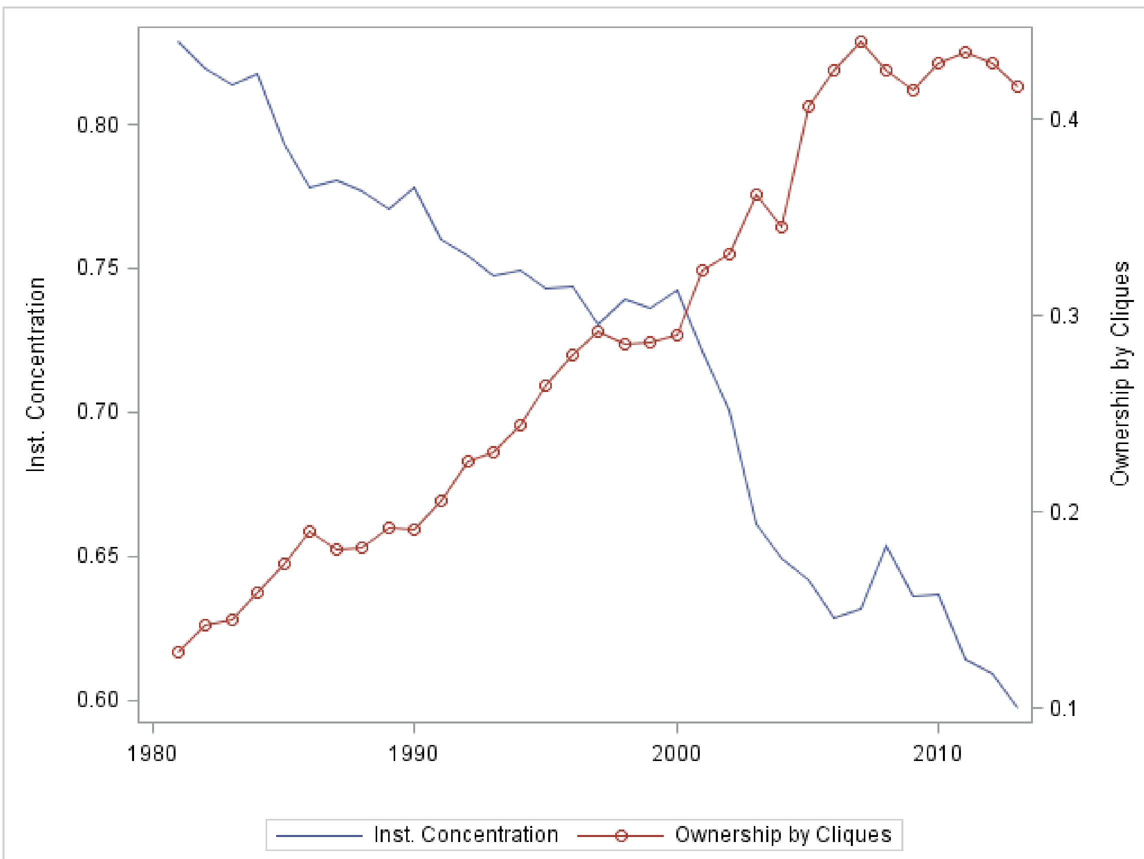

Figure 3: Cliques and Revealed Preferences

Each figure plots the median clique characteristic for each clique (red dash) for each year, as well as the median characteristic of institutions that do not belong to a clique (blue diamond). In Panel a, the y-axis indicates the fraction of an institution's portfolio that is in firms that initiated a dividend. Each dash represents the median insitution in that clique and that year. Similarly, each blue diamond represents the median institution that does not belong to a unique clique. Panel b plots institutions' tendencies to own firms that initiate repurchases. Panel c plots the tendency to own firms that initiate divestures, and Panel d plots firm acquisitions.

