

ESSAYS ON DIRECTOR CONNECTIONS IN THE MUTUAL FUND INDUSTRY

by

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A dissertation submitted to the

Graduate School - Newark

Rutgers, The State University of New Jersey

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Graduate Program in Management

Written under the direction of

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and approved by

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Newark, New Jersey

May, 2014

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## **ABSTRACT OF THE DISSERTATION**

Essays on Director Connections in the Mutual Fund Industry

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The executives of publicly traded firms often sit on mutual fund boards. This dissertation explores the influence these executives exert on the investment, proxy voting and contracting decisions of the fund. It shows that funds concentrate their holdings in and trade informatively in the stock of the executive's firm, and that fund proxy votes support the management of the executive's firm. Furthermore, the dissertation presents evidence that these effects are interrelated, consistent with an exchange of favors occurring between the fund, firm and director. It finds that when funds trade informatively in the executive's firm, the fund is more likely to retain the executive on its board, and more likely to cast proxy votes that support the firm's management. These results are robust to controlling for fund and firm specific factors and suggest that the influence of fund directors extends beyond their formal monitoring responsibilities.

## **ACKNOWLEDGEMENTS**

This dissertation was made possible through the help of many kind and capable people. I am grateful for the guidance provided by Simi Kedia, Serdar Dinc, Ivan Brick, N.K. Chidambaran and Ankur Pareek. My growth as a researcher is a direct result of the time and effort they have given me. I am also thankful to Laurence Mucciolo whose insight was vital to the early development of my dissertation.

The six years it has taken to complete my dissertation has required support that extends beyond finance research. I am indebted to my mother, father, Aunt Carol, Uncle Gary, Grandmother Mary and Grandfather Lou who worried about my food and shelter so that I could worry about my research. It is to the memory of my late Grandmother and Grandfather that this dissertation is dedicated. I must also give a special acknowledgment to my mother, the best copy editor out there. May you continue your fine work, at least until I get tenure. I would also like to thank Jane Foss. You have helped me through many stressful times, and it has been greatly appreciated.

Finally, I would like to thank my wife, Maya. Throughout this process, through the ups and downs, you have stood by me.

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## CHAPTER 1: Director Connections in the Mutual Fund Industry

### 1.1. Introduction

The SEC mandates that independent directors sit on mutual fund boards.<sup>1</sup> From 1996 to 2008, in response to proposed regulation to increase independence requirements, the percentage of fund boards with over 75 percent of their seats held by independent directors increased from 46 percent to 88 percent.<sup>2</sup> The proposed regulation was driven by a perceived failure of the boards to protect shareholders - notably in the stale-price trading scandal of 2003. While prior empirical evidence suggests that more independent mutual fund boards are associated with lower shareholder fees and fewer scandals,<sup>3</sup> little attention has been given to who these independent directors are, and what impact their background may have on the fund.

Due to the part-time nature of director responsibilities, independent directors often hold high ranking positions at outside firms. Consider the case of Fidelity's Congress Street Fund. In 2004, its 10 independent directors included William S. Stavropoulos, the CEO of The Dow Chemical Company, Marvin L. Mann, the Chairman Emeritus (and former CEO) of Lexmark International, Inc., and Ned C. Lautenbach, the Chairman of Acterna Corporation. In total, the independent directors of the Congress Street Fund held positions at 21 publicly

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<sup>1</sup>Investment Company Act of 1940. Section 10: Affiliation of Directors. <http://www.sec.gov/about/laws/ica40.pdf>

<sup>2</sup>Investment Company Institute, Overview of Fund Governance Practices: 1994 to 2008. [http://www.ici.org/pdf/pub\\_09\\_fund\\_governance.pdf](http://www.ici.org/pdf/pub_09_fund_governance.pdf)

<sup>3</sup> For empirical evidence on the role of independent directors on fund governance see, Tufano and Sevick (1997), Del Guercio, Dann and Partch (2003), Ferris and Yan (2007), Khorana, Tufano and Wedge (2007), Cremers, Driessen, Maenhout and Weinbaum (2009).



traded firms.<sup>4</sup> As mutual funds invest in the stock of publicly traded firms, the presence of these directors raises concerns that the influence they exert on the fund extends beyond their fiduciary monitoring responsibilities.

This paper explores the potential for independent directors to influence the investment decisions of the fund. Shiller and Pound (1989) present survey evidence that reveals information diffuses to investors through informal communication networks, i.e., whom you know influences how you invest.<sup>5</sup> As independent fund directors are often high ranking employees of publicly traded firms, who are likely to possess private information, the mutual fund boardroom represents an ideal setting for fund management to form communication networks with fund directors. From the director's perspective, the benefits accrued from board positions may provide an incentive to form communication networks with fund management. In the words of former SEC chairman Arthur Levitt, "being on a mutual fund board is the most comfortable position in corporate America."<sup>6</sup> As fund management is responsible for allocating board appointments, the building blocks for a mutually beneficial relationship exist within the fund boardroom. The existence of similar mutually beneficial relationships within funds has precedence

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<sup>4</sup> The 21 firms represented on the Congress Street Fund board are Comcast Corporation, The Dow Chemical Company, International Flavors & Fragrances Inc., Rockwell Automation, Inc., Abraxas Petroleum Corporation, Parker Drilling Co., Inc., NACCO Industries, Inc., Telcordia Technologies, INET Technologies Inc., Phelps Dodge Corporation, URS Corporation, McKesson Corporation, Acterna Corporation, Eaton Corporation, Lexmark International, Inc., Imation Corporation, Duke Realty Corporation, Progress Energy, Inc., NCR Corporation, BellSouth Corporation and Chemical Financial Corporation.

<sup>5</sup> Communication networks based on geographical proximity (Coval and Moskowitz (1999, 2001), Huberman (2001)), business ties (Cohen and Schmidt (2009)), and shared education (Cohen, Frazzini and Malloy (2008)) have been found to influence investment decisions.

<sup>6</sup> Sterngold, J. (2012, June 6). Is Your Fund's Board Watching Out for You? *The Wall Street Journal*. Retrieved from <http://online.wsj.com/article/SB10001424052702303753904577450243418998540.html>

in the context of the stale-price trading scandal of 2003 (McCabe (2009)) and 401K business (Cohen and Schmidt (2009) and director appointments (Kuhnen (2009)).

In light of the SEC regulation requiring independent fund boards, information flow through communication networks, incentives faced by directors, and mutually beneficial relationships within funds, the question arises: do communication networks form within mutual funds between fund directors and fund management? If so, do these networks alter the fund's investment decisions and returns? For example, when William S. Stavropoulos is simultaneously an independent director at the Congress Street Fund and the CEO of The Dow Chemical Company, does the Congress Street Fund alter their holdings towards Dow Chemical? Does the fund's trades in Dow Chemical generate abnormal returns?

To study these questions, I create a unique database of independent director employment history using an automated web crawler algorithm. The algorithm searches over 130,000 mutual fund filings in the electronic archives (EDGAR) of the U.S. Securities and Exchanges Commission (SEC) for the names of the 33,000 executives listed in the Compustat ExecuComp database. If a named executive in ExecuComp is also a fund director, as seen in the SEC mutual fund filing for a given year, I define the fund and firm as "director connected" for that year. This process identifies 2,625 unique fund-firm director connections over the period 1994-2011. Each year, on average, 17.10 percent of mutual funds are director connected to at least one S&P 1500 firm, and 2.52 percent of S&P 1500 firms are director connected to at least one mutual fund.

To examine the impact of director connections on mutual fund portfolio choice, I merge the director connections database with the Thomson Financial CDA/Spectrum Mutual Fund holdings database. If funds possess information advantages in director connected firms, I expect that fund holdings in connected firms will be more aggressive than benchmark levels. Consistent with this hypothesis, using pooled OLS regressions that control for fund, firm and time specific factors, I find that funds hold approximately 25 percent larger stakes in the stock of connected firms.

If this concentration of holdings is associated with information, I expect that a fund's trades in a connected stock in quarter  $t$ , will anticipate the stock's price movements in quarter  $t+1$ . I find that in the quarter after a fund increases its holdings in a connected stock, the stock, on average, earns an abnormal return of 2.07 percentage points, and in the quarter after a fund decreases its holdings in a connected stock, the stock, on average, earns a negative abnormal return of 3.76 percentage points. Furthermore, if investors extract private information from director connections, they should make the majority of their returns when information asymmetry is the highest. I find that fund trades anticipate the earnings announcements of connected stocks, and that the trading returns earned in these firms are highest when there is high dispersion in analyst earnings forecasts. These findings are robust to controlling for firm and time specific factors, and suggest likely information advantages of funds in connected stocks.

Because mutual funds actively select their directors, it is unclear if the director connection is the cause of the biased holdings towards and informed

trading in connected firms. For example, a common factor, such as the belief the director's firm is well run, or a preexisting connection between the fund and firm, such as geographical proximity, may drive funds to both overweight holdings in a firm's stock and to select directors from that firm. While funds can control the firm they connect to when they first select a director, they have little control over the firms they connect to when an established fund director changes jobs. For example, if Windsor Fund director Jane Doe leaves her position at General Electric to join IBM, Windsor Fund will exogenously connect to IBM. Thus, to control for director selectivity, I examine fund portfolio decisions in connections that form when an established director changes jobs, i.e., Windsor Fund and IBM. Using OLS regressions to control for fund, firm and time specific factors, and a quasi-experimental matched sample approach, I find that when an established director changes jobs, funds increase their holdings in the stock of the newly connected firm. This result suggests that director connections cause funds to bias their holdings towards the stock of connected firms. I also test and control for potential endogeneity in fund returns. For each fund-firm connection, I examine if the fund trades informatively in the connected firm before the connection forms and find no evidence of informative trading in this period. This finding suggests that the director connection is the source of the information advantage. In addition to director selectivity issues, the results of the paper are also found to be robust to familiarity (Huberman (2001)) and price support (Cohen and Schmidt (2009)) explanations.

Ultimately the fund boardroom is a black box. In the second part of the paper, I present results aimed at further understanding the unobservable

mechanisms that drive boardroom information transfers. I examine how connected trading returns vary by regulatory regime, fund, firm, and director. I find that connected trading returns are larger after the introduction of Regulation FD (Reg FD), among large and highly connected funds, in highly connected firms, and in firms where the connected director has low levels of ownership. Next, I examine if the breadth of information transfers extends beyond the director connected firm. I find evidence that following the formation of director connections, in addition to trading informatively in the director connected stock, the firm also trades informatively in stocks in the same sector as the connected firm. This result suggests a broader channel through which the director can influence fund performance, and the potential for larger economic significances. Lastly, in light of other quid pro quo relationships uncovered within the mutual fund, I examine benefits the director may receive from boardroom communication networks. Consistent with an exchange of favors between directors and management, I find that abnormal trading returns in the director's firm are associated with a higher probability the director remains at the fund, and that when the director leaves the fund, and the channel through which they can receive benefits is severed, informed trading in the connected firm ends.

The evidence presented in this paper points to an unexplored role of independent mutual fund directors. The SEC requires independent mutual fund directors to serve in an oversight capacity, and past research suggests that factors that align director incentives with shareholders facilitate better monitoring (Tufano and Sevick (1997), Del Guercio, Dann and Partch (2003), Ferris and Yan (2007),

(Cremers, Driessen, Maenhout and Weinbaum (2009)). The results presented in this paper highlight possible unintended consequences of the SEC regulation: the independent directors' role in information acquisition and fund investment performance.

Past research has emphasized the role communication networks play in investor portfolio choice and information acquisition (Shiller and Pound (1989), Coval and Moskowitz (1999, 2001), Hong, Kubik and Stein (2005) Cohen, Frazzini and Malloy (2008) and Cohen and Schmidt (2009)). This paper shows that director connections represent an additional mechanism that connects investors to firms. This is one of the first papers to study a network composed of individuals who are simultaneously employed by the investor and the target investment.

Kuhnen (2009) examines the relationships that form within mutual funds between fund directors and fund management. She finds director-management relationships lead to favoritism in fund contracting decision; directors are more likely to hire advisers if they have worked together in the past and vice versa. My paper complements Kuhnen (2009) by analyzing the role of directors in the portfolio choices of the fund's management, and by exploring additional factors that drive board appointments and the formation of mutually beneficial relationships between the management and directors of funds.

The remainder of the paper is organized as follows. Section II provides a brief review of the literature that motivates this paper and develops the paper's hypotheses. Section III describes the construction of the director connection

dataset and provides descriptive statistics of the sample. Section IV presents evidence exploring fund investment decisions and trading returns in director connected stocks. Section V presents tests that control for director selectivity issues. Section VI examines the validity of familiarity biases or price support considerations in explaining the main results of the paper. Section VII presents tests aimed at better understanding the scope, intensity and mechanisms of boardroom information transfers. Section VIII considers the quid pro quo nature of the boardroom relationship. I conclude the paper in Section IX.

## **1.2. Literature Review and Hypothesis Development**

Two distinct literatures inform this paper, works examining the impact of mutual fund directors on fund behavior, and works examining the impact of communication networks on fund portfolio choices and investment returns.

### **1.2.1 The Role of Mutual Fund Directors**

Fund boards exist to protect shareholder interests from mutual funds that are paradoxically required to maximize profits for their outside owners, while simultaneously minimizing the costs charged to fund shareholders. To protect shareholders, directors are formally responsible for “approving the fund’s major contracts with service providers (including, notably, the fund’s investment manager), approving fund policies and procedures to ensure the fund’s compliance with federal securities laws, and undertaking oversight of the performance of the fund’s operations.” To execute these responsibilities they “meet regularly, request and review numerous reports relating to fund matters (including investment

performance and the compliance function), and engage in discussions with the adviser, counsel, and others.”<sup>7</sup>

The SEC takes several steps to insure that director interests align with the shareholder. They require that mutual funds disclose the independence, employment history, tenure, number of funds overseen, compensation and fund ownership of the fund’s directors. Furthermore, under the Investment Company Act of 1940, mutual funds are required to have a board composed of at least 40 percent independent directors, and only the independent directors of funds are allowed to select and nominate future independent directors. The SEC defines an independent director as an individual who does not currently have, or, at any time during the previous two years, has had, a significant business relationship with the fund’s adviser.

Previous research has focused on how factors related to director independence impact the director’s ability to carry out his formal fiduciary responsibilities. Factors that align director interests with those of the shareholder have been found to improve the director’s ability to protect the shareholder. The presence of SEC defined independent directors is associated with lower fund expenses (Tufano and Sevick (1997), Del Guercio, Dann and Partch (2003), Ferris and Yan (2007)), a willingness to accept value enhancing restructurings and mergers (Khorana, Tufano and Wedge (2007)), and a lower probability of being implicated in a fund scandal (Ferris and Yan (2007)). Prior work also finds that

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<sup>7</sup> Investment Company Institute, Frequently Asked Questions About Mutual Fund Directors [http://www.ici.org/idc/policy/governance/faq\\_fund\\_gov\\_idc](http://www.ici.org/idc/policy/governance/faq_fund_gov_idc)



higher director ownership is associated with better fund performance (Cremers, Driessen, Maenhout and Weinbaum (2009)). However, higher director compensation is associated with higher shareholder fees (Tufano and Sevick (1997), Del Guercio, Dann and Partch (2003)), and a higher probability of a fund scandal (Ferris and Yan (2007)). My paper contributes to the fund governance literature in two ways. First, it identifies a new director characteristic, employment history, that may affect the fund. Second, it identifies a new area, portfolio choice, where the director may influence fund behavior.

### 1.2.2 The Role of Networks

Shiller and Pound (1989) present survey evidence that suggests interpersonal communication helps inform the portfolio decisions of investors. Previous research has identified geographical proximity (Coval and Moskowitz (1999, 2001) Huberman (2001)), professional connections (Hong, Kubik and Stein (2005), Cohen and Schmidt (2009), and Duan, Hotchkiss and Jiao (2011)), and education connections (Cohen, Frazzini and Malloy (2008)) as mechanisms of interpersonal connection that influence portfolio choice. Investors tend to overweight their holdings in in-network connected stocks. The question arises, why do they overweight these holdings? Per Treynor and Black (1973), one possible explanation is that funds overweight holdings in connected stocks when they receive positive information signals about these stocks. Cohen, Frazzini and Malloy (2008) study the fund-firm network that forms when mutual fund managers and senior officers at public companies have attended the same university. They find that funds hold larger stakes in connected stocks, and generate abnormal

returns - concentrated in the days surrounding corporate news events - from these holdings. They conjecture fund-firm education connections lower the fund's cost of gathering information about the connected firm, which in turn leads to the observed abnormal returns in connected holdings. These findings are consistent with Coval and Moskowitz (2001) who show that mutual funds trade informatively in the stock of geographically local firms. Alternatively, the presence of connections can breed familiarity effects between funds and firms. Huberman (2001) presents evidence that investors who connect to firms through geographical proximity and customer relationships, bias their holdings towards these firms. However, he finds the bias holdings are unrelated to an information advantage.