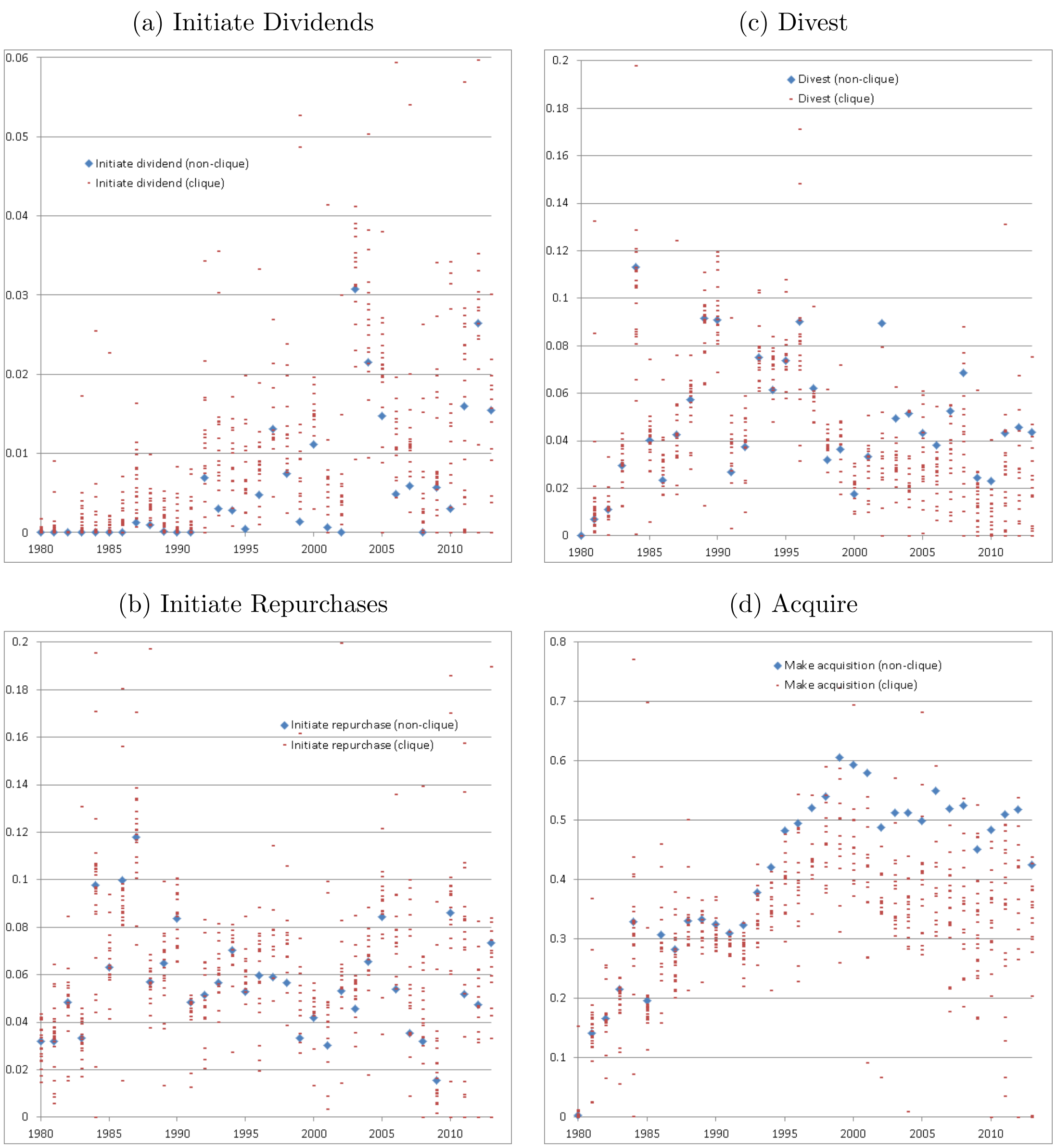

Table 1: Summary Statistics Institution-level

This table presents summary statistics on institution-year observations from 1980-2013. All variables are constructed using calendar year-end holdings of each institution reported by Thomson Reuters. *In a Clique* is a dummy variable equal to one if an institution is in a clique and zero otherwise. Institutional types (Bank, Insurance Company, Public Pension, Endowment, and Miscellaneous) are indicator variables. All other variables are defined in Appendix A.