Director connections also provide a mechanism that connects investors to publicly traded firms. In contrast to previously studied networks, fund directors are directly compensated by the funds they oversee. As of 2011, the average compensation for a director of the 25 largest mutual fund families was \$258,000.<sup>8</sup> The more direct nature of director connections may result in different impacts on the fund than previously studied connections. Kuhnen (2009) documents favoritism in the appointment of board positions; directors who have worked with a fund's management in the past, are more likely to be appointed to new board positions. If director connections are also associated with board appointment, the director's continued appointment on the board may provide an incentive that increases the flow of information to fund management. Conversely, the directness

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<sup>8</sup> Sterngold, J. (2012, June 6). Is Your Fund's Board Watching Out for You? *The Wall Street Journal*. Retrieved from <http://online.wsj.com/article/SB10001424052702303753904577450243418998540.html>

and formality of the relationship between the director and fund management may discourage investment-related communication, resulting in fewer information exchanges and reduced holdings in the connected firm (Griffin, Shu and Topaloglu (2012)). Whether director connections influence fund investment decisions and returns is ultimately an empirical question. Specifically:

Hypothesis 1.

If director connections influence fund portfolio decisions in connected firms, fund holdings in connected firms will differ from benchmark levels.

Hypothesis 2.

If director connections facilitate information transfers, then funds will make informative trades in connected firms, i.e., the purchases of connected stocks will anticipate positive stock returns, and the sales of connected stocks will anticipate negative stock returns.

### **1.3. Data**

I collect a unique database that maps fund-firm director connections.<sup>9</sup> The first step in the data collection process is to identify the executives of publicly trading firms using the Compustat ExecuComp database. The database contains the full name of the top five compensated executive officers of S&P 1500 firms on an annual basis.

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<sup>9</sup> Due to the lack of a comprehensive database of mutual fund directors, previous research on fund directors has relied mainly on hand-collected data, and as a result has been limited to small samples.

Next, I identify which firm executives sit on fund boards. The board of directors is located within the fund company – herein referred to as “FC.” Each FC may oversee several mutual funds and is the unit of SEC filings. Each year, FCs are required to disclose the names of their directors to the SEC in Form N-CSR. There are approximately 7,000 N-CSR filings per year. I use a web crawler algorithm developed by Engelberg and Sankaraguruswamy (2007) to search for the Compustat Executive Names in all N-CSR filings.<sup>10</sup> In total, I search for 33,000 executive names in over 130,000 mutual fund filings. The period of analysis spans from 1994, the first year the SEC’s Electronic Data Gathering, Analysis, and Retrieval system (EDGAR) is available, to 2011. If a named executive in ExecuComp is also a fund director, as seen in the N-CSR filing for a given year, I treat the fund and the firm as “connected” for that year. In total, the process identifies 1,642 unique fund-firm director connections.

I take several steps to insure the robustness of the sample. To mitigate concerns that I may be identifying a different individual with the same name, i.e., John Smith of Vanguard and a different John Smith of General Electric, I omit executives from the sample who do not have a middle initial and executives who have the same full name (first name, middle initial and last name) as another corporate executive. To avoid instances where the mutual fund and executive’s firm are affiliated (e.g., Goldman Sachs being identified as director connected to a Goldman Sachs mutual fund or a T. Rowe Price Fund whose fund custodian is J.P.

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<sup>10</sup> Prior to 2003, FCs disclosed information about their directors in Form N-30D. The web crawler algorithm also searches these forms.

Morgan Chase), I exclude financial firms from the sample.<sup>11</sup> Last, I manually check the employment history of the remaining ExecuComp executives to verify the year they started and ended employment at the firm. While the ExecuComp database contains a variable that identifies the year the executive joined and left the firm, its value is missing for approximately one-third of the sample. Manually searching the employment history of these individuals in the firm's 10-K SEC filings resolves this issue. Combined, these robustness measures reduce the number of unique FC-firm director connections in the sample from 1,642 to 856.

Panel A of Table 1 reports descriptive statistics of the sample at the FC level. In total, I identify 1,681 unique FCs over the 18 years sample, or 877 FCs, on average, per year. Of the identified FCs, 157 have at least one director connection each year. Because some FCs have multiple director connections, the average total number of connections observed each year is higher, 213. Among FCs with at least one connection, this equates to 1.34 connections per FC per year.

### **(Table 1)**

Panel B of Table 1 reports descriptive statistics of the sample at the mutual fund level. I search Form N-SAR in the SEC filings to identify which mutual funds each FC oversees. The average FC oversees 2.74 mutual funds each year. The sample contains 4,875 unique mutual funds, or 2,403 mutual funds, on average, per year, of which 410 have at least one director connection each year. In total,

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<sup>11</sup> I identify financial firms by their two-digit NAICS code, 52.

there are 2,625 unique mutual fund-firm connections over the course of the sample, or 645, on average, per year. To analyze the impact of director connections on portfolio choice, I merge the director connections database with the Thomson Financial CDA/Spectrum database, which contains mutual fund holdings data.<sup>12</sup> If a mutual fund holds the stock of a connected firm in a given quarter, it is referred to as a held connection, if not, it is referred to as an unheld connection. On average, of the 645 identified mutual fund-firm connections each year, only a small amount, 31, are held by a connected mutual fund each quarter. The remaining 614 connections are unheld by the connected mutual funds. This equates to 1.53 director connections for each mutual fund with at least one connection. On average, 0.07 of the 1.53 director connections are held by the mutual fund each quarter, while the remaining 1.46 connections are unheld.

### **(Table 2)**

Panel A of Table 2 presents data describing the scope of the director network. Over the sample period, 196 unique S&P 1500 firms are connected to a fund. Each year, on average, 2.52 percent of S&P 1500 firms are connected to a fund. This represents 5.43 percent of the outstanding S&P 1500 market capitalization.<sup>13</sup> As mentioned earlier, not all of the connected firms are held by mutual funds. I find that the connected firms that are held by connected funds

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<sup>12</sup> Index funds are excluded from this sample. Index Funds are identified using the Index Fund Flag variable contained in the CRSP Mutual Fund Database, and as funds with the word “Index” in their name.

<sup>13</sup> It is important to note that the sample represents a lower bound of the true scope of the director network, as only connection among only the top five paid executives at S&P 1500 firms are included. The web crawling technique was designed to collect a robust set of connection that have the highest potential to identify information transfers, rather than a larger but less precise dataset.

each quarter account for 0.44 percent of the stocks in the S&P 1500 or 1.67 percent of the outstanding S&P 1500 market capitalization. Panel B of Table 2 presents summary statistics describing the size of connected firms. The average market capitalization of connected firms each year, \$12.77 billion, was larger than the average size of S&P 1500 firms, \$5.85 billion. It is not surprising that connected firms tend to be larger than unconnected firms. The executives of large firms may be more desirable as potential directors compared to the executives of smaller firms. Similarly, the average size of held firms, \$22.32 billion, is larger than the average size of unheld connected firms, \$10.78 billion.

#### **1.4. Results: Mutual Fund Holdings and Trading Returns in Director Connected Stocks**

##### 1.4.1 Director Connections and Active Mutual Fund Holdings

This section examines the influence director connections have on mutual fund holdings. If communication networks form within fund boardrooms, then we should observe that funds take aggressive positions in director connected stocks to capitalize on information advantages. In practice, short sale constraints limit the ability of most funds to capitalize on negative information. Because of the asymmetry in a fund's ability to act on information, this section focuses on the stocks that funds actively hold. As most funds hold a small fraction of stocks in the investable universe, an active holding in a stock suggests that the fund has a positive outlook in that stock. The more confident the fund's outlook, the larger the stake they will hold. Thus, if director connections facilitate informational advantages, when a fund receives positive information about a connected stock,

they should hold relatively larger stakes in that stock compared to other stocks in which they have less precise information. In the analysis that follows, I test if funds hold larger stakes in director connected stocks.

I use pooled OLS regressions to measure the effect of director connections on mutual fund holdings. The level of observation in the regression is fund-firm-quarter. Each quarter, the sample contains, on average, 1660 funds<sup>14</sup> that each hold 46 S&P 1500 firms. Over 72 quarters, this equates to approximately 5.5 million observations. The dependent variable in the analysis is “Conditional Portfolio Weight,” which measures the proportion of a fund’s portfolio invested in the specified stock, conditional on the fund actively holding that stock.<sup>15</sup> If the fund does not hold the stock, the observation is excluded from the sample. The independent variable of interest is a dummy variable that identifies the fund-firm pair as director connected.

To control for firm specific factors that influence fund holding, the regression includes variables that measure each firm’s size, value, and 12-month return momentum quintile. To control for fund specific factors that influence portfolio choices, a variable that measures the number of stocks each fund holds is included, and two variables that measure the fund’s style, are included. The first style variable, styleholdings, measures the percentage of the fund’s assets invested in the style corresponding to the specified stock. The second style variable, industryholdings, measures the percentage of the fund’s assets invested

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<sup>14</sup> The number of mutual funds reporting holdings each quarter is less than the number of fund per year reported in the summary statistics as some funds report holdings data semi-annually.

<sup>15</sup> For example, if the fund has total holdings of \$100,000,000 and holds \$1,000,000 of a specific stock, that stock would have a conditional portfolio weight of one percent ( $\$1,000,000/\$100,000,000$ ).



in the industry corresponding to the specified stock.<sup>16</sup> Furthermore, quarter fixed effects are included and standard errors are clustered at the quarter level.

The first column of Panel A of Table 3 presents the results of the model. The positive and statistically significant coefficient on the connected dummy variable provides evidence that funds place larger bets in director connected stocks - consistent with funds having information advantages in these stocks.

### **(Table 3)**

Observable and unobservable factors influence fund portfolio decisions. The effect of observable factors, e.g., firm size, can be isolated using control variables as in the previously developed model, while fixed effects, e.g. time, fund and firm, can control for the unobservable common shocks that influence portfolio choices. However, using fixed effects to capture unobservable common shocks in panel data assumes that the effects of the shocks are homogenous across all dimensions. This assumption may not be realistic. Consider the example of using firm fixed effects to capture the influence of investor sentiment on holdings of Apple stock. Is it valid to assume that the sentiment towards Apple in 2003, when the stock was priced at \$10 a share, was equivalent to the sentiment towards it in 2010 when it was priced at \$300 dollars a share? Bai (2009) demonstrates that interactive fixed effects can control for the heterogeneous impacts of unobservable common shocks in panel data. Thus, to isolate the effect of director connections

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<sup>16</sup> Styleholdings is defined using the DGTW benchmarks which measure the stock's value, size and 12-month return momentum quintile, resulting in 125 unique styles. Industryholdings is defined using the stock's two-digit NAICS code. The DGTW benchmarks are available via <http://www.smith.umd.edu/faculty/rwermers/ftpsite/Dgtw/coverpage.htm>

on portfolio choices, from other firm and fund specific factors that influence portfolio choices each quarter, I introduce Fund\*Quarter and Firm\*Quarter interactive fixed effects to the previous holdings model. As these variables control for the heterogeneous impacts of both the observable and unobservable fund and firm specific effects that influence fund holdings each quarter, the fund and firm specific control variables used in the previous specification are subsumed.<sup>17</sup>

The second column of Panel A of Table 3 presents the results of the interactive fixed effects model with standard errors clustered at the quarter level. The 0.0030 coefficient on the connected dummy variable ( $t=7.84$ ) represents a relative increase of 23.36 percent in the conditional portfolio weight of connected firms. Peterson (2009) highlights the risk of biased standard error estimates in Panel data due to inappropriate standard error clustering. For robustness, I also cluster standard errors at the fund\*firm level (column 3) and the fund and firm level (column 4). In both robustness specifications, the coefficient on the connected dummy variable remains statistically significant. Taken together these results suggest that after controlling for fund, firm and time specific factors, funds place larger bets on connected stocks relative to unconnected stocks. This result is consistent with informational advantages in director connected stocks.

#### 1.4.2 Director Connections and Mutual Fund Trading Returns

The evidence of elevated holding stakes in connected stocks is consistent with information advantages in these stocks. However, examining fund holdings is

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<sup>17</sup> The styleholdings and industryholdings control variables, which are specific to each fund-style-quarter observation are not subsumed by the model, but omitted for simplicity. The results presented are robust to the inclusion of these variables.

limited in that it can only provide circumstantial evidence of information transfers. Examining fund trading returns in connected stocks provides more direct evidence that information advantages do or do not occur.<sup>18</sup> Specifically, if managers extract information from connected directors and use the information when they make their portfolio decisions, purchases of connected stocks should precede positive returns, and sales of connected stocks should precede negative returns.

First, I uses pooled OLS regressions to test if director connections affect mutual fund trading returns. The unit of observation in the regression is the fund-firm-quarter. The dependent variable is the abnormal return of the stock in quarter  $t+1$ . The abnormal return of each stock is calculated by subtracting the return of the CRSP value weighted portfolio from the return of the specified stock each quarter. In each specification, there are four independent interactive variables of interest that capture the connection status between the fund and firm, and if the fund increased or decreased its holdings in the specified stock between quarter  $t-1$  and quarter  $t$ : connected purchase, connected sale, unconnected purchase, and unconnected sale. Connected indicates if a director connection exists between the fund-firm pair, and unconnected indicates if the fund-firm pair are not connected at any point in the sample period. The unconnected variables are included to act as a placebo against which we can compare the trades of connected firms. To insure that the results are not driven by characteristics specific to connected firms, the

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<sup>18</sup> The benefit of examining holdings in connected stocks, is that portfolio choices are less noisy than returns. A fund's portfolio choice is wholly determined by the manager. Conversely, the return earned in a position is driven by both the information signal possessed by the manager as well as factors unrelated to the manager's information.

sample is restricted to include only the 196 S&P 1500 firms that have at least one director connection to a fund over the sample period.<sup>19</sup>

To control for factors other than fund-firm connection status and trading status that influence future stock returns, I include variables that measure the firm's size, the quintile of the firm's book to market ratio, the return of the stock over the previous quarter, the return of the stock over the three quarters preceding the previous quarter (t-2 to t-4) and the stock price of the firm. Additionally, quarter fixed effects are included and standard errors are clustered at the firm level.<sup>20</sup>

The first column of Table 4 presents the results of the regression when the four independent variables of interest are dummy variables indicating the connection status of the fund-firm pair and if the firm bought or sold the stock of interest over the previous quarter. For example, if a fund bought the stock of a connected firm, the connected buy dummy variable would take a value of one, and all other variables would take a value of zero.<sup>21</sup> The positive coefficient on the connected buy dummy variable indicates that when a fund purchases the stock of a connected firm, the stock on average gains 2.07 percentage points above its

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<sup>19</sup> Rather than focusing on all S&P 1500 firms, the analysis focuses on the subsample of firms that were at one point director connected to a fund. For example, I examine fund trading in CVS Corporation, who have an executive on the board of Principle Funds, but omit from the analysis trading returns in Quorum Health Group, who at no point in the sample connects to a fund. I introduce this restriction so that we can compare the trades of connected funds in connected firms, to the trades of unconnected funds in those same connected firms. At all points in the paper where this restriction is imposed, the results are consistent with and without the restriction.

<sup>20</sup> These results are robust to alternate clustering specifically. When clustered by fund and quarter the standard errors are lower.

<sup>21</sup> To be considered a purchase, the fund must have increased the number of shares it held, increased its portfolio weight and increased its ownership stake in the specified firm over the previous quarter, and vice versa for sales. Thus, a holdings where the number of shares held increased, but the portfolio weight decreased, would be considered neither a purchase nor a sale.

benchmark over the following quarter. Similarly, the negative and statistically significant ( $t=-2.71$ ) coefficient on the connected sell dummy variable indicates when a fund sells the stock of a connected firm, the stock on average underperforms by 3.76 percentage points over the following quarter. The 5.83 percentage point difference between the coefficient on the connected purchases and connected sales variables is statistically significant at the five percent level. If funds possess information advantages in director connected stocks, then trades in director connected stocks should be more informative than trades in unconnected stocks. To test if this is empirically true, I compare the difference between the coefficients on the connected buy and sell variables, to the difference between the coefficients on the unconnected buy and sell variables.

The 5.77 percentage point difference between connected and unconnected trades is statistically significant at the five percent level. This result indicates that trades in connected stocks are more informative than trades in unconnected stocks.

#### **(Table 4)**

In the previous specification, the dummy variable approach treats all purchases and sales equally. For robustness, in the second through fifth columns I distinguish between purchases and sales of different sizes. These specifications are motivated by the assumption that the stronger the information signal the manager receives, the more aggressively they will act to capitalize on the information. I examine the fund's initial purchases and total sales of a stock

(column 2), the change in portfolio weight (column 3), log of the dollar holdings change (column 4) and the change in ownership stake (column 5). Across all specifications, the results indicate that the purchases of connected stocks precede positive abnormal returns, the sales of connected stocks precede significantly negative abnormal returns, and the trades of connected stocks produce significantly higher returns than the trades of unconnected stocks.

For robustness, I also calculate abnormal returns using the Daniel, Grinblatt, Titman and Wermers (1997) (DGTW) characteristic based benchmarks.<sup>22</sup> The abnormal return is calculated by subtracting the return of an equal-weighted benchmark portfolio composed of all stocks in the same size, value and momentum quintile as the specified stock, from the return of the specified stock.

### **(Table 5)**

The results presented in Table 5 show that the trading results are robust to calculating returns using the DGTW-adjusted benchmarks. In all five specifications, the returns of connected purchases are significantly larger than the returns of connected sales, and the trades of connected stocks produces larger returns than the trades of unconnected.

I also measure the abnormal returns associated with connected trading using a calendar time portfolio approach. This approach measures the returns one

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<sup>22</sup> "The DGTW benchmarks are available via <http://www.smith.umd.edu/faculty/rwermers/ftpsite/Dgtw/coverpage.htm>"

would earn by forming portfolios that replicate the trades fund managers make in connected stocks.<sup>23</sup> Each quarter, all fund-firm holdings are assigned to one of four portfolios based on their connection status (Connected, Unconnected) and their trading status (Buy, Sell), and the DGTW-adjusted abnormal return of each stock in the subsequent quarter is calculated. The portfolio returns are then calculated by weighting the abnormal returns of each stock within the portfolio equally, or by their change in portfolio weight, log change in dollar holdings or change in ownership stake, as specified.<sup>24</sup>

### **(Table 6)**

The results presented in Table 6 suggest that portfolios composed of the connected stocks fund's purchase earn positive abnormal returns and portfolios composed of the connected stocks fund's sell earn significant negative abnormal returns. The connected trading portfolio, i.e., the portfolio that is long connected purchases and short connected sales, produces positive abnormal returns in all specifications, ranging from 5.3 (t=1.96) to 7.9 (t=2.67) percent per quarter. Furthermore, the connected trading portfolio outperforms the unconnected trading portfolio in all specifications.

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<sup>23</sup> Because mutual funds typically disclose their quarterly stock positions to the public with a 60 day lag, this does approach does not represent a trading strategy that can be implemented real time. In results not shown, I find that majority of abnormal returns associated with connected trading take place during the 60 day grace period before the trade is revealed to the public.

<sup>24</sup> Due to a limited number of observations, I do not include a specification using the Initial Buy/Complete Sell measure.

### 1.4.3 Earnings Announcement CARs Following Stock Purchases and Sales

If fund managers trade on information, they should make the majority of their returns when information asymmetry is the highest. In line with Cohen, Frazzini and Malloy (2008), who find 91 percent of the premium associated with education connections is earned in the days surrounding corporate news announcements, I examine the returns of connected stocks around earning announcements.

Table 7 repeats the pooled OLS analysis of the previous section with the exception that the dependent variable is the cumulative abnormal returns (CAR) in the days surrounding the earnings announcements of the firm in quarter  $t+1$ . To calculate abnormal returns a window of seven trading days  $[t=-1, t=5]$  around the scheduled quarterly earnings announcement is used. The date of the earnings announcement is obtained from the Compustat database. Each day, the abnormal return is computed by subtracting the return of the CRSP value-weighted portfolio from the return of the firm's stock. To calculate the CAR, I sum the abnormal returns over the seven days.

#### **(Table 7)**

The results presented in Table 7 suggest that fund trades anticipate the earnings announcements of connected stocks. Across all specifications, the earnings announcement CARs following the purchases of connected stocks are significantly larger than the earnings announcement CARs following the sales of



connected stocks, and the trades of connected stocks significantly outperform the trades of unconnected stocks.

I also use a calendar time approach, to measure the earnings announcement CAR  $[t-1,t+5]$  associated with connected trading. The results presented in Table 8 suggest that the portfolios composed of connected purchases earn positive earnings announcement CARs. These returns range from 1.6 percent to 2.1 percent per quarter, and their statistical significance ranges from marginally ( $t=1.53$ ) to highly ( $t=3.08$ ) significant. Similarly, portfolios composed of the connected stocks fund's sell earn negative earnings announcement CARs, ranging from -0.6 percent to -1.5 percent over the following quarter. Furthermore, the connected trading portfolio, i.e., the portfolio that is long connected purchases and short connected sales, produced significantly positive CARs in all specifications, and the connected trading portfolio outperforms the unconnected trading portfolio across all specifications. These results provide further support that funds trade informatively in the stock of connected firms.

### **(Table 8)**

#### **1.5. Results: Director Selectivity Issues**

While the results presented thus far suggests that funds possess information advantages in director connected firms, it is unclear if the director connection is the cause of the information advantages. Because funds actively choose their directors, it is plausible that funds select directors from the firms in which they already have information advantages. This could occur if a common

factor, such as a preexisting fund-firm network, drives director selection and information advantages. For example, past research suggests that funds possess information advantages in geographically (Coval and Moskowitz (2001), socially (Cohen, Frazzini and Malloy (2008)), and business (Duan, Hotchkiss and Jiao (2011)) tied firms. If these relationships also drive director selection, the observed information advantages in director connected firms may be caused by the preexisting network rather than the director connection.

#### 1.5.1 Director Selectivity and Connected Holdings

I control for director selectivity in fund holdings by identifying the firms to which funds exogenously connect. While funds actively choose their directors, they do not always choose the firms that employ their directors. Specifically, when a director first joins a fund, the director's place of employment may influence the fund's decision to hire the director. However, once the director is hired, the fund has little control over the director's future place of employment should they change jobs, e.g., if the director leaves IBM and joins GE. If we find that Windsor Fund also biases its holdings towards GE, to which it does not actively choose to connect, we can infer that the connection, and not a factor related to the selection of the director, causes Windsor Fund to overweight its holdings in GE. Thus, to control for director selectivity issues, I distinguish between connections where the director's tenure at the firm precedes their tenure at the fund, termed "firm-first" connections, and connections formed when an established director changes job, termed "fund-first" connections. Of the 856 unique FC-firm connections in the sample, 577 are identified as firm-first connections, and 132 are identified as fund-

first connections.<sup>25</sup> Finding a strong impact of director connections on investment decisions in the subsample of fund-first connections, where the effect of the connection is isolated from director selectivity issues, will provide support for the hypothesis that director connections cause the observed bias towards connected holdings.

To examine the impact of fund-first and firm-first director connections on the investment decisions of the fund, I build on the OLS model used in the previous holdings analysis by introducing four new independent variables of interest. The variables distinguish between fund-first and firm-first connections and between the period prior to and during the director connection. Specifically, “Fund-First Connected” is a dummy variable that identifies a stock as being fund-first connected to the fund. “Fund-First Preconnected” is a dummy variable that identifies if the fund and firm form a fund-first director connection in the following two years. “Firm-First Connected” is a dummy variable that identifies a stock as being firm-first connected to the fund. Finally, “Firm-First Preconnected” is a dummy variable that identifies if the fund and firm form a firm-first director connection in the following two years. The preconnected variables act as a placebo group and help infer the direction of causality in the connection-holdings relationship. If director connections influence investment decisions, we should observe that fund holdings in connected firms are different from their holdings in

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<sup>25</sup> There are an additional 147 connections where it is unclear if the connection is fund-first or firm-first. Of these, 107 cannot be identified because their formation occurred prior to 1994, and thus predates the SEC Edgar Database. The remaining 40 connections cannot be identified as fund-first or firm-first because the director joined the firm and fund in the same year.

those firms during the preconnected period. Conversely, if funds connect to the firms whose holdings they overweight, we should observe that they bias their holdings towards these firms in the preconnected period.

### **(Table 9)**

The results presented in Table 9 suggest that funds hold elevated stakes in the fund-first connected firms they do not actively choose. The coefficient on the fund-first connected variable is positive, statistically significant and significantly larger than the fund-first preconnected variable across all specifications. In contrast, among the firms funds actively choose to connect to – firm-first director connections - the results suggest that funds bias their holdings towards the connected firm, both before and after the connection formation. Though this suggests some director selection effects, it does not explain all the results of overweighting connected stocks. The results indicate that the formation of an exogenous fund-first director connection causes funds to place larger bets in the fund-first connected stock.

For robustness, I also use a quasi-experimental matched sample approach to control for director selectivity issues. This approach assigns treatment status to connection formations, i.e., I classify all year-fund-firm<sup>26</sup> observations where the fund and firm form a director connection in year<sub>t+1</sub>, as treated. For example, if Fidelity Magellan connects to IBM in 1999, the 1998-Fidelity Magellan-IBM observation is categorized as treated. Next, for every observation in the treated

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<sup>26</sup> I aggregate the fund holdings data to the annual level to account for the fact that prior to 2004 funds were only required to record holdings data on a semi-annual basis.

group, I find a set of control funds that did not form a director connection with the specified firm. I match control funds to treated funds by common year, investment style<sup>27</sup> and firm holding status (held or unheld). For example, if Fidelity Magellan was a large growth fund and held IBM in 1998, I identify a set of control funds for the 1998-Fidelity Magellan-IBM observation that are also large growth funds that held IBM's stock in 1998, but did not form a director connection with IBM. I then use the Abadie-Imbens (2002) matching estimator<sup>28</sup> to match each year-fund-firm observation in the treatment group with its four<sup>29</sup> "nearest neighbors" in the control group. The nearest neighbor distance between observations in the treatment and control group is based on the portfolio weight holdings of the fund in the specified firm, the total number of stocks the fund holds, and the fund's styleholdings. As before, styleholdings measures the fund's total portfolio weight in stocks with similar size, value and momentum characteristics as the stock of interest. The difference in portfolio weight changes between the treated and control funds is calculated over the following one, two, and three years. Statistical significance is calculated using heteroskedasticity-robust standard error.

### **(Table 10)**

Panel A of Table 10 presents the results of the quasi-experimental matched sample approach around the formation of fund-first connections. The results

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<sup>27</sup> Fund style is characterized using the CRSP objective codes provided by the CRSP Mutual Fund Database.

<sup>28</sup> The Abadie-Imbens estimator typically lowers the bias of the estimate, at the cost of increased variance, compared to simple matching estimators and regression estimators (Abadie and Imbens (2002)).

<sup>29</sup> I use four matches per the advice of Abadie, Drukker, Herr and Imbens (2004) who state: "use four matches because it offers the benefit of not relying on too little information without incorporating observations that are not sufficiently similar."

suggest that following fund-first connection formations, funds increase their holdings in the connected firms. The increase in holdings is gradual. There is no significant effect from the year prior to the formation of the connection to the year of the formation ( $p=0.414$ ), a 0.0022 percentage point effect in the year after the formation of the connection ( $p=0.006$ ), and a 0.0030 percentage point effect two years after the formation of the connection ( $p=0.004$ ). Panel B of Table 10 focuses on the subsample of director connections that the fund can actively choose, firm-first director connections. When firm-first connections form, the average treatment effect is significantly negative the year of ( $p=0.000$ ) and the year following ( $p=0.002$ ) the connection formation, but not significantly different from zero to two years following the formation of the connection ( $p=0.618$ ).

These results provide additional support that following the formation of fund-first director connections funds increase their holdings in these stocks. This result suggests that the formation of exogenous connections cause funds to take larger stakes in connected stocks – consistent with funds acquiring information advantages in these stocks.

### 1.5.2 Director Selectivity and Connected Trading Returns

Next, I examine if the trading return results are driven by fund's connecting to firms in whom they trade informatively. I expand upon the OLS regression used in the previous trading return section by introducing two independent variables that identify purchases and sales of connected stocks, in the period before the fund

connects to those stocks.<sup>30</sup> If the director connection is a symptom, rather than the cause, of informative trading, then we should observe that fund's trade informatively in stocks in the preconnected period, and that the magnitude of the preconnected trading returns are comparable to those earned in the connected period.

### **(Table 11)**

Panel A of Table 11 presents the results of the OLS regressions when the dependent variable is the abnormal return calculated using the CRSP Value Weighting Index. In Panel B, the dependent variable is the seven day  $[t=-1,t+5]$  cumulative abnormal return following the earnings announcement. The results across all specifications paint a consistent picture; funds trade more informatively in the stock of connected firms when they are connected to those firms, compared to the period before they are connected to those firms.<sup>31</sup>

Both the holdings and trading return results suggest that the observed information advantages in director connected stocks begin when the firm's executive serves joins the fund's board. This result suggests that the firm executive's presence on the fund board facilitates the formation of communication networks with fund management which, in turn, lead to a flow of information to fund management.

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<sup>30</sup> Due to the noisiness of return data (relative to holdings data), I analyze trading in the entire preconnected period, rather than the two-year preconnected period used in the holdings analysis, and do not distinguish between fund-firm and firm-first director connections.

<sup>31</sup> Although not shown for brevity, these results are robust to using DGTW adjusted abnormal returns as the dependent variable and a calendar time portfolio approach.

## 1.6. Non-Information Explanations for Elevated Connected Holdings

Alternate, non-information related, hypotheses exist that may explain why funds hold elevated levels of director connected stocks. Past research suggests that funds may bias their holdings towards connected stocks due to familiarity biases (Huberman (2001)) or price support considerations (Cohen and Schmidt (2009)) associated with the connection. This section presents tests which explore if these alternate explanations explain the observed elevated holdings by funds in director connected stocks.<sup>32</sup>

### 1.6.1 The Familiarity Bias Explanation

Huberman (2001) documents that investors are drawn to familiar stocks. If a familiarity bias drives the observed elevated holdings in connected stocks, then the probability a fund holds a connected stock will be higher than the probability they hold unconnected stocks. To test if this is empirically true, I introduce a new variable, *Held*, that takes the value of one if a fund holds the stock, and zero otherwise. As we are now measuring whether a fund does, or does not, hold the stock of a firm, I include all fund-firm pairs, rather than just the firms a fund actively holds, in the sample.<sup>33</sup>

### **(Table 12)**

The results presented in Panel A of Table 12 provide mixed evidence on the probability funds hold director connected stocks. As the dependent variable is

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<sup>32</sup> These alternative explanations need not be mutually exclusive, but may occur alongside information flow.

<sup>33</sup> To maintain computational flexibility, I restrict the sample to the 196 S&P 1500 firms that at one point have a director connection to a fund. This results in a dataset that contains approximately 13.6 million observations.



binary, I estimate the control variable model (column 1) using a binary logistic regression. The interactive-fixed effects model (column 2 through 4) uses an OLS estimation technique as its high-dimensionality (over 100,000 fixed effects variables) makes a logistic model computationally impractical. The coefficient on the connected dummy is negative in the control variable specification, but positive in the interactive-fixed effects specifications. Panel B presents results when the four fund-first/firm-first and connected/preconnected independent variables are introduced to the model to help infer the direction of causality. Here, a more consistent pattern emerges. The coefficients on the fund-first connected and preconnected variable are statistically indistinguishable in all four specifications. Inconsistent with the familiarity hypothesis, this result suggests that the probability a fund holds a stock is unaffected by the formation of exogenous fund-first connections. With respect to firm-first connections, in all four specifications the coefficient on the preconnected variable is significantly positive and significantly larger than the coefficient on the firm-first connected variable. That funds are more likely to hold fund-first connected firms before the formation of the connection suggests that familiarity plays a role in the informal process of selecting a director. However, following the formation of the connection, the nature of the fund-firm relationship appears to change. The results suggest that they become more selective in their decision to hold the stock. This result is contrary to the increase in holdings probability we would expect to observe if director connections cause a familiarity bias.