	Mean	Median	Std. Dev	10th	90th
In a Clique	0.36	0.00	0.48	0.00	1.00
Assets Under Management (2013 $ Mil.)	17567.62	1898.24	99720.38	394.98	26439.53
Number of Positions	1136.76	461.00	2143.02	118.00	2572.00
Average Holding Size	0.01	0.00	0.02	0.00	0.01
Investment Company	0.74	1.00	0.44	0.00	1.00
Bank	0.12	0.00	0.33	0.00	1.00
Insurance Company	0.04	0.00	0.20	0.00	0.00
Corporate Pensions	0.02	0.00	0.14	0.00	0.00
Public Pensions	0.01	0.00	0.10	0.00	0.00
Endowments	0.01	0.00	0.09	0.00	0.00
Miscellaneous	0.06	0.00	0.23	0.00	0.00
Observations	53178				

Table 2: Characteristics of Institutions in Cliques

This table presents a linear probability model of the probability that a given institution is in a clique. The sample is institution-year observations from 1981-2012 and is constructed using calendar year-end holdings of each institution reported by Thomson Reuters. All independent variables are lagged. AUM is the total market value of the institution's holdings in millions. A position is determined to be a blockholding if it is at least 5% of the firm. Average percent of firm owned is the percent of the firm's market value owned by the institution averaged over all positions in the institution's portfolio. Dedicated and Transient are indicator variables defined by Bushee (1998). Year effects are included but not reported. Standard errors are clustered by institution and reported in parenthesis with significance represented according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	In a Clique	In a Clique	In a Clique
AUM	-0.049	-0.073	-0.050
	(0.11)	(0.12)	(0.12)
Number of Positions	0.048***	0.049***	0.049***
	(0.00)	(0.00)	(0.00)
Number of Large Positions	0.978*	1.004*	0.938*
	(0.51)	(0.52)	(0.50)
Average Holding Size	9.560***	10.452***	9.606***
	(1.05)	(0.97)	(1.06)
Dedicated Institutions	0.156***		0.157***
	(0.03)		(0.03)
Transient Institutions	0.088***		0.084***
	(0.01)		(0.01)
Investment Company		0.138***	0.118***
		(0.03)	(0.03)
Insurance Company		0.115***	0.106***
		(0.04)	(0.04)
Bank		0.125***	0.123***
		(0.03)	(0.03)
Endowments		0.046	0.027
		(0.08)	(0.08)
Miscellaneous		0.110***	0.089**
		(0.04)	(0.04)
Constant	0.298***	0.205***	0.191***
	(0.02)	(0.04)	(0.04)
Observations	51699	51699	51699
Year Effects	Yes	Yes	Yes

Table 3: Joint Filings

The sample is a random sample of 100 institutions in 2013. The dependent variable is equal the log number of joint 13D/G filings for an institution. *In a Clique* is equal to 1 if the institution is in a clique, and 0 otherwise. *ln(1+Total Num. 13D/G)* is the total number of filings by an institution. *AUM* is assets under management in billions. *ln(1+Num. Stocks)* is the number of stocks in the institution's portfolio. Institution types are given in Bushee (1998). Significance represented according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	Dependent Variable: ln(1+Num. Joint 13D/G)			
	(1)	(2)	(3)	(4)
In a Clique	0.661***	0.715***	0.750***	0.746***
	(0.22)	(0.26)	(0.27)	(0.28)
ln(1+ Total Num. 13D/G)		-0.049	0.027	-0.044
		(0.09)	(0.12)	(0.09)
AUM			-0.017	-0.014
			(0.01)	(0.01)
ln(1+Num. Stocks)			0.011	-0.036
			(0.04)	(0.04)
Quasi Indexer			-0.028	
			(0.16)	
Dedicated			-0.803	
			(0.52)	
Corp. Pension				0.215
				(0.15)
Investment Co.				0.223
				(0.17)
Insurance Co.				-0.516**
				(0.20)
Bank				0.426
				(0.50)
Public Pension				0.388
				(0.24)
Misc.				0.669
				(0.41)
Constant	0.020	0.030	-0.015	0.043
	(0.01)	(0.02)	(0.19)	(0.17)
R^2	0.190	0.194	0.217	0.269

Table 4: Summary Statistics Firm-level

This table presents summary statistics on firm-year observations from 1980-2013. Panel A summarizes the full sample. Panel B splits the sample into quartiles of *Clique Ownership* sorted by year. Variable definitions are given in Appendix Table A.

Panel A: Full sample

	Mean	Median	Std. Dev	10th	90th
Clique Ownership	0.29	0.21	0.29	0.01	0.69
Clique Herfindahl	0.06	0.01	0.89	0.00	0.12
Cliques Own. - Top 1.	0.13	0.09	0.17	0.01	0.30
IO Concentration	0.72	0.76	0.25	0.36	1.00
Institutional Ownership	0.33	0.25	0.32	0.01	0.78
Number of Stocks	536.25	318.60	614.29	15.60	1427.77
Number of Blockholders	1.24	1.00	1.53	0.00	3.00
Dedicated	0.04	0.01	0.08	0.00	0.13
Quasi-Indexer	0.20	0.14	0.21	0.01	0.49
Transient	0.08	0.04	0.11	0.00	0.22
Assets of Owners (2013 $ Mil.)	30856.07	6811.88	50430.55	140.99	106501.89
Assets (2013 $)	7252.78	319.07	66592.60	23.08	7196.38
Book Leverage	0.17	0.11	0.22	0.00	0.43
Ln(Market to Book)	0.48	0.48	1.16	-0.63	1.74
Observations	218352				

Panel B: Subsample averages by quartiles of Clique Ownership

	Q1	Q3	Q4	Q4
Clique Ownership	0.03	0.15	0.35	0.63
Clique Herfindahl	0.00	0.01	0.04	0.17
Cliques Own. - Top 1.	0.02	0.08	0.15	0.27
IO Concentration	0.93	0.81	0.63	0.50
Institutional Ownership	0.04	0.18	0.40	0.71
Number of Stocks	71.53	317.71	670.71	1085.26
Number of Blockholders	0.07	0.70	1.53	2.65
Dedicated	0.00	0.02	0.05	0.10
Quasi-Indexer	0.02	0.11	0.25	0.43
Transient	0.01	0.04	0.10	0.17
Assets of Owners (2013 $ Mil.)	2655.53	14944.78	39192.41	66644.50
Assets (2013 $)	1761.27	4130.15	10593.23	10481.73
Book Leverage	0.15	0.16	0.17	0.19
Ln(Market to Book)	0.53	0.41	0.48	0.52

Table 5: Correlated Voting within Cliques

The dependent variable is equal to one if an institution voted in favor a specific ballot item, zero otherwise. *Peer Vote* is equal to one if the paired institution voted in favor a specific ballot item, zero otherwise. *Same Clique* is an indicator equal to one if the two institutions in the pair are in the same clique, and zero otherwise. Included fixed-effects are indicated at the bottom of the table. Standard errors are clustered by dependent institution and reported in parenthesis. Significance represented according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1) Vote	(2) Vote	(3) Vote	(4) Vote	(5) Vote
Same Clique × Peer Vote	0.038***	0.038***	0.036***	0.035***	0.043***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Peer Vote	0.501***	0.499***	0.513***	0.511***	0.435***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Same Clique	-0.033***	-0.031***	-0.033***	-0.030***	-0.034***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Year Effects	No	Yes	No	Yes	No
Inst. Effects	No	No	Yes	Yes	No
Meeting Effects	No	No	No	No	Yes

Table 6: Clique Ownership and Shareholder Voting

The dependent variable is the percentage of votes against management's recommendation. Panel A presents results using ISS recommendations as the measure for proposal quality. The measure of coordinated ownership is *Clique Ownership* in columns 1 and 2, *Clique Herfindahl* in columns 3 and 4, and *Clique Own. Top 1* in columns 5 and 6. The variables are defined in Appendix Table A. Columns 1, 3, and 5 use the sample of director election ballot items proposed by management. The remaining columns use all other ballot items proposed by management. Panel B presents results using proposal quality as in Davis and Kim (2007). Ownership variables are measured as of December of the year prior to the year of the shareholder meeting. Market-to-book is measured at the most recent fiscal year end prior to the meeting. Stock returns and firm size are measured at the month prior to the meeting. Numbers of blockholders, institutional owners, and stocks in the owners portfolio are reported per 1,000 for ease of interpretation. All regressions include year and firm effects. Standard errors are clustered by firm with standard errors reported in parenthesis and significance represented according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Panel A: Proposal Quality Based on ISS Recommendations