**(Table 13)**

For robustness, Table 13 uses the previously developed matched methodology to examine how the probability a fund holds a stock changes after the formation of a director connection. Consistent with the results of the regression analysis, and inconsistent with the familiarity hypothesis, the matched-sample results suggest that following the formation of both fund-first and firm-first connections, the probability funds hold the stock of connected firms does not increase.

### 1.6.2 The Price Support Explanation

Price support considerations may also explain the observed elevated holdings in connected stocks. Cohen and Schmidt (2009) present evidence that suggests when a fund manages a firm's 401(K) plan, the fund overweighs holdings in and provides price support for the client firm's stock. When other funds sell the client firm's stock, the 401(K) connected fund increases its holdings in the client firm's stock, mitigating potential price decreases associated with the sell-off. With respect to director connections, this finding raises the question: do funds provide price support for director connected stocks? If so, price support rather than information considerations may drive the observed elevated holdings in director connected stocks.

I use pooled OLS regressions to test if director connected funds provide price support for connected firms when those firms experience negative shocks. The unit of observation in the regression is the fund-firm-quarter.<sup>34</sup> The dependent

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<sup>34</sup> Again, I restrict the sample to the 196 S&P 1500 firms that at one point have a director connection to a fund.

variable is the change in fund holdings in the specified stock over the specified quarter. The measure used to gauge the change in holdings varies across model specification. I define a negative shock to a firm as a quarter where the aggregate mutual fund universe decreases their ownership stake in the firm's stock by more than one percentage point. If this occurs, the dummy variable, Sell Off, takes a value of one. The variable Agg Ownership Change measures the aggregate mutual fund universe's ownership stake change over the previous quarter. Connected is again a dummy variable that takes the value of one if the fund and firm are connected and Connected\*Sell Off is the interaction of the Connected and Sell Off variables. If director connections are associated with price support, then the coefficient on the Connected\*Sell Off interaction variable will be positive, i.e., when other fund's sell the firm's stock, the connected fund will buy the firm's stock. To control for factors other than connection status that influence a fund's trading decisions in the firm, I included variables for the firm's size, the quintile of the firm's book to market ratio, the return on the firm's stock over the three quarter prior to the specified quarter, the change in the firm's CRSP market weight over the quarter, and the styleholdings and industryholdings variables used in the previous regression models. Furthermore, quarter fixed effects are included and standard errors are clustered at the firm level.

#### **(Table 14)**

The first column of Table 14 presents the results of the regression when the dependent variable is a dummy variable that indicates if the fund bought the firm in the specified quarter. The significantly negative coefficient on the connected\*sell

off interactive variable indicates when a sell off occurs in the stock of the connected firm, the connected fund also sells the stock of the connected firm. This result suggests that funds do not provide price support for director-connected firms. For robustness, the second through fourth column of Table 14 measure holdings changes using the change in the fund's portfolio weight (2), log of the dollar holdings change (3) and ownership stake change (4) respectively. These alternate specifications fail to produce evidence that funds provide price support for connected stocks and suggest that the observed elevated holdings in director connected stocks are not driven by price support considerations.

### **1.7. Results: The Scope, Intensity and Mechanisms of Boardroom Information Transfers**

The fund boardroom is essentially a black box. The results of this paper suggest that connected directors enter that box, and managers exit it in possession of private information. Yet, the nature of their interaction remains unclear. Despite the boardroom's opaqueness, we can gain insight into the mechanisms that drive boardroom information transfers by exploring where connected trading returns are the strongest (and weakest). For example, consider the introduction of a new regulation. If connected trading returns weaken after the introduction of the regulation, we can infer that the targeted of the regulation is related to connected information transfers. In this section, I examine if the information that flows through director connections extends beyond the director's firm, and if connected trading returns vary by information environment, regulatory regime, fund, firm and director.

### 1.7.1 Trading Returns in Sector Connected Stocks

First, I examine if funds are also able to trade informatively in firms similar to the director's – termed "sector connected" stocks. I define a sector connected stock as a firm which shares the same six digit NAICS code as the director connected firm. Examining how funds trade in sector connected stock will help shed light on the nature of information transferred through the director connections. If funds are only able to trade in director connected stocks we can conclude that the information transferred is limited to that of a firm-specific nature. However, finding that funds also trade informatively in sector connected stocks will suggest that more general information is also transferred.

To test the level of informed trading in sector connected firms, I supplement the previously developed OLS regression model with two additional variables, "Sector Connected Buy" which measures fund purchases in sector connected stocks, and "Sector Connected Sell" which measures fund sales in sector connected stocks. As in the previous tables, the variable used to measure purchases and sales varies across specification. If funds trade informatively in sector connected stocks we should observe that the difference between the coefficient on the sector connected buy and sell variable is significantly significant. Panel A of Table 15 presents results when the dependent variable is the abnormal return of each stock, calculated by subtracting the return of the CRSP value weighted portfolio, and Panel B presents results when the dependent variable is the stock's seven day earnings announcement CAR.

**(Table 15)**

The results presented in Table 15 suggest that funds trade informatively in sector connected stocks. In four of the five specifications in Panel A and Panel B, the difference between the sector connected buy and sell variable is positive and statistically significant, suggesting that fund trades in sector connected stocks are able to predict future returns and earnings announcements. Yet, across all specifications, the magnitude of trading returns in sector connected stocks is less than the magnitude of connected trading returns in director connected stocks. This result suggests that the information obtained in sector connected stocks is less precise than the information obtained in director connected stocks.

The previously described director selectivity issue raises concerns that the director connection may not be the cause of the informed trading in sector connected stocks. Alternatively, our result may be driven by the fact that funds select directors from sectors in which they trade informatively, i.e., a successful technology fund selects directors from technology firms. To distinguish between these competing explanations, I also examine trading in sector connected stocks, before the connection forms. Table 16 expands upon the previous analysis by introducing two new independent variables of interest, “Sector Preconnected Buy” and “Sector Preconnected Sell.”

### **(Table 16)**

In all specifications presented in Table 16, the difference between the coefficient on the Sector Preconnected Buy and Sell variable is statistically indistinguishable from zero. This result suggests that funds do not trade

informatively in sector connected stocks before the director connection is formed. Instead, the results suggest that informed trading in sector connected stocks begins only once the director connection is formed.

The main focus of this paper on the potential for funds to obtain information through their directors, rather than measuring the magnitude of the effect. However, the finding that funds trade informatively sector connected stocks, as well as director connected stocks, suggests a broader channel through which the director can influence fund performance, and the potential for larger economic significances.

#### 1.7.2 Cross-Sectional Connected Trading Return Tests

Next, I examine how the magnitude of informed trading in director connected stocks varies by information environment, regulatory regime, fund, firm and director.

If connected investors trade on private information, they should capture larger returns when information asymmetry is greater. I use the dispersion in analyst quarterly earnings forecasts to measure the information opaqueness of each stock. Each quarter, I classify firms above the median dispersion level as “High Dispersion” firms. To test if connected funds earn higher trading returns in high dispersion environments, I supplement the previously developed OLS regression model used in Table 4 to include a “High Dispersion” dummy variable that interacts with the connected buy and sell variables. If connected trading returns are different in the high and low dispersion environments, then the

connected trading interaction - defined as the difference between the coefficient on the Connected Buy\*High Dispersion interactive variable and the coefficient on the Connected Sell\*High Dispersion - will be significantly different from zero. An alternate explanation for the existence of cross-sectional differences in returns is that the trading returns of all funds, not just the connected funds, vary by information environment. To address this concern, I also interact the High Dispersion variable with the unconnected buy and sell variables, and refer to the difference between these interactions as the Unconnected Trading Interaction. If the Connected Trading Interaction is significantly larger than the Unconnected Trading Interaction, then we can conclude the cross-sectional effect is unique to the trading of connected stocks.

### **(Table 17)**

The first column of Table 17 presents results when the High Dispersion variable is introduced to the OLS regression model. The Connected Trading Interaction is positive and statistically significant, which suggests that funds captured larger trading returns in informationally opaque environments. Furthermore, the Connected Trading Interaction is significantly larger than the Unconnected Trading Interaction, which suggests that the result is not driven by all funds trading more informatively in these environments.

Next, I examine the impact the Regulation Fair Disclosure rule of August 2000 - hereafter referred to as RegFD - had on the trading returns of connected stocks. RegFD sought to reduce information asymmetry among investors by



limiting selective disclosure of information by publicly traded companies.<sup>35</sup> If RegFD was effective, and mechanisms that drive boardroom information transfers are of the nature targeted by RegFD, we would expect to find that trading returns in director connected stocks are lower in the post RegFD period.

The second column of Table 17 presents results when a dummy variable Post RegFD variable – which indicates if the period is after the implementation of RegFD - is introduced into the OLS regression model. The Connected Trading Interaction is positive and statistically significant at the ten percent level, and is significantly larger than the Unconnected Trading Interaction. This result suggests that connected funds were able to extract information from meetings with firm executives in the post RegFD environment.

This finding raises the question, how do investors profit if not through the selective disclosers targeted by RegFD? Solomon and Soltes (2013) also find evidence that investors obtain private information from one-on-one meetings with firm management in the post RegFD period, and propose that a mosaic theory of investing explains the information transfers. The mosaic theory posits that the information gained from meetings is not valuable in and of itself. Instead, investor ability or additional pieces of information are required to profit.

If a mosaic theory of investing also drives boardroom information transfers, we should observe that more skilled fund managers earn higher returns in connected stocks. Berk and Green (2004) present evidence that suggests a

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<sup>35</sup> “Final Rule: Selective Disclosure and Insider Trading.” <http://www.sec.gov/rules/final/33-7881.htm>

competitive market for capital provisions exists in which larger funds have more skilled managers. Consistent with Berk and Green (2004), I use fund size to proxy for the skill of the fund's manager. The third column of Table 17 introduces a cross-sectional dummy variable "Large Fund" – which indicates if the fund is larger than the median sized fund in the specified quarter - to the regression model. The Connected Trading Interaction is positive, statistically significant, and significantly larger than the Unconnected Trading Interaction. Under the assumption of a competitive market for capital provisions, this result suggests that skilled fund managers capture larger trading returns in connected stocks.

While the results of the RegFD and Large Fund analysis are consistent with a mosaic theory of investing, they are a necessary but not sufficient condition in proving that the mosaic theory drives boardroom information transfers, and do not rule out the possibility that alternate mechanisms are responsible for the transfer. Thus, any attempt to determine how managers acquire information in director connected firms should be approached with caution. For example, the finding that large funds capture larger trading returns in connected stocks is also consistent with a quid pro quo relationship existing between the connected director and fund manager, i.e., larger funds are able to provide a greater return of favors to the connected director.

Next, I examine if fund and firm connectedness are related to connected trading returns. Presumably, if a fund trades profitably in a connected stock, they should hoard connections, leading to the observation that funds with many connections have higher connected trading returns. The fourth column of Table 17

introduces the dummy variable “Highly Connected Fund” – which indicates if the fund has more than the median number of director connections in a specified quarter - into the regression model. The Connected Trading Interaction is positive, statistically significant, and is significantly larger than the Unconnected Trading Interaction, indicating that funds with many director connections trade more profitably than funds with fewer director connections. Similarly, if funds tend to trade profitably in a certain connected firm, other funds will seek out connections to that firm, leading to the observation that funds trade more profitably in firms with many director connections. The fifth column of Table 17 introduces the dummy variable “Highly Connected Firm” – which indicates if the firm has more than the median number of director connections in a specified quarter – to the regression model. Again, the Connected Trading Interaction is positive, statistically significant, and is significantly larger than the Unconnected Trading Interaction. This result indicates that funds trade more profitably in firms with many director connections and implies a relationship between connected trading returns and benefits to the connected director. Section VIII explores the relationship between connected trading returns and benefits to the director in more detail.

Lastly, the sixth column of Table 17 uses executive ownership data contained in the Compustat ExecuComp dataset to explore the relationship between connected director ownership stakes in their firms and connected trading returns. To test this relationship, I introduce a dummy variable “High Executive Ownership” – which indicates if the connected director owns more than the median ownership stake among connected directors in the specified quarter - into the

regression model. In this specification, the Connected Trading Interaction is negative and is significantly smaller than the Unconnected Trading Interaction, suggesting that funds earn larger trading returns in connections in which the director forming connection has a low ownership stake.

### **1.8. Director Connections and the Benefit to the Director**

In light of past research which has documented quid pro quo behavior within funds in the context of the stale-price trading scandal of 2003 (McCabe (2009)), 401K business (Cohen and Schmidt (2009) and director appointments (Kuhnen (2009)), this section examines if the observed information advantages in director connected stocks are part of an exchange of favors between fund directors and fund managers. With an average annual compensation of approximately \$258,000,<sup>36</sup> fund directors have an interest in preserving their board appointments. In contrast to previously examined information networks (e.g. geographic and education networks) where it is unclear what incentives the information source has to facilitate information transfers, the benefits the director receives from their position at the fund provides a possible incentive mechanism for the director to facilitate information transfers to funds. If the information transferred through director networks is part of a quid pro quo relationship between the fund director and manager, I expect to observe a positive relationship between connected trading returns and the director's tenure, i.e., when a fund trades informatively in a director's stock, the director is more likely to be retained by the fund. Furthermore,

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<sup>36</sup> Sterngold, J. (2012, June 6). Is Your Fund's Board Watching Out for You? *The Wall Street Journal*. Retrieved from <http://online.wsj.com/article/SB10001424052702303753904577450243418998540.html>

if there is a quid pro quo element to the director-manger relationship, then informed trading in the connected stock should cease when the director leaves the board and the fund is no longer able to provide benefits to the director. The analysis that follows tests the validity of these hypotheses.

### 1.8.1 Connected Trading and Director Tenure

I use Logit regressions to examine the relationships between information transfers and director tenure. The level of observation is the year-director-FC. An observation exists for each year a director was on the board of a FC. The dependent variable, Left FC, is a dummy variable that identifies if the director leaves the FC's board in year  $t+1$ . The independent variables of interest gauge the information transfers that occur between the fund and firm. Because information transfers are unobservable, I focus on fund holdings and trading returns in the connected director's stock to proxy for the level of information transfers facilitated by the connected director. Specifically, I posit that the frequency with which a fund holds the connected director's stock and the trading returns they capture from the stock is positively associated with information transfers. The first independent variable, Proportion Held, measures the proportion of quarters in the previous three years<sup>37</sup> that the funds, within the director's FC, held the connected stock. The second independent variable of interest, Trading Return, measures the cumulative DGTW abnormal return gained by the FC from trades in the connected stock over the previous three years. For example, if a fund sold a connected stock,

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<sup>37</sup> For each variable, if the director has been at the fund less than three years, then the time between them joining the FC and the year of the observation is used. For example, if Jane Doe joined Windsor Fund Company in 2003, the 2004-Jane Doe-Windsor observation would focus only on holdings and trading returns in 2003 and 2004, and exclude holdings and trading returns from 2002.

and the stock subsequently earned a negative abnormal return of five percent, positive five percent would be counted towards the FC's cumulative trading return in that stock and vice versa. The third independent variable, EA Trading CAR, measures the earnings announcement CAR gained, by the FC, from trades in the connected stocks over the previous three years.

To control for director specific factors that influence directors leaving the fund, I include a dummy variable that identifies if the director leaves his outside firm, a variable that measures the director's tenure at the FC, and a dummy variable that identifies if the director has been at the FC since its formation. To control for firm specific factors, I include the log of the director's firm's market capitalization and its return for the year. Additionally, year fixed effects are included and standard errors are clustered at the year level.

### **(Table 18)**

The first column of Table 18 presents the results of a Logit regression where the dependent variable is Left FC, and the independent variable of interest is Proportion Held. The coefficient on the Proportion Held variable is positive but statistically insignificant, indicating that how often a FC holds the stock of the director's firm, is unrelated to the probability that the director leaves the FC. The second column includes the Trading Return variable to measure the impact of fund trading returns in the connected director's stock on the director's probability of leaving the fund. The coefficient on the trading returns variable takes a value of -3.60 ( $z=-3.13$ ), indicating a FC's trading returns in a connected stock are negatively related to the probability the director forming the connection leaves the FC. The

third column examines the asymmetric impact of trading returns on director tenure. The trading return variable is split into two new variables, Positive Trading Return and Negative Trading Return. The Positive Trading Return takes the value of the Trading Return variable if it is positive, and zero otherwise. Similarly, the Negative Trading Return takes the absolute value of the Trading Return variable if it is negative and zero otherwise. The results of the regression show that the coefficient on the Positive Trading Return variable is negative but statistically insignificant, while the coefficient on the Negative Trading Return variable is positive and statistically significant at the ten percent level. These results suggest that positive trading returns in the director's firm by the FC are associated with positive career outcomes for the director, but negative trading returns are associated with negative career outcomes for the director. The fourth and fifth column of Table 18 measure the impact of returns around earnings announcements on the probability the director leaves the fund. The results of these regressions are consistent with the results when the Trading Return variable is used, EA Trading CAR in the director's firm is positively related to the director's tenure.

### 1.8.2 Connected Trading Returns after the Director Leaves the Fund

Next, I examine trading returns in connected stocks after the director connection ends. Past research suggests that information transfers persist beyond when the mechanism which forms the connection ends. Consider the case of the education network explored by Cohen, Frazzini and Malloy (2008). Fund managers and firm executives are connected by shared educational experience, yet information transfers between the two are observed to continue decades after their

shared education ends. In light of these findings, it is plausible that information transferred through director connections will continue to flow after the director and manager no longer share the boardroom in which their connection was formed. However, if the flow of information is part of an exchange of favors between the director and manager, which can only be passed when the director is physically on the board, then we should find that the information transfers cease when the director leaves the board.

Fund-firm director connections can be severed in two ways, the director may leave the fund or the director may leave the firm. The director receiving benefits is conditional on a presence at the fund, while the director possessing private information is conditional on a presence at the firm. Thus, it is important that we focus only on instances where the director leaves the fund but remains at the firm, termed Postconnected. To test if informed trading occurs in these instances, I supplement the previously developed OLS trading regression model by introducing two new variables of interest, Postconnected Buy and Postconnected Sell, which measure the purchases and sales of funds in the Postconnected Period.

Panel A of Table 19 presents results when the dependent variable is the abnormal return of each stock, calculated by subtracting the return of the CRSP value weighted portfolio, and Panel B presents results when the dependent variable is the stock's seven day earnings announcement CAR.

**(Table 19)**



The results, presented in Table 19, suggest that funds do not trade informatively in the stock of connected firms when they are no longer connected to those firms. This result is consistent with an exchange of favors between fund management and the director. When the director is no longer at the fund, and thus does not receive the benefits associated with the position, the flow of information from the director to the fund ceases.

### **1.9. Conclusion**

This paper sheds light on the influence independent mutual fund directors exert on fund investment decisions. The paper reveals that when independent directors simultaneously hold high ranking positions in outside firms, the fund takes aggressive positions in and trades informatively in the stock of those firms. Robustness tests suggest that these results are not driven by director selectivity issues, familiarity biases or price support concerns, but are caused by the director's presence on the fund's board. As a high ranking employee is likely to possess private information about his firm, these results suggests that the presence of the director facilitates a transfer of information to the fund.

The paper provides insight into the scope and nature of the information transferred by independent fund directors. Informed trading by the fund extends to firms in the same sector as the director's, suggesting wider information transfers and a broader economic significance of the relationship. Furthermore, the results show that connected trading returns are larger after the introduction of Reg FD, among large and highly connected funds, in highly connected firms, and in firms where the connected director has low levels of ownership.

As independent directors accrue direct benefits from their position on the fund board, the potential for a quid pro quo relationship exists between the director and fund management. The paper presents results consistent with an exchange of favors occurring. The results show that informed trading in the director's stock is positively related to the probability the director retains their position on the fund board, and that informed trading in the director's stock does not persist after the director leaves the fund and is thus unable to receive benefits from the fund.

That director connections influence fund investment decisions has wider implications for the mutual fund industry. Over the past two decades, there has been a push towards more independent fund boards with the intent of improving fund governance quality. However, more directors who are independent, means more directors who are simultaneously employees of publicly traded firms, and thus more potential for directors to influence the fund beyond their formal monitoring responsibilities. Overall, the results of this paper suggest legislation requiring the presence of independent mutual fund directors has led to unintended consequences at the fund.

**Table 1.1. Summary Statistics: Director Connections, 1994-2011**

Note – Table 1.1 reports summary statistics for the sample. Panel A presents data at the Fund Company (FC) level. Results are present at the quarter or year level as specified. Panel B presents data at the Mutual Fund level. Most FCs are comprised of many mutual funds, with an average of approximately three.

Panel A: FC Level Data	Mean	Median	Min	Max	N
FCs per Year	877	893	659	1036	18
FCs with at least one connection per Year	157	153	87	207	18
FC Connections per Year	213	211	107	321	18
Connections per FC Company per Year	1.34	1.31	1.02	1.84	18
Panel B: Mutual Fund Level Data	Mean	Median	Min	Max	N
Mutual Funds per Year	2403	2604	1238	2933	18
Mutual Funds with at least one connection per Year	410	424	122	537	18
Mutual Fund Connections per Year	645	596	182	1131	18
Held Mutual Fund Connections per Quarter	31	22	1	107	72
Unheld Mutual Fund Connections per Quarter	614	579	169	1050	72
Connections per Mutual Fund per Year	1.53	1.44	1.06	2.29	72
Held Connections per Mutual Fund per Quarter	0.07	0.06	0.01	0.21	72
Unheld Connections per Mutual Fund per Quarter	1.46	1.40	0.92	2.16	72

**Table 1.2. Summary Statistics: Director Connections, Firm Data 1994-2011**

Note – Table 1.2 presents summary statistics on the scope of connected firms, the size of connected firms and the funds that hold connected firms. Panel A shows the proportion of S&P 1500 stocks that are connected to funds, and the proportion of S&P 1500 stocks that are held by at least one connected fund. The data is presented as the proportion of stocks and as the total market value of all stocks in the CRSP universe. Panel B shows the market capitalization of connected firms, held connected firms and firms within the mutual fund sample, expressed in billions.

Panel A: Firm-Connections	Mean	Median	Min	Max	N
Percent of S&P 1500 Connected per Year					
of Stocks	2.52	2.68	0.52	3.34	18
of Total Market Value	5.43	5.11	1.11	9.64	18
Percent of S&P 1500 Connected & Held per Quarter					
of Stocks	0.44	0.62	0.07	0.79	72
of Total Market Value	1.67	1.51	0.13	5.62	72
Panel B: Connected Firm Size (\$Billions)	Mean	Median	Min	Max	N
Connected Firm Size per Year	12.77	12.57	3.41	27.36	18
Average Firm Size in S&P 1500 per Year	5.85	6.36	2.30	8.46	18
Held Connected Firm Size per Quarter	22.01	21.66	4.14	53.49	72
Unheld Connected Firm Size per Quarter	10.78	9.52	2.55	29.61	72

Table 1.3. The Holdings of Connected Stocks

Note - Table 1.3 presents results from pooled OLS regressions that measure the effect of director connections on mutual fund holdings. The unit of observation in the regression is fund-firm-quarter. The dependent variable, "Conditional Portfolio Weight," is the weight of a stock within a fund's portfolio. The independent variable of interest is a dummy variable that identifies a stock as being connected to the firm. The control variables included are the inverse of the number of stocks a fund holds, the percentage of the fund's total net assets invested in the style and industry corresponding to the stock being considered, and quintiles of market value of equity, book to market, and past 12-month return (DGTW '97). Inclusion of the control variables, fixed effects and the level of standard error clustering are specified. T-Stats are reported below the coefficient estimates.

	(1)	(2)	(3)	(4)
Connected Dummy	0.00300 7.84	0.00300 2.73	0.00300 2.31	0.00220 5.35
R <sup>2</sup>	0.690	0.690	0.690	0.629
N	5493889	5493889	5493889	5493889
Controls	Fund*Quarter FE Firm*Quarter FE	Fund*Quarter FE Firm*Quarter FE	Fund*Quarter FE Firm*Quarter FE	Quarter FE Firm: Size, BM, LagRet Fund: Style, # Holdings
Clustered SE	Quarter	Fund*Firm	Fund, Firm	Quarter

Table 1.4. Informative Trading and Director Connections

Note - Table 1.4 uses pooled OLS regressions to test if director connections affect mutual fund returns. The unit of observation in the regression is the fund-firm-quarter, and the dependent variable is the abnormal stock returns over the following quarter. The abnormal stock return is computed using the CRSP value-weighted portfolio as a benchmark. In each specification, there are four independent variables of interest: connected purchase, connected sale, unconnected purchase, unconnected sale. These variables are interactive, capturing the connection status between the fund and firm, and if the fund most recently bought or sold the specified stock. The trading metric used to identify purchases and sales varies across each specification and is identified in the first row of the table. The control variables used measure the firm's size, the quintile of the firm's book to market ratio, the return of the firm over the previous quarter, the return of the stock over the three quarters preceding the previous quarter, the stock price of the firm and quarter fixed effects. Standard errors are clustered at the firm level. T-Statistics are reported below the coefficient estimates. \*, \*\* and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Trading Metric	Buy & Sell Dummy	Initial Buy, Complete Sell	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Connected Buy	0.0207 0.53	0.1209 1.48	3.3419 1.39	0.0017 0.62	7.1955 0.73
Connected Sell	-0.0376 -2.72	-0.0533 -1.94	-1.8239 -2.62	-0.0026 -2.59	-21.8789 -3.53
Unconnected Buy	0.0008 0.70	0.0011 0.58	0.0681 1.03	0.0001 0.86	0.3818 0.76
Unconnected Sell	0.0003 0.24	0.0017 0.73	-0.0733 -1.47	0.0000 -0.09	-0.1689 -0.46
Controls	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.030	0.031	0.030	0.030	0.030
N	484734	484734	484734	484734	484734
Connected Buy - Connected Sell	0.0583**	0.1741***	5.1658**	0.0043**	29.074***
Connected Buy - Unconnected Buy	0.0198	0.1197	3.2738	0.0016	6.8137
Connected Sell - Unconnected Sell	-0.0379***	-0.0540**	-1.7506**	-0.0020***	-21.7100***
(Connected Buy-Connected Sell) - (Unconnected Buy - Unconnected Sell)	0.0577**	0.1747***	5.0244**	0.0042**	28.5238***

Table 1.5. Informative Trading and Director Connections – DGTW Adjusted Returns

Note - Table 1.5 uses pooled OLS regressions to test if director connections affect mutual fund returns. The unit of observation in the regression is the fund-firm-quarter, and the dependent variable is the abnormal stock returns over the following quarter. The abnormal stock return is computed using the Daniel, Grinblatt, Titman and Wermers (1997) (DGTW) characteristic based benchmarks. In each specification, there are four independent variables of interest: connected purchase, connected sale, unconnected purchase and unconnected sale. These variables are interactive, capturing the connection status between the fund and firm, and if the fund most recently bought or sold the specified stock. The trading metric used to identify purchases and sales varies across each specification and is identified in the first row of the table. To control for factors other than the fund-firm connection status that influence future stock returns, I included variables that measure the firm's size, the quintile of the firm's book to market ratio, the return of the firm over the previous quarter, the return of the stock over the three quarters preceding the previous quarter, the stock price of the firm and quarter fixed effects. Standard errors are clustered at the firm level. T-Statistics are reported below the coefficient estimates. \*, \*\* and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Trading Metric	Buy & Sell Dummy	Initial Buy, Complete Sell	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Connected Buy	0.0219 0.54	0.1165 1.34	3.0687 1.21	0.0018 0.63	8.1111 0.81
Connected Sell	-0.0326 -2.67	-0.0492 -1.90	-1.3064 -1.97	-0.0022 -2.54	-18.7767 -3.09
Unconnected Buy	0.0006 0.56	-0.0006 -0.34	0.0840 1.23	0.0001 0.82	0.3401 0.74
Unconnected Sell	0.0000 0.04	0.0025 1.29	-0.0643 -1.38	0.0000 -0.12	0.0499 0.15
Controls	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.033	0.033	0.033	0.033	0.033
N	484734	484734	484734	484734	484734
Connected Buy - Connected Sell	0.0544*	0.1657**	4.3750*	0.0040*	26.887***
Connected Buy - Unconnected Buy	0.0212	0.1171	2.9846	0.0017	7.7710
Connected Sell - Unconnected Sell	-0.0326***	-0.0517**	-1.2420*	-0.0022**	-18.826***
(Connected Buy-Connected Sell) - (Unconnected Buy - Unconnected Sell)	0.0539*	0.1689**	4.2267*	0.0039*	26.597***

Table 1.6. Calendar Time Trading Returns of Connected Stocks

Note – Table 1.6 presents calendar time portfolio returns following the purchase and sales of connected. Each quarter the holdings of each connected stock are aggregated across all funds that hold the stock. The specified trading metric is then used each quarter to identify a stock as having experienced buying or selling activity, and to weight the holdings of each stock in the purchased and sales portfolio. The abnormal stock return is computed using the Daniel, Grinblatt, Titman and Wermers (1997) (DGTW) characteristic based benchmarks. The first column presents the abnormal returns of connected stocks following stock purchases. The second column presents the abnormal returns of connected stocks following stock sales. The third column presents the abnormal return of the portfolio connected trading portfolio, i.e., a portfolio that takes a long position in connected stock purchases, and a short position in connected stock sales. The fourth column compares the connected trading portfolio to the unconnected trading portfolio.

Trading Metric		Purchases	Sales	L/S	vs. Unconnected Trades
Buy & Sell Dummy		0.007	-0.041	0.053	0.055
	T-Stat	0.37	-2.50	1.96	1.88
	N	50	47	42	42
$\Delta$ Portfolio Weight		0.033	-0.047	0.079	0.060
	T-Stat	1.46	-2.72	2.67	1.86
	N	55	52	48	48
$\ln(\Delta$ Dollar Holdings)		0.002	-0.049	0.057	0.047
	T-Stat	0.09	-2.86	2.09	1.57
	N	54	52	48	48
$\Delta$ Ownership Stake		0.012	-0.048	0.068	0.062
	T-Stat	0.52	-2.79	2.36	1.85
	N	55	52	48	48



**Table 1.7. Earnings Announcements and the Trading Returns of Connected Stocks**

Note – Table 1.7 uses pooled OLS regressions to test if director connections affect mutual fund returns. The unit of observation in the regression is the fund-firm-quarter, and the dependent variable is the earnings announcement CAR [-1,+5] over the following quarter. The date of the earnings announcement is obtained from the Compustat database. Each day the abnormal return is computed by subtracting the return of CRSP value-weighted portfolio from the return of the firm. To calculate the CAR, the abnormal returns over the seven days are summed. In each specification, there are four independent variables of interest: connected purchase, connected sale, unconnected purchase and unconnected sale. These variables are interactive, capturing the connection status between the fund and firm, and if the fund most recently bought or sold the specified stock. The trading metric used to identify purchases and sales varies across each specification and is identified in the first row of the table. To control for factors other than the fund-firm connection status that influence future stock returns, I included variables that measure the firm's size, the quintile of the firm's book to market ratio, the return of the firm over the previous quarter, the return of the stock over the three quarters preceding the previous quarter, the stock price of the firm and quarter fixed effects. Standard errors are clustered at the firm level. T-Statistics are reported below the coefficient estimates. \*, \*\* and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Trading Metric	Buy & Sell Dummy	Initial Buy, Complete Sell	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Connected Buy	0.0121 1.01	0.0375 1.25	1.4267 1.72	0.0010 1.15	5.6745 1.72
Connected Sell	-0.0090 -1.24	-0.0139 -1.04	-0.5351 -1.24	-0.0007 -1.29	-11.8606 -3.47
Unconnected Buy	0.0006 1.13	-0.0003 -0.26	0.0163 0.41	0.0001 1.14	0.3619 1.42
Unconnected Sell	0.0012 2.18	0.0020 2.24	0.0192 0.84	0.0001 2.05	0.1954 0.98
Controls	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.023	0.023	0.023	0.023	0.023
N	484734	484734	484734	484734	484734
Connected Buy - Connected Sell	0.0211**	0.0513***	1.9618**	0.0016***	17.535***
Connected Buy - Unconnected Buy	0.0114	0.0377	1.4103*	0.0009	5.3125
Connected Sell - Unconnected Sell	-0.0102	-0.0159	-0.5543	-0.0007	-12.055***
(Connected Buy-Connected Sell) - (Unconnected Buy - Unconnected Sell)	0.0217***	0.0536***	1.9647**	0.0016***	17.368***

### Table 1.8. Calendar Time Earnings Announcement Returns of Connected Stocks

Note – Table 1.8 presents calendar time portfolio returns following the purchase and sales of connected. Each quarter the holdings of each connected stock are aggregated across all funds that hold the stock. The specified trading metric is then used each quarter to identify a stock as having experienced buying or selling activity, and to weight the holdings of each stock in the purchased and sales portfolio. The earnings announcement CAR is computed from [-1,+5] over the following quarter for each stock. The date of the earnings announcement is obtained from the Compustat database. Each day the abnormal return is computed by subtracting the return of CRSP value-weighted portfolio from the return of the firm. To calculate the CAR, the abnormal returns over the seven days are summed. The first column presents the abnormal returns of connected stocks following stock purchases. The second column presents the abnormal returns of connected stocks following stock sales. The third column presents the abnormal return of the portfolio connected trading portfolio, i.e., a portfolio that takes a long position in connected stock purchases, and a short position in connected stock sales. The fourth column compares the connected trading portfolio to the unconnected trading portfolio. T-Stats and sample size are reported below the coefficient estimates.