	(1) Per. Votes Against	(2) Per. Votes Against	(3) Per. Votes Against	(4) Per. Votes Against	(5) Per. Votes Against	(6) Per. Votes Against
Clique Ownership$_{t-1}$	-0.072***	-0.014				
	(0.02)	(0.02)				
Clique Ownership$_{t-1}$ × Bad Proposal $_{ISS}$	0.213***	0.171***				
	(0.01)	(0.01)				
Clique Herfindahl$_{t-1}$			-0.062***	-0.069***		
			(0.02)	(0.01)		
Clique Herfindahl$_{t-1}$ × Bad Proposal $_{ISS}$			0.273***	0.201***		
			(0.06)	(0.04)		
Cliques Own. - Top 1$_{t-1}$					-0.029***	-0.036***
					(0.01)	(0.01)
Cliques Own. - Top 1$_{t-1}$ × Bad Proposal $_{ISS}$					0.244***	0.111***
					(0.03)	(0.02)
Bad Proposal $_{ISS}$	0.016***	0.069***	0.103***	0.143***	0.075***	0.137***
	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)
Institutional Ownership$_{t-1}$	0.073***	0.041**	0.042***	0.057***	0.036***	0.055***
	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Dedicated$_{t-1}$	0.012	0.001	0.009	0.001	0.010	-0.000
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Transient$_{t-1}$	-0.025***	-0.002	-0.022***	-0.008	-0.019**	-0.007
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Num. of Stocks in Owners' Portfolio$_{t-1}$	0.011***	0.004	0.012***	0.003	0.012***	0.003
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Number of Inst. Owners$_{t-1}$	-0.008	0.028**	-0.008	0.025*	-0.006	0.026*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Own. of Top 5 $_{t-1}$	-0.050***	-0.036***	-0.040***	-0.018	-0.050***	-0.020
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Num. of Blockholder$_{t-1}$	0.001***	-0.000	0.001**	-0.000	0.001**	-0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Market to Book (bps) $_{t-1}$	-0.001	0.002***	-0.001	0.002***	-0.002	0.002***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Ln(Size)$_{t-1}$	-0.004***	-0.007***	-0.004***	-0.007***	-0.004***	-0.007***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Assets of Owners ($Tril.) $_{t-1}$	-0.035	0.008	-0.055**	-0.002	-0.047*	-0.002
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)
Observations	128091	45142	128091	45142	128060	45129
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Effects	Yes	Yes	Yes	Yes	Yes	Yes
Meeting Type	All	All	All	All	All	All
Vote Type	Director	Non Director	Director	Non Director	Director	Non Director

Panel B: Proposal Quality Based on Davis and Kim (2007) Classification

	(1) Per. Votes Against	(2) Per. Votes Against	(3) Per. Votes Against
Clique Ownership$_{t-1}$	0.010		
	(0.02)		
Clique Ownership$_{t-1}$ × Good Proposal $_{DK2007}$	-0.030***		
	(0.00)		
Clique Herfindahl$_{t-1}$		-0.048***	
		(0.01)	
Clique Herfindahl$_{t-1}$ × Good Proposal $_{DK2007}$		-0.130***	
		(0.02)	
Cliques Own. - Top 1$_{t-1}$			-0.024***
			(0.01)
Cliques Own. - Top 1$_{t-1}$ × Good Proposal $_{DK2007}$			-0.059***
			(0.01)
Good Proposal $_{DK2007}$	-0.161***	-0.161***	-0.161***
	(0.00)	(0.00)	(0.00)
Institutional Ownership$_{t-1}$	0.040**	0.059***	0.057***
	(0.02)	(0.01)	(0.01)
Dedicated$_{t-1}$	0.003	0.001	0.001
	(0.01)	(0.01)	(0.01)
Transient$_{t-1}$	-0.003	-0.009	-0.008
	(0.01)	(0.01)	(0.01)
Num. of Stocks in Owners' Portfolio$_{t-1}$	0.005	0.003	0.004
	(0.00)	(0.00)	(0.00)
Number of Inst. Owners$_{t-1}$	0.029**	0.025*	0.027**
	(0.01)	(0.01)	(0.01)
Own. of Top 5 $_{t-1}$	-0.030**	-0.016	-0.017
	(0.01)	(0.01)	(0.01)
Num. of Blockholder$_{t-1}$	-0.001	-0.000	-0.000
	(0.00)	(0.00)	(0.00)
Market to Book (bps) $_{t-1}$	0.002***	0.002***	0.002***
	(0.00)	(0.00)	(0.00)
Ln(Size)$_{t-1}$	-0.007***	-0.007***	-0.007***
	(0.00)	(0.00)	(0.00)
Assets of Owners ($Tril.) $_{t-1}$	-0.009	-0.008	-0.010
	(0.03)	(0.03)	(0.03)
Observations	45142	45142	45129
Year Effects	Yes	Yes	Yes
Firm Effects	Yes	Yes	Yes
Meeting Type	All	All	All
Vote Type	Non Director	Non Director	Non Director