Trading Metric	Purchases	Sales	L/S	vs. Unconnected Trades
Buy & Sell Dummy	0.021	-0.009	0.033	0.030
T-Stat	2.13	-1.00	2.25	1.91
N	52	47	43	43
$\Delta$ Portfolio Weight	0.029	-0.006	0.038	0.038
T-Stat	3.08	-0.81	2.98	2.92
N	55	52	47	47
$\ln(\Delta$ Dollar Holdings)	0.016	-0.014	0.029	0.025
T-Stat	1.53	-1.64	2.07	1.67
N	56	51	49	49
$\Delta$ Ownership Stake	0.019	-0.015	0.033	0.023
T-Stat	1.73	-1.66	2.18	1.38
N	56	51	49	49

Table 1.9. Holdings and the Timeline of Connection Formations

Note – Table 1.9 presents results from pooled OLS regressions to measure the effect of director connections on mutual fund holdings. The analysis partitions the sample of director connections into “fund-first” director connections, where the director joined the connected firm, after becoming a director at the fund, and “firm-first” director connections, where the director joined the fund, after becoming an executive at the firm. The unit of observation in the regression is fund-firm-quarter. The dependent variable, “Conditional Portfolio Weight,” is the weight of a stock within a fund’s portfolio. The independent variable of interest is a dummy variable that identifies a stock as being connected. The independent variables of interest are, fund-first connected, a dummy variable that identifies a stock as being fund-first connected, firm-first connected, a dummy variable that identifies a stock as being firm-first connected, fund-first preconnected, a dummy variable that takes the value of one if the firm will become connected to the fund in the next two years, and firm-first preconnected, a dummy variable that takes the value of one if the firm will become firm-first connected to the stock in the next two years. The control variables included are the number of stocks a fund holds, the percentage of the fund’s total net assets invested in the style and industry corresponding to the stock being considered, and quintiles of market value of equity, book to market, and past 12-month return (DGTW '97). Inclusion of the control variables, fixed effects and the level of standard error clustering are specified. T-Stats are reported below the coefficient estimates.

	(1)	(2)	(3)	(4)
Fund-First Connected Dummy	0.0072	0.0066	0.0066	0.0066
	6.64	6.27	2.71	3.99
Fund-First Preconnected Dummy (t-2,t-1)	0.0037	0.0001	0.0001	0.0001
	1.57	0.02	0.03	0.06
Firm-First Connected Dummy	0.0010	0.0020	0.0020	0.0020
	2.88	5.21	1.43	1.83
Firm-First Preconnected Dummy (t-2, t-1)	0.0022	0.0017	0.0017	0.0017
	2.45	2.07	1.36	1.05
R <sup>2</sup>	0.629	0.690	0.690	0.690
N	5493889	5493889	5493889	5493889
Controls	Yes	No	No	No
Fixed Effects	Quarter	Fund*Quarter Firm*Quarter	Fund*Quarter Firm*Quarter	Fund*Quarter Firm*Quarter
Clustered SE	Quarter	Quarter	Fund*Firm	Fund, Firm
Fund-First Connected - Fund-First Preconnected	0.0035	0.0066	0.0066	0.0066
	0.185	0.009	0.013	0.000
Firm-First Connected - Firm-First Preconnected	-0.0011	0.0004	0.0004	0.0004
	0.245	0.690	0.797	0.764

Table 1.10. Matched Sample Holdings Analysis

Note – Table 1.10 presents results from a quasi-experimental approach using the Abadie and Imbens (2002) matching estimator to estimate the average treatment effect between the treatment and control group. The approach assigns treatment and control (non-treatment) status to the formation of a director connected. Panel A focuses on fund-first director connections, Panel B focuses on firm-first connections. The level of observation is Year-Fund-Firm. Observations are matched based on common firm, year, and investment style and holding status. From the set of possible matches, the closest match is selected using the nearest neighbor distance calculated between each fund-firm pair in the treatment and control group based on the portfolio weight holdings of the fund in the specified firm, the total number of holdings by the fund, the fund's size, and the fund's Styleholdings. This average treatment effect is then calculated over the over the following 1, 2, and 3 years using the change in Portfolio Weight measure as the dependent variable. P-Values are reported below the coefficient estimates, which are adjusted to be heteroskedasticity-robust.

Panel A: Fund-First Connections	t-1,t	t-1, t+1	t-1,t+2
Portfolio Weight	0.0003	0.0022	0.0030
	0.414	0.006	0.004
Exact Matching Variables	Year, Firm, Fund Style, Held	Year, Firm, Fund Style, Held	Year, Firm, Fund Style, Held
Matching Variables	Portfolio Weight # of Holdings Style Holdings Industry Holdings	Portfolio Weight # of Holdings Style Holdings Industry Holdings	Portfolio Weight # of Holdings Style Holdings Industry Holdings
N	7812	7812	7812
Panel B: Firm-First Connections	t-1,t	t-1, t+1	t-1,t+2
Portfolio Weight	-0.0013	-0.0009	0.0002
	0.000	0.002	0.618
Exact Matching Variables	Year, Firm Held Fund Style	Year, Firm Held Fund Style	Year, Firm Held Fund Style
Matching Variables	Portfolio Weight # of Holdings Style Holdings Industry Holdings	Portfolio Weight # of Holdings Style Holdings Industry Holdings	Portfolio Weight # of Holdings Style Holdings Industry Holdings
N	25493	25493	25493

Table 1.11. Informative Trading in the Preconnected Period

Note – Table 1.11 uses pooled OLS regressions to test if director connections affect mutual fund returns. The unit of observation in the regression is the fund-firm-quarter, and the dependent variable is the CRSP value-weighted adjusted return (Panel A) and earnings announcement CAR [-1,+5] (Panel B) over the following quarter. The date of the earnings announcement is obtained from the Compustat database. Each day the abnormal return is computed by subtracting the return of CRSP value-weighted portfolio from the return of the firm. To calculate the CAR, the abnormal returns over the seven days are summed. In each specification, there are four independent variables of interest: connected purchase, connected sale, preconnected purchase, preconnected sale. These variables are interactive, capturing the connection status between the fund and firm, and if the fund most recently bought or sold the specified stock. Two different connection states are assigned to each fund-firm pair, connected, if a director connection exists between the fund-firm pair, and preconnected, if the fund-firm are not currently connected but become connected later in the sample period. The trading metric used to identify purchases and sales varies across each specification and is identified in the first row of the table. To control for factors other than the fund-firm connection status that influence future stock returns, I included variables that measure the firm's size, the quintile of the firm's book to market ratio, the return of the firm over the previous quarter, the return of the stock over the three quarters preceding the previous quarter, the stock price of the firm and quarter fixed effects. Standard errors are clustered at the firm level. T-Statistics are reported below the coefficient estimates. \*, \*\* and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Panel A: Abnormal Returns	(1)	(2)	(3)	(4)	(5)
Trading Metric	Buy & Sell Dummy	Initial Buy, Complete Sell	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Connected Buy	0.0203 0.52	0.1206 1.47	3.3408 1.39	0.0017 0.61	7.1847 0.73
Connected Sell	-0.0380 -2.78	-0.0536 -1.96	-1.8236 -2.62	-0.0026 -2.64	-21.8956 -3.35
Preconnected Buy	0.0030 0.16	0.0002 0.02	-1.8972 -1.45	0.0001 0.11	-10.6928 -5.00
Preconnected Sell	-0.0109 -0.48	-0.0041 -0.16	0.6985 0.39	-0.0008 -0.47	6.9390 0.39
Controls	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.030	0.031	0.030	0.030	0.030
N	484734	484734	484734	484734	484734
Connected Buy - Connected Sell	0.0583*	0.1741***	5.1643**	0.0042**	29.080***
Connected Buy - Preconnected Buy	0.0173	0.1203	5.2379	0.0015	17.877
Connected Sell - Preconnected Sell	-0.0271	-0.0495	-2.5220	-0.0018	-28.834
(Connected Buy-Connected Sell) - (Preconnected Buy - Preconnected)	0.0444	0.1698**	7.7600***	0.0033*	46.712***

Panel B: EA CAR [t-1,+5]	(1)	(2)	(3)	(4)	(5)
Trading Metric	Buy & Sell Dummy	Initial Buy, Complete Sell	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Connected Buy	0.0114 0.95	0.0374 1.25	1.4218 1.72	0.0009 1.10	5.6494 1.71
Connected Sell	-0.0097 -1.34	-0.0141 -1.06	-0.5389 -1.25	-0.0007 -1.38	-11.8989 -3.47
Preconnected Buy	-0.0025 -0.32	-0.0001 -0.01	-1.0956 -1.49	-0.0002 -0.44	-3.5167 -2.27
Preconnected Sell	-0.0035 -0.52	-0.0021 -0.19	-0.0930 -0.16	-0.0003 -0.63	3.8807 0.57
Controls	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.023	0.023	0.023	0.023	0.023
N	484734	484734	484734	484734	484734
Connected Buy - Connected Sell	0.0211**	0.0515***	1.9607**	0.0016***	17.548***
Connected Buy - Preconnected Buy	0.0139	0.0375	2.5174**	0.0011	9.1660**
Connected Sell - Preconnected Sell	-0.0061	-0.0119	-0.4459	-0.0003	-15.779*
(Connected Buy-Connected Sell) - (Preconnected Buy - Preconnected Sell)	0.0200**	0.0494**	2.9633***	0.0015**	24.945***

Table 1.12. Holdings and the Timeline of Connection Formations

Note – Panel A of Table 1.12 replicates the OLS regressions presented in Tables 3, when Held, a dummy variable that takes the value of one if a fund holds the stock, and zero otherwise, replaces Conditional Portfolio Weight as the dependent variable. As we are now measuring whether a fund does, or does not, hold the stock of a firm, we must include all fund-firm pairs in the sample, rather than just the firms a fund actively holds, in the regression. To maintain computational flexibility, we restrict the sample to the 196 S&P 1500 firms that at one point have a director connection to a fund. Panel B replicates Table 4 using Held as the dependent variable. Inclusion of control variables, fixed effects and the level of standard error clustering are specified. T-Stats are reported below the coefficient estimates.

Panel A: All Connections	(1)	(2)	(3)	(4)
Connected Dummy	-0.2152 -2.56	0.0124 2.59	0.0124 2.02	0.0124 1.51
R <sup>2</sup>	0.2245	0.1506	0.1506	0.1506
N	13626922	13626922	13626922	13626922
Controls	Yes	No	No	No
Fixed Effects	Quarter	Fund*Quarter Firm*Quarter	Fund*Quarter Firm*Quarter	Fund*Quarter Firm*Quarter
Clustered SE	Quarter	Quarter	Fund*Firm	Fund, Firm
Model	Logit	OLS	OLS	OLS
Panel B: Endogeneity Robustness Check	(1)	(2)	(3)	(4)
Fund-First Connected Dummy	0.3097 2.57	0.0112 1.55	0.0112 0.73	0.0112 0.69
Fund-First Preconnected Dummy (t-2,t-1)	0.5299 2.57	-0.0051 -0.37	-0.0051 -0.26	-0.0051 -0.36
Firm-First Connected Dummy	-0.2425 -2.28	0.0165 2.78	0.0165 2.13	0.0165 1.79
Firm-First Preconnected Dummy (t-2, t-1)	0.3476 4.81	0.0423 6.58	0.0423 3.88	0.0423 2.33
R <sup>2</sup>	0.2245	0.1507	0.1507	0.1507
N	13626922	13626922	13626922	13626922
Controls	Yes	No	No	No
Fixed Effects	Quarter	Fund*Quarter Firm*Quarter	Fund*Quarter Firm*Quarter	Fund*Quarter Firm*Quarter
Clustered SE	Quarter	Quarter	Fund*Firm	Fund, Firm
Model	Logit	OLS	OLS	OLS
Fund-First Connected - Fund-First Preconnected	-0.2202 0.362	0.0163 0.287	0.0163 0.316	0.0163 0.332
Firm-First Connected - Firm-First Preconnected	-0.5901 0.000	-0.0258 0.011	-0.0258 0.022	-0.0258 0.032

Table 1.13. Matched Sample Holdings Analysis

Note – Table 1.13 presents results from a quasi-experimental approach using the Abadie and Imbens (2002) matching estimator to estimate the average treatment effect between the treatment and control group. The approach assigns treatment and control (non-treatment) status to the formation of a director connected. Panel A focuses on fund-first director connections, Panel B focuses on firm-first connections. The level of observation is Year-Fund-Firm. Observations are matched based on common firm, year, investment style and holding status. From the set of possible matches, the closest match is selected using the nearest neighbor distance calculated between each fund-firm pair in the treatment and control group based on the portfolio weight holdings of the fund in the specified firm, the total number of holdings by the fund, the fund's size, and the fund's Styleholdings. This average treatment effect is then calculated over the over the following 1, 2, and 3 years using the change in Held as the dependent variable. P-Values are reported below the coefficient estimates, which are adjusted to be heteroskedasticity-robust.

Panel A: Fund-First Connections	t-1,t	t-1, t+1	t-1,t+2
Held Dummy	-0.0411	0.0845	0.0000
	0.062	0.010	1.000
Exact Matching Variables	Year, Firm, Fund Style, Held	Year, Firm, Fund Style, Held	Year, Firm, Fund Style, Held
Matching Variables	Portfolio Weight # of Holdings Style Holdings Industry Holdings	Portfolio Weight # of Holdings Style Holdings Industry Holdings	Portfolio Weight # of Holdings Style Holdings Industry Holdings
N	7812	7812	7812
Panel B: Firm-First Connections	t-1,t	t-1, t+1	t-1,t+2
Held Dummy	-0.0361	-0.0068	0.0542
	0.032	0.72	0.003
Exact Matching Variables	Year, Firm Held Fund Style	Year, Firm Held Fund Style	Year, Firm Held Fund Style
Matching Variables	Portfolio Weight # of Holdings Style Holdings Industry Holdings	Portfolio Weight # of Holdings Style Holdings Industry Holdings	Portfolio Weight # of Holdings Style Holdings Industry Holdings
N	25493	25493	25493



Table 1.14. Price Support in Connected Stocks following Negative Shocks

Note – Table 1.14 uses pooled OLS regressions to test if director connected fund provide price support for the connected firm. The unit of observation in the regression is the fund-firm-quarter, and the dependent variable is the change in fund holdings in the specified stock over the previous quarter. The measure used to gauge the change in holdings varies across model specification. In Panel A, the independent variables of interest are Sell Off, a dummy variable that takes the value of one if the aggregate mutual fund universe decreases their ownership stake in the stock by more than one percentage point over the previous quarter; Agg Ownership Change, the aggregate mutual fund universe ownership stake change over the previous quarter; Connected, a dummy variable that takes the value of one if the fund and firm are connected, and Connected\*Sell Off, the interaction of the connected and sell off variables. To control for factors other than connection status that influence a fund's trading decisions in the firm, I included variables for the firm's size, the quintile of the firm's book to market ratio, the return on the firm's stock over the three quarter prior to the specified quarter, the fund's holdings in firms in the same industry as the firm of interest, the fund's holdings in the same DGTW style as the firm of interest, the change in the firm's CRSP market weight over the previous quarter and quarter fixed effects. Standard errors are clustered at the firm level.

	(1)	(2)	(3)	(4)
Dependent Variable	Buy Dummy	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Connected*Sell Off	-0.0964 -2.32	-0.0010 -1.70	-3.0038 -3.07	0.000088 0.80
Connected Dummy	-0.0091 -0.22	-0.0003 -1.30	-0.4801 -0.43	-0.000084 -2.15
Sell Off	-0.0072 -1.02	-0.0004 2.87	-0.3055 -1.98	-0.000019 -0.65
Agg Ownership Change	1.7324 11.20	0.0493 9.38	50.0814 13.26	0.011070 10.50
Controls	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.015	0.031	0.016	0.019
N	695849	695849	695849	695849

Table 1.15. Informative Trading in the Sector Connected Stocks

Note – Table 1.15 uses pooled OLS regressions to test if director connections affect mutual fund returns. The unit of observation in the regression is the fund-firm-quarter, and the dependent variable is the CRSP value-weighted adjusted return (Panel A) and earnings announcement CAR [-1,+5] (Panel B) over the following quarter. The date of the earnings announcement is obtained from the Compustat database. Each day the abnormal return is computed by subtracting the return of CRSP value-weighted portfolio from the return of the firm. To calculate the CAR, the abnormal returns over the seven days are summed. In each specification, there are four independent variables of interest: connected purchase, connected sale, Sector Connected purchase, Sector Connected sale. These variables are interactive, capturing the connection status between the fund and firm, and if the fund most recently bought or sold the specified stock. Two different connection states are assigned to each fund-firm pair, connected, if a director connection exists between the fund-firm pair, and Sector Connected, if the fund-firm are not currently connected but were connected at an earlier time in the sample period. The trading metric used to identify purchases and sales varies across each specification and is identified in the first row of the table. To control for factors other than the fund-firm connection status that influence future stock returns, I included variables that measure the firm's size, the quintile of the firm's book to market ratio, the return of the firm over the previous quarter, the return of the stock over the three quarters preceding the previous quarter, the stock price of the firm and quarter fixed effects. Standard errors are clustered at the firm level. T-Statistics are reported below the coefficient estimates. \*, \*\* and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Panel A: Abnormal Returns	(1)	(2)	(3)	(4)	(5)
Trading Metric	Buy & Sell Dummy	Initial Buy, Complete Sell	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Connected Buy	0.0179 0.48	0.1278 1.67	3.2036 1.40	0.0016 0.58	7.8345 0.86
Connected Sell	-0.0351 -2.91	-0.0516 -2.00	-1.5335 -2.28	-0.0024 -2.74	-20.2740 -3.28
Sector Connected Buy	0.0011 0.19	0.0047 0.51	0.4086 0.78	0.0001 0.28	-1.8620 -1.29
Sector Connected Sell	-0.0192 -2.64	-0.0163 -1.42	-1.1422 -1.93	-0.0013 -2.51	-1.8560 -1.29
Controls	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.028	0.028	0.028	0.028	0.028
N	3328122	3328122	3328122	3328122	3328122

Panel B: EA CAR [t-1,+5]	(1)	(2)	(3)	(4)	(5)
Trading Metric	Buy & Sell Dummy	Initial Buy, Complete Sell	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Connected Buy	0.0109 0.94	0.0349 1.28	1.2783 1.84	0.0008 1.09	5.4784 1.93
Connected Sell	-0.0077 -1.03	-0.0144 -1.05	-0.4414 -1.06	-0.0006 -1.10	-11.1029 -3.12
Sector Connected Buy	0.0080 2.69	0.0128 2.79	0.7149 2.77	0.0006 2.63	-0.0751 -0.18
Sector Connected Sell	-0.0001 -0.03	0.0026 0.59	-0.0662 -0.27	0.0000 0.05	0.3069 0.82
Controls	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.008	0.008	0.008	0.008	0.008
N	3328122	3328122	3328122	3328122	3328122

Table 1.16. Changes in Informative Trading in the Sector Connected Stocks

Note – Table 1.16 uses pooled OLS regressions to test if director connections affect mutual fund returns. The unit of observation in the regression is the fund-firm-quarter, and the dependent variable is the CRSP value-weighted adjusted return (Panel A) and earnings announcement CAR [-1,+5] (Panel B) over the following quarter. In each specification, there are four independent variables of interest: connected purchase, connected sale, Sector Connected purchase, Sector Connected sale. These variables are interactive, capturing the connection status between the fund and firm, and if the fund most recently bought or sold the specified stock. Two different connection states are assigned to each fund-firm pair, connected, if a director connection exists between the fund-firm pair, and Sector Connected, if the fund-firm are not currently connected but were connected at an earlier time in the sample period. The trading metric used to identify purchases and sales varies across each specification and is identified in the first row of the table. To control for factors other than the fund-firm connection status that influence future stock returns, I included variables that measure the firm's size, the quintile of the firm's book to market ratio, the return of the firm over the previous quarter, the return of the stock over the three quarters preceding the previous quarter, the stock price of the firm and quarter fixed effects. Standard errors are clustered at the firm level. T-Statistics are reported below the coefficient estimates. \*, \*\* and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Panel A: Abnormal Returns	(1)	(2)	(3)	(4)	(5)
Trading Metric	Buy & Sell Dummy	Initial Buy, Complete Sell	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Sector Connected Buy	0.0011 0.19	0.0047 0.51	0.4093 0.79	0.0001 0.29	-1.8606 -1.29
Sector Connected Sell	-0.0191 -2.63	-0.0163 -1.42	-1.1417 -1.93	-0.0013 -2.50	-1.8554 -1.29
Sector Preconnected Buy	0.0084 1.21	0.0218 1.72	1.1095 1.70	0.0007 1.25	4.6600 1.19
Sector Preconnected Sell	0.0107 1.30	0.0245 2.14	0.6399 1.36	0.0009 1.53	2.5256 1.21
Controls	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.028	0.028	0.028	0.028	0.028
N	3325153	3325153	3325153	3325153	3325153

Panel B: EA CAR [t-1,+5]	(1)	(2)	(3)	(4)	(5)
Trading Metric	Buy & Sell Dummy	Initial Buy, Complete Sell	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Sector Connected Buy	0.0080 2.70	0.0128 2.79	0.7149 2.77	0.0006 2.64	-0.0747 -0.18
Sector Connected Sell	-0.0001 -0.03	0.0026 0.59	-0.0662 -0.27	0.0000 0.06	0.3072 0.82
Sector Preconnected Buy	0.0033 0.69	0.0036 0.57	0.1775 0.44	0.0003 0.75	1.4079 0.74
Sector Preconnected Sell	0.0043 1.05	0.0030 0.47	0.1463 0.66	0.0003 1.12	-0.4883 -0.39
Controls	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.008	0.008	0.008	0.008	0.008
N	3325153	3325153	3325153	3325153	3325153

Table 1.17. Cross-Sectional Tests of Informed Trading in Connected Firms

Note – Table 1.17 uses pooled OLS regressions to test if the impact of director connections on informative trading varies in the cross-section. The model adds cross-sectional variables that interact with the connected buy and sell dummy variable to the previously developed OLS regression model. The stock's value weighted adjusted return in the specified quarter is the dependent variable. Standard errors are clustered at the firm level. T-stats are reported below the coefficient estimates. \*, \*\* and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Market Adjusted Returns	(1)	(2)	(3)	(4)	(5)	(6)
Interaction Variable	High Dispersion	Post RegFD	Large Fund	Highly Connected Fund	Highly Connected Firm	High Executive Ownership
Connected Buy*Interaction	0.0507 1.01	0.0494 0.88	0.0398 1.44	0.1247 2.28	0.0657 1.51	-0.0477 -0.83
Connected Sell*Interaction	-0.0478 -1.49	-0.1135 -1.34	-0.0216 -1.87	0.0581 1.77	-0.0231 -0.67	0.0154 0.63
Connected Trading Interaction	0.0985***	0.1629*	0.0614**	0.0665**	0.0889*	-0.0631*
Connected Trading Interaction - Unconnected Trading Interaction	0.1097***	0.1628*	0.0613**	0.0661*	0.0822*	-0.0630*

Table 1.18. Changes in Informative Trading in the Sector Connected Stocks

Note – Table 1.18 uses logit regressions to examine the relationships between director facilitated information transfers and their career concern outcomes. The level of observation is the year-director-FC. The dependent variable, Left FC, is a dummy variable that identifies if the director leaves the FC's board in year t+1. The first independent variable, Proportion Held, measures the proportion of quarters in the previous three years that the fund's, within the director's FC, held the connected stock. The second independent variable, Trading Return, measures the cumulative DGTW abnormal return gained by the FC from trades in connected stocks over the previous three years. The third independent variable, EA Trading CAR, measures the earnings announcement CAR gained by the FC from trades in the connected stocks over the previous three years. For each variable, if the director has been at the fund less than three years, then the time between them joining the FC and the year of the observation is used. To control for director specific factors that influence future career concerns I include a dummy variable that identifies if the director leaves his outside firm, a variable that measures the director's tenure at the FC, and a dummy variable that if the director has been at the FC since its formation. To control for firm specific factors, I include the log of the director's firm's size, and its return for the year. Additionally year fixed effects are included and standard errors are clustered at the year level.

	(1)	(2)	(3)	(4)	(5)
Dependent Variable	Left FC	Left FC	Left FC	Left FC	Left FC
Proportion Held	1.084	1.071	1.338	0.795	1.050
	1.25	1.27	1.70	0.85	1.14
Trading Return		-3.600			
		-3.13			
Positive Trading Return			-11.474		
			-1.33		
Negative Trading Return			2.71		
			1.86		
EA Trading CAR				-12.938	
				-2.61	
Positive EA Trading CAR					-38.626
					-2.32
Negative EA CAR					9.04
					1.44
Pseudo R <sup>2</sup>	0.142	0.157	0.158	0.158	0.162
N	510	510	510	510	510
Model Type	Logit	Logit	Logit	Logit	Logit
Fixed Effects	Year	Year	Year	Year	Year
Clustered SE	Year	Year	Year	Year	Year
Controls	Yes	Yes	Yes	Yes	Yes

Table 1.19. Informative Trading in the Postconnected Period

Note – Table 1.19 uses pooled OLS regressions to test if director connections affect mutual fund returns. The unit of observation in the regression is the fund-firm-quarter, and the dependent variable is the CRSP value-weighted adjusted return (Panel A) and earnings announcement CAR [-1,+5] (Panel B) over the following quarter. In each specification, there are four independent variables of interest: connected purchase, connected sale, postconnected purchase and postconnected sale. These variables are interactive, capturing the connection status between the fund and firm, and if the fund most recently bought or sold the specified stock. Two different connection states are assigned to each fund-firm pair, connected, if a director connection exists between the fund-firm pair, and postconnected, if the director forming the connection left the fund but remains at the firm. The trading metric used to identify purchases and sales varies across each specification and is identified in the first row of the table. To control for factors other than the fund-firm connection status that influence future stock returns, I included variables that measure the firm's size, the quintile of the firm's book to market ratio, the return of the firm over the previous quarter, the return of the stock over the three quarters preceding the previous quarter, the stock price of the firm and quarter fixed effects. Standard errors are clustered at the firm level. T-Statistics are reported below the coefficient estimates. \*, \*\* and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Panel A: Abnormal Returns	(1)	(2)	(3)	(4)	(5)
Trading Metric	Buy & Sell Dummy	Initial Buy, Complete Sell	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Connected Buy	0.0203	0.1206	3.3408	0.0017	7.1847
	0.52	1.47	1.39	0.61	0.73
Connected Sell	-0.0380	-0.0536	-1.8236	-0.0026	-21.8956
	-2.78	-1.96	-2.62	-2.64	-3.35
Postconnected Buy	0.0187	0.0469	2.4067	0.0015	7.2075
	1.15	1.79	2.18	1.19	1.14
Postconnected Sell	0.0108	0.0319	1.2622	0.0008	7.3219
	0.64	2.07	0.88	0.69	1.15
Controls	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.030	0.031	0.030	0.030	0.030
N	484734	484734	484734	484734	484734
Connected Buy - Connected Sell	0.0583**	0.1741***	5.1643**	0.0042**	29.080***
Connected Buy - Postconnected Buy	0.0016	0.0736	0.9340	0.0001	-0.0227
Connected Sell - Postconnected Sell	-0.0488**	-0.0855**	-3.0858*	-0.0034**	-29.217***
(Connected Buy-Connected Sell) - (Postconnected Buy - Postconn	0.0504	0.1769**	4.2266	0.0037	15.423***



Panel B: EA CAR [t-1,+5]	(1)	(2)	(3)	(4)	(5)
Trading Metric	Buy & Sell Dummy	Initial Buy, Complete Sell	$\Delta$ Portfolio Weight	$\ln(\Delta$ Dollar Holdings)	$\Delta$ Ownership Stake
Connected Buy	0.0114	0.0374	1.4218	0.0009	5.6494
	0.95	1.25	1.72	1.10	1.71
Connected Sell	-0.0097	-0.0141	-0.5389	-0.0007	-11.8989
	-1.34	-1.06	-1.25	-1.38	-3.47
Postconnected Buy	-0.0016	0.0159	0.3186	-0.0001	0.4984
	-0.11	0.73	0.36	-0.12	0.06
Postconnected Sell	-0.0030	0.0048	1.0750	-0.0001	2.3930
	0.56	0.41	1.49	-0.13	0.71
Controls	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.023	0.023	0.023	0.023	0.023
N	484734	484734	484734	484734	484734
Connected Buy - Connected Sell	0.0211**	0.0515***	1.9607**	0.0016***	17.548***
Connected Buy - Postconnected Buy	0.0130	0.0215	1.1032	0.0010	5.1509
Connected Sell - Postconnected Sell	-0.0067	-0.0189	-1.6139**	-0.0005	-14.291***
(Connected Buy-Connected Sell) - (Postconnected Buy - Postconnected Sell)	0.0197	0.1769	4.2266*	0.0037	15.423***

## **CHAPTER 2: The Role of Director Employment in Mutual Fund Proxy Voting**

### **2.1. Introduction**

During the past couple of decades shareholder voice has become an increasingly important mechanism of corporate governance. This shareholder advocacy can be seen in the aggressive activism by hedge funds, activism by other institutional investors, and shareholder sponsored proposals. Though shareholders often talk and negotiate directly with management, the proxy voting process is an essential part of protecting shareholder interests. Activist shareholders often use the voting process to bring about change in management policies. However, not everyone welcomes the increasing importance of shareholder advocacy. Managers of firms subject to this activism find themselves plunged in turmoil and complain of having to take an increasing short term view of the business. Can management counter the increasing pressure from active shareholders?

In this paper, we study one such mechanism that potentially allows firms to garner friendly support and mitigate the pressure from shareholder voice. Specifically, we examine connections between firms and some institutional investors and its effect on their voting behavior institutions. These connections are formed when executives of the firm also serve on the board of directors of mutual funds. Funds that are connected to the firm are more likely to be supportive and vote with management. This support from connected funds could be important, especially in proposals that challenge management and could impede governance changes being sought by other shareholders.

Mutual fund directors oversee the proxy votes of funds, and have a fiduciary responsibility to cast votes that further the interests of the fund's shareholders. However, connections with firms imply that these directors might be overseeing a vote in the firm that employs them. For example, they could be voting on a compensation plan that impacts their salary, a shareholder sponsored proposal that impacts their career concerns, or directly for their election as a firm director. Thus, these votes can create a conflict between the director's responsibilities to fund shareholders and his interests as firm management. We examine the voting behavior of these funds that are "connected" and study their propensity to vote with management, especially in situations where management faces a challenge.

We collect the names of mutual fund directors from their N-CSR filings with the SEC. We match the names of the directors with the top five executives in S&P 1500 obtained from ExecuComp for the period 2004 to 2012. A fund and firm are classified as being connected if the firm executive is simultaneously on the board of directors of the fund. For example, if Jane Doe a VP at GE is also a director at Windsor Fund, then GE and Windsor fund are Connected. The proxy voting data is from Risk Metrics' ISS Voting Analytics over the period 2004 to 2012.

We find that about 1256 mutual funds or about 33% of mutual funds in our sample are connected to at least one S&P 1500 firms. However, only about 3% of the firms are connected in at least one year of the sample. This difference is because many funds in a family share a board, leading to one executive being connected to many funds. Later in the paper, we also look at director connections, i.e., when the firm and fund share a director. These connections are more

frequent, about 18% of the firms have a director connection though these connections are likely weaker.

We examine the voting behavior of connected and other mutual funds. Specifically, we examine the likelihood that the mutual fund votes in line with management recommendation. Over our sample period, about 88.7% of all votes are with management. However, management does face challenges when the support for management drops. We identify two such situations. The first is when proposals have a negative ISS recommendation, i.e., when ISS the proxy advisory firm advises institutional investors to vote against the management's recommendation. Negative ISS recommendations significantly drop the votes that are cast with management. In our sample, about 11% of the proposals have negative ISS recommendation, and are referred to as conflicted proposals. In these, conflicted proposals management support drops to 46.57% of all votes. The second case when management faces a challenge is shareholder sponsored proposals. About 6% of the proposals are sponsored by shareholders and management support in these proposals is only 58.85%. We examine the voting behavior of connected funds in proposals where management faces a challenge.