Table 7: Clique Ownership and Shareholder Voting: Exogenous Network Shocks

Treatment firms are those owned to a high degree by institutions whose network was affected by the mutual fund late trading scandal in 2003. The top row presents the estimate of the main effect from the first stage where the instrument is an indicator for scandal exposed firms (*Treatment*) interacted with the period after the scandal (*Post*). We also instrument for the interaction of clique ownership and ISS using the interaction of $Treatment \times Post$ with ISS. First stage estimates of the interaction term are suppressed here for space but shown in the Internet Appendix. Results from the second stage are presented below. Column 1 uses the sample of director election ballot items proposed by management. Column 2 uses all other ballot items proposed by management. Column 3 uses a measure of proposal quality from Davis and Kim (2007) and presents results for the non-director election sample. Numbers of blockholders, institutional owners, and stocks in the owners portfolio are reported per 1,000 for ease of interpretation. All regressions include year and firm effects. Standard errors are clustered by firm with standard errors reported in parenthesis and significance represented according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1) Clique Own.	(2) Clique Own.	(3) Clique Own.
First Stage: Main Effect			
Treatment × Post	-1.918***	-2.016***	-2.016***
	(0.41)	(0.47)	(0.47)
	Votes Against	Votes Against	Votes Against
Second Stage			
$\widehat{\text{Clique Ownership}}_{t-1}$	0.728***	1.681***	4.273**
	(0.28)	(0.61)	(1.92)
$\widehat{\text{Clique Ownership}_{t-1} \times \text{Bad Proposal}}_{ISS}$	0.082***	0.238***	
	(0.01)	(0.05)	
$\widehat{\text{Clique Ownership}_{t-1} \times \text{Good Proposal}}_{DK2007}$			-4.641
			(2.95)
Bad Proposal $_{ISS}$	0.010**	0.090***	
	(0.00)	(0.02)	
Good Proposal $_{DK2007}$			0.181***
			(0.01)
Scandal Fund IO	-0.110*	-0.270*	-0.972*
	(0.06)	(0.16)	(0.54)
Institutional Ownership$_{t-1}$	-0.534**	-1.238***	-3.101**
	(0.22)	(0.47)	(1.42)
Dedicated$_{t-1}$	-0.098**	-0.126	-0.624
	(0.05)	(0.12)	(0.49)
Transient$_{t-1}$	0.071*	0.198*	0.580**
	(0.04)	(0.10)	(0.29)
Num. of Stocks in Owners' Portfolio$_{t-1}$	-0.036***	-0.054	-0.143
	(0.01)	(0.04)	(0.13)
Number of Inst. Owners$_{t-1}$	0.022	0.001	0.745
	(0.07)	(0.13)	(0.72)
Own. of Top 5 $_{t-1}$	-0.172***	-0.421***	-0.914**
	(0.05)	(0.14)	(0.39)
Num. of Blockholder$_{t-1}$	-0.003	-0.007	-0.019
	(0.00)	(0.00)	(0.02)
Market to Book (bps) $_{t-1}$	-0.000	0.015***	0.032**
	(0.00)	(0.00)	(0.01)
Ln(Size)$_{t-1}$	-0.003	-0.003	-0.053
	(0.00)	(0.01)	(0.04)
Stock Return over Previous Year	0.003	0.007	0.034*
	(0.00)	(0.01)	(0.02)
Assets of Owners ($Tril.)$_{t-1}$	0.433***	0.572	1.689
	(0.13)	(0.35)	(1.34)
Observations	19507	4582	4582
First Stage F-stat	7.126	7.114	1.857
Year Effects	Yes	Yes	Yes
Firm Effects	Yes	Yes	Yes
Meeting Type	All	All	All
Vote Type	Director	Non Director	Non Director

Table 8: Transition Probabilities: Membership in Specialized Cliques

This table presents transition probabilities describing the evolution of clique membership over time. For example, the first row indicates that 90% of managers that belonged to no clique at $t-1$ will also not belong to a clique in t, and that 2% of these managers will belong to a clique that specializes in initiating dividends. All transition probabilities are statistically significantly different at the 1% level from the null that the clique membership at t is independent of membership at $t-1$.

	Initiate dividends		
	No Clique_t	Clique_t	"Specialized" Clique_t
No Clique_{t-1}	0.90	0.08	0.02
Clique_{t-1}	0.20	0.68	0.12
Specialized Clique_{t-1}	0.20	0.62	0.18
	Initiate repurchases		
	No Clique_t	Clique_t	"Specialized" Clique_t
No Clique_{t-1}	0.90	0.08	0.02
Clique_{t-1}	0.21	0.63	0.16
Specialized Clique_{t-1}	0.19	0.62	0.19
	Divestitures		
	No Clique_t	Clique_t	"Specialized" Clique_t
No Clique_{t-1}	0.90	0.07	0.02
Clique_{t-1}	0.20	0.66	0.14
Specialized Clique_{t-1}	0.22	0.58	0.20
	Anti-Acquisitions		
	No Clique_t	Clique_t	"Specialized" Clique_t
No Clique_{t-1}	0.90	0.09	0.01
Clique_{t-1}	0.21	0.71	0.09
Specialized Clique_{t-1}	0.21	0.67	0.15

Table 9: Specialized Cliques and Future Firm Outcomes

The dependent variables are dividend initiations, repurchase initiations, acquisitions, and divestitures measured at $t + 1$. Dividend, repurchase, anti-empire building, and divestiture clique ownership measures ownership by those particular specialized cliques at t. Control variables as in Table 6 are included but suppressed for space. All regressions include year and firm effects. Standard errors are clustered by firm with standard errors reported in parenthesis and significance represented according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1) Dividend Initiation $_{t+1}$	(2) Repurchase Initiation $_{t+1}$	(3) Acquisition $_{t+1}$	(4) Divestiture $_{t+1}$
Dividend Clique Ownership	0.015*	0.015	0.014	-0.017*
	(0.01)	(0.02)	(0.02)	(0.01)
Repurchase Clique Ownerhsip	-0.008	-0.009	-0.007	-0.005
	(0.01)	(0.01)	(0.01)	(0.01)
Anti-Acquisition Clique Ownership	0.004	-0.005	-0.029*	-0.022***
	(0.01)	(0.01)	(0.01)	(0.01)
Divestiture Clique Ownership	-0.007	-0.008	-0.013	0.018**
	(0.01)	(0.01)	(0.01)	(0.01)
Clique Ownership	0.012	-0.039	-0.083*	-0.018
	(0.02)	(0.04)	(0.04)	(0.02)
Institutional Ownership	-0.017	0.076**	0.131***	0.010
	(0.02)	(0.03)	(0.04)	(0.02)
Observations	129382	104354	130000	130000
Year Effects	Yes	Yes	Yes	Yes
Firm Effects	Yes	Yes	Yes	Yes

Table 10: Sales Prior to Closing a Position and Clique Membership

This table presents a linear model of the probability of walking down a position prior to closing it out as a function of clique membership. The sample is all institution-stock pairs in which the institution closed a position. The dependent variable is equal to one if the institution reduced its position in the stock in the quarter prior to closing the position. The dependent variable in columns 1-3 a dummy variable equal to one if the institution is in a clique and zero otherwise. The sample in columns 4-6 is constrained to include only institution-stock pairs in which the position is closed and the institution belongs to a clique. The dependent variable in columns 4-6 is equal to one if the multiple members of the clique hold the stock in that quarter. Included fixed-effects are indicated at the bottom of the table. Standard errors are clustered by the stock-quarter and reported in parenthesis. Significance represented according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	Independent Variable: Pr(Walk Down|Closing a Position)					
	(1)	(2)	(3)	(4)	(5)	(6)
In a Clique	0.030***	0.038***	0.031***			
	(0.00)	(0.00)	(0.00)			
Multiple Clique Owners				0.052***	0.023***	0.009***
				(0.00)	(0.00)	(0.00)
Observations	6563207	6563207	6563207	3314124	3314124	3314124
Inst-Qtr Effects	No	No	No	Yes	No	No
Stock-Qtr Effects	No	Yes	Yes	No	Yes	Yes
Inst Effects	Yes	No	Yes	No	No	Yes
Institutions	All	All	All	In a Clique	In a Clique	In a Clique

Table 11: Cliques and Governance by Exit: The Effect of Decimalization on Value

This table presents a difference-in-difference estimation of the effect decimalization on the relation between firm value and ownership cliques. The dependent variable is Tobin's q as defined in Appendix A. The main variable of interest is the interaction of *Decimalization* and one of the three measures of ownership by cliques; *Clique Ownership*, *Clique Herfindahl*, and *Clique Own. - Top 1*. This regression is estimated on years 2000 and 2002 (2001 is the year of treatment and is excluded). Firm-fixed effects are included. Standard errors are clustered by firm with standard errors reported in parenthesis and significance represented according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1)	(2)	(3)	(4)	(5)	(6)
	q	q	q	q	q	q
Clique Ownership $_{t-1}$	1.476	2.294**				
	(1.12)	(1.12)				
Decimalization × Clique Ownership $_{t-1}$	-0.687***	-1.842***				
	(0.19)	(0.28)				
Clique Herfindahl $_{t-1}$			2.783***	4.845***		
			(0.71)	(1.12)		
Decimalization × Clique Herfindahl $_{t-1}$			-1.040**	-4.291***		
			(0.50)	(1.04)		
Cliques Own. - Top 1 $_{t-1}$					2.300***	4.199***
					(0.63)	(0.79)
Decimalization × Cliques Own. - Top 1 $_{t-1}$					-0.757**	-4.456***
					(0.38)	(0.83)
Ownership by Blocks$_{t-1}$	0.557	-1.360	-0.660	-2.021**	-0.206	-2.248**
	(0.76)	(0.83)	(0.76)	(0.87)	(0.83)	(0.96)
Decimalization × Ownership by Blocks$_{t-1}$		2.686***		2.181***		3.396***
		(0.39)		(0.48)		(0.57)
Decimalization	-0.196**	-0.176*	-0.387***	-0.503***	-0.352***	-0.225**
	(0.09)	(0.09)	(0.06)	(0.07)	(0.09)	(0.09)
Ln(Market Cap)$_{t-1}$	-0.486***	-0.462***	-0.495***	-0.484***	-0.503***	-0.492***
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Number of Block Holders$_{t-1}$	-0.058	-0.033	0.017	0.035	-0.023	0.001
	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)
Book Leverage$_{t-1}$	-0.067	0.001	-0.109	-0.075	0.019	0.100
	(1.08)	(1.07)	(1.08)	(1.07)	(1.09)	(1.09)
Inst. Ownership$_{t-1}$	-1.807*	-1.697	-1.459***	-1.433***	-1.361***	-1.166**
	(1.06)	(1.05)	(0.54)	(0.54)	(0.52)	(0.53)
Annual Stock Return$_{t-1}$	0.353***	0.338***	0.355***	0.347***	0.354***	0.344***
	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)
CapEx$_{t-1}$	-0.000	0.000	-0.000	-0.000	-0.000	-0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Dividend Payer$_{t-1}$	0.308*	0.306	0.314*	0.312*	0.302	0.284
	(0.19)	(0.19)	(0.18)	(0.19)	(0.19)	(0.19)
Observations	7765	7765	7765	7765	7736	7736
Firm Effects	Yes	Yes	Yes	Yes	Yes	Yes
r-squared	0.127	0.136	0.126	0.130	0.126	0.133