We find significant evidence that connected funds are significantly more likely to vote with management in a sample of over 2.2 million votes. This support from connected funds is significantly higher in proposals where management faces a challenge. For proposals that have a negative recommendation from ISS or are sponsored by an institutional shareholder, connected funds are significantly more

likely to vote with management. This result is robust to controlling for firm, institution and time fixed effects.

We next examine two potential reasons for connected funds support of management. First, it is possible that the greater support for management reflects the funds belief of better managerial ability. Potentially this greater regard for the firms' management may be the reason for why the executive was invited to the fund's board. In this were true, then a greater support for management should be seen even prior to the formation of the connection. Another variant of the "managerial ability" hypothesis is that it is during the period of the connection that fund learns about superior management ability. In this case, the support for management should continue after the termination of the connection. We examine the years before the formation of the connections, as well as, the years after the termination and find no evidence that these years are associated with a higher likelihood of voting with management.

Second, we examine if fund support for firm management is a return for the information shared by the firm's executive with the fund. According to this "information" hypothesis the fund's support for management should be increasing in the information transferred. We capture the amount of information transfer by the abnormal profits made by the fund in the firm's stock, in the prior four quarters. Calluzzo (2014) examines these connections and documents that funds tend to overweight connected stocks in their portfolios and make abnormal returns in connected firms around earnings announcements. We find significant evidence

that these abnormal trading returns influence the fund's likelihood of voting with management.

Funds do not always hold stock in connected firms and therefore may not be present at shareholder meetings to vote. If firms garner support from connected funds then connected funds should be more likely to own the stock, and therefore present to vote especially when management faces challenges. Consistent with this argument we find that connected funds are significantly more likely to be present to vote at shareholder meetings when proposals with a negative ISS recommendation or those sponsored by an institutional shareholder are being voted.

We also examine director connections. A fund and firm have a director connection when they share a director. As mentioned above these director connections are more frequent but likely weaker. We find no evidence that in normal times, director connected funds are more likely to vote with management. However this changes for proposals that have a negative ISS recommendation where connected funds do support and vote with management. Lastly, we examine whether the presence of connected funds impacts the likelihood of being targeted by a shareholder activist. We find that the presence of connections significantly reduces the likelihood that the firm is targeted by a shareholder activist.

The next section discusses the literature. Section III describes the data, section IV discusses the empirical results, Section V the possible reasons for connected funds support of management, Section VI examines the likelihood of

attending a shareholder meeting, Section VII discusses director connections, Section VIII examines shareholder activism and finally Section IX concludes.

## **2.2. Literature Review**

The paper is related to several streams of literature. To begin it is related to the literature examining the impact of director characteristics on fund governance quality. The existing literature has mainly focused on director independence and finds that it is associated with lower fees and a higher willingness to accept value enhancing fund restructurings and mergers (See Tufano and Sevick (1997), Del Guercio, Dann and Partch (2003) and Khorana, Tufano and Wedge (2007)). Director compensation has also been shown to be important. Independent directors with higher pay are more likely to approve higher shareholder fees (Ferris and Yan (2009) and Tufano and Sevick (1997)). Cremers, Drissen, Maenhout and Weinbaum (2009) find that funds with high director ownership outperform those with low director ownership. This paper adds to the existing literature by documenting that director's employment history can also impact fund shareholder interests.

The paper is also related to the rapidly growing literature on social networks. Much of the recent work emanates from Cohen, Frazzini, and Malloy (2008, 2009) that study education connections and show that these networks facilitate information flows between boards of directors and mutual fund managers and between firm executives and analysts following the stock. Other work study the role of

connections or aggregate rolodex on CEO compensation and turnover (See Hwang and Kim (2009) and Engelberg, Gao, and Parsons (2009)), merger and acquisitions (Cai and Sevilir (2009), and Schmidt (2009)) and venture capital (Hochberg, Ljungqvist and Lu (2008)). Within the network literature, the paper is most directly related to papers that study the impact of other fund-firm relationships on mutual fund proxy voting.

Davis and Kim (2007) and Ashraf, Jayaraman and Ryan (2012) study the impact of pension related business ties on shareholder sponsored proposals and find no difference in their behavior towards connected and unconnected firms. They conjecture that this result is possibly because unconnected firms are potential future clients and hence are treated well. This result could also be due to the fact that not all shareholder proposals provide effective challenge to management (Gillan and Starks (2000)). Butler and Gurun (2012) study fund-firm education networks and their impact on proxy voting. They find funds vote, in compensation related issues, with the management of education connected firms. We study the impact of fund firm employment networks. These networks are different from education networks primarily because they arise endogenously and potentially when the firm needs them most.

The paper is also related to the growing literature on proxy voting process. Cai, Garner, and Walkling (2009) document that votes against management lead to reductions in abnormal CEO compensation and increases in CEO turnover. Several papers examine the role of proxy voting advisory firms, like Institutional



Shareholder Services (ISS) on proxy voting to document a significant negative impact on the votes cast in favor of management.<sup>1</sup>

Several papers examine the effect of shareholder proposals in the proxy process and document varying impact on the firm (See Gillan and Starks (2000) and Cai and Walkling (2011) among others). Taken together, these papers suggest shareholder votes play an important role in improving corporate governance. Our paper documents the effect of fund firm networks on this process.

Lastly, the paper is related to the literature on shareholder activism (See Brav, Jiang, and Kim (2009) and Gillan and Starks (2007) for excellent reviews). Brav, Jiang, Partnoy and Thomas (2008) document that targets of hedge fund activism experiences on average 7% abnormal stock return on announcement. In several instances the shareholder activist directly negotiates with the firm and many times they engage the proxy process to bring about their changes. Klein and Zur (2009) document that many times activists achieve their goals by posing a credible threat of launching a costly proxy solicitation contest. As the hedge fund relies on the support of other institutional investors to push for governance changes, the presence of connected and management friendly institutions, as shown in our paper, has an important bearing on who they target.

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<sup>1</sup> See Alexander, Chen, Seppi, and Spatt (2010), Bethel and Gillan (2002) and Choi, Fisch and Kahan (2010) among others.

### 2.3. Data

Analyzing the impact of the fund director employment network on mutual fund proxy voting requires obtaining mutual fund proxy voting data and fund director's employment data. Since 2003, the SEC has required investment companies to disclose their proxy voting records to the public in Form N-PX. We use Risk Metrics' ISS Voting Analytics database to access mutual fund proxy voting records. The database contains 34,743,614 mutual fund proxy votes from 2003 to 2012, and, on average, contains the voting record of 3777 mutual funds each year. For every vote cast, the database includes variables that describe the item being voted on, as well as the fund's vote, and the voting recommendation of the firm's management and the Institutional Shareholder Services (ISS). All variables are defined in Table 1.

Next, we hand collect data on director employment history to map fund-firm director connections. Collecting director employment data is a multi-step process. First, we identify the top five compensated executives of S&P 1500 firms using the Compustat ExecuComp database. We then identify which of these executives sit on the board of mutual funds. The names of all mutual fund directors are obtained from Form N-CSR which the mutual funds are required to file with the SEC every year. We use a web crawler algorithm developed by Engelberg and Sankaraguruswamy (2007) to search for the ExecuComp names in each N-CSR filings. If an executive in ExecuComp is also a fund director, as seen in the N-CSR filing for a given year, we define the fund and the firm as Connected for that year. This is done for the period 2004 to 2012.

Table 2 presents summary statistics on the scope of these fund firm connections. On average we have about 3777 funds every year. About 1,256 mutual funds are Connected with at least one S&P 1500 firm every year. These directors come from an average of 41 firms every year. Overall, we have 68 unique firms that have over the period at least one Connection with a fund. The higher number of funds connected relative to firms is because many funds belonging to the same family are governed by the same board. This causes the same executive to be connected to multiple funds through one board.

We merge the proxy voting and director employment databases to identify the votes cast in connected firms. As we study how the voting pattern of connected funds differs from those that are not connected we include voting data only for firms that have at least one connection over the sample period. Consequently, the sample consists of proxy voting for 68 firms for the period 2004 to 2012. The sample consists of 3294 proposals and about 2.2 million fund votes on these proposals. On average, about 88.71% of the funds vote with management (Table 3).

Proxy voting advisory firms, like Institutional Shareholder Services (ISS) analyze corporate elections and advice institutional investors on how they should vote. Alexander, Chen, Seppi, and Spatt (2010) study ISS recommendations and find that they bring new information to the market. ISS has a significant effect on voting outcomes with several institutions simply following its recommendation. Cai, Garner and Walking (2009) report that directors in uncontested elections who receive negative ISS recommendations receive significantly fewer votes. Bethel

and Gillan (2002) conclude that a negative ISS recommendation was associated with 13.6% to 20.6% fewer shares voted in favor of management proposals. Choi, Fisch and Kahan (2010) estimate that a ISS recommendation shifts about 6 to 10 percent of the shareholder votes. As negative ISS recommendation is likely to significantly reduce support for management, votes supporting management are more likely to be elicited from connected mutual funds. To capture this we create a dummy Conflict that takes the value of one when the ISS recommends that institutions vote against management's recommendation. As seen from Table 3 about 11.4% of the proposals are conflicted i.e., the ISS recommends not voting with the management's recommendation. In line with prior literature, the fraction of votes in support of management is much lower for conflicted proposals (46.57%) than others (88.71%),

We also examine shareholder sponsored proposals. As shareholders submit their recommendations for specific firm policies through these proposals, these are the essence of participatory, responsible shareholder activism. Gillan and Starks (2000) study shareholder proposals and find that those sponsored by institutions or coordinated groups tend to be more successful though the market reaction is small. Cai and Walkling (2011) document significant market reaction to shareholders say on pay proposals. We generate a dummy referred to as Shareholder if the proposal is sponsored by shareholders. About 5.7% of the proposals are shareholder sponsored and only 58.85% of the votes for these proposals are cast with management.

## 2.4. Empirical Results

We begin by analyzing voting behavior of funds in this sample of firms with at least one connection. The dependent variable is *Withmgmt* which is a dummy variable that takes the value one when the fund votes with management. The variable of interest is *Connected* which takes the value of one if the fund and firm are connected as defined earlier. Depending on the firm characteristics and the nature of the proposal some proposals are more likely to get support. To control for the nature of the proposal and its effect on voting with management we include a proposal level control. Specifically, we include *Poutcome* the fraction of total votes that were cast with management. The greater the overall shareholder support for the proposal the more likely the fund is to vote in a similar way. We also include year and institution fixed effects in these logistic regressions, the results of which are displayed in Table 4. The coefficient of *Connected* is positive and significant. This implies that connected funds are more likely to vote with management. As expected the coefficient of *Poutcome* is positive and highly significant. The results are robust to different clustering of errors, as well as, to the inclusion of firm fixed effects (Model 4).

Next we examine if the greater support from the connected funds comes when there is a conflict. As seen in Table 5, we include *Conflict* dummy- which takes the value one when the ISS has a negative recommendation. We also include the interaction of *Conflict* with *Connected* to capture potential differential support from connected funds in conflicted votes. The coefficient of *Connected* is not significant while that of its interaction with *Conflict* is positive and significant

(Model 1). Connected funds vote like other institutions in normal proposals but are significantly more likely to vote with management in conflicted proposals. Not surprisingly, the coefficient of Conflict is negative and significant. Institutions are significantly less likely to vote with management, relative to non-institutional shareholders, in conflicted proposals. We also estimate the model in a sub sample of conflicted proposals only (Model 2). The coefficient of connected is positive and significant. For these proposals where management finds itself at odds with ISS, there is significantly greater support from connected mutual funds.

We also examine shareholder sponsored proposals. Consistent with the analysis of conflicted proposals, we include a dummy variable Shareholder that takes the value one for shareholder sponsored proposals. We also include its interaction with Connected. The coefficient of Connected continues to be positive and significant while its interaction with Shareholder is not significant. Connected funds are no more likely to vote with management in shareholder sponsored proposals. This is not surprising as Gillan and Starks (2000) find that only proposals sponsored by institutions and coordinated groups have some effect while those sponsored by individuals do not have any impact.

To examine if institution sponsored proposals have an effect, we classify proposals based on who initiated them. Based on the sponsor details in the Risk Metrics data we classify the sponsor into five types: 1) public institutions like pension funds, 2) Other institutions, 3) Non-profit, 4) Individuals, and 5) unknown. We create a variable Inst\_sponsor that takes the value one if the proposal was sponsored by a public or other institution. About 63% of the shareholder proposals

are initiated by institutions. In model 4, we include *Inst\_sponsor* and its interaction with *Connected*. The coefficient of institution sponsored proposals is not significant though its interaction with *Connected* is. The coefficient of *Connected* continues to be significant. *Connected* funds vote with management in normal times and are significantly more likely to do so in shareholder proposals sponsored by public and other institutions. The results hold when estimated in a sample of only institution sponsored proposals (Model 5).

## **2.5. Why Vote with Management?**

One reason why connected funds are more likely to vote with management could be managerial ability. It is possible that the funds have a high regard for executives in the firms and that is the reason for inviting them to be a director. In this case, it is not the connection that leads to support but rather support that leads to the connection. If this were true then voting with management should be observed prior to the connection as well. Alternatively, it is possible that a high regard for management does not exist prior to the connection but is formed during the connection. In other words, interaction between the firm executive and the fund causes the fund managers to learn about managerial ability and is responsible for the greater management support. In this case, as the fund learns about “capable” firm management its support for firm management should continue after the connection is terminated. To test this view, referred to as “managerial ability” hypothesis we examine fund voting in the connected firm prior to the formation of the connection and after the termination of the connection.

We begin by examining the voting patterns of funds in connected firms prior to the formation of the connection. The dummy variable `Preconnected2` takes the value of one for the two years prior to the formation of the connection. We include `Preconnected2` in our estimation and find that its coefficient is not significant (Table 6, Model 1) while that of `Connected` is positive and significant. The results point to no evidence that the fund votes with management prior to the formation of the connection.

To examine if the fund votes with management in connected firms after the connections cease to exist we create the dummy variable `Postconnected2` that takes the value of one for the two years after the connection is terminated. Note that the connection can be broken if the executive no longer serves on the board or if the executive changes his job. We include `Postconnected2` in our estimation and its coefficient is not significant (Model 2) while that of `Connected` continues to be positive and significant. There is no evidence that the favorable voting continues after the termination of the connection. The results are robust to estimating the effects prior to formation and after termination together (Model 3). As it is possible that the two years may not capture the entire effect we also create a dummy `Preconnected_all` takes the value of one for all the years in the sample prior to the formation of the connection. Similarly, `Postconnected_all` takes the value of one for all the years in the sample after the connection is termination. The results are qualitatively similar with these variables – there is no evidence of greater likelihood of voting with management before the connection is formed and after it is terminated. The lack of any evidence before and after implies that there



is little support for the “managerial ability” hypothesis as the reason for connected funds support for management.

The second reason for connected funds support for management is that it is potentially a return for the information passed to the fund by the firm’s executive. Under this “information” hypothesis the firm executive passes information about the firm to the fund and the fund reciprocates, in a quid pro quo, by their support of management during proxy voting. Calluzzo (2014) finds that mutual funds have higher returns in their trades on connected firms. Butler and Gurun (2013) find support for this view when they examine education connections between fund managers and firm executives. If executives in firms share information with mutual funds that allow them to earn abnormal returns, then mutual funds may respond to these by supporting management.

To test for this we examine if voting with management is higher in connected firms when the institution made greater profits implying that potential information sharing was higher. To estimate trading gains of mutual funds we need to match the risk metrics data with the CRSP mutual fund holding data. As this is a name match, and the CRSP mutual fund holding dataset does not have data on all mutual funds this shrinks our sample. Specifically, we lose about 48% of the data. For each fund voting on a firm’s proposal we estimate the abnormal gains the fund made trading in the firm equity in the past four quarters. Abnormal returns are estimated by subtracting the CRSP\_VW index for every quarter and then aggregating the returns across the previous four quarters. These abnormal returns

are referred to as Aearned. We include this variable and its interaction with Connected in our estimation.

We find that the coefficient of Connected is positive and significant (Table 7, Model 1). The coefficient of Aearned is not significant suggesting that for an average institution the decision to vote with management is not related to its trading profits on the firm. The coefficient of the interaction of Aearned and Connected is positive and significant implying that for connected funds, the likelihood of supporting management is increasing in the abnormal trading profits they made on the firm. This results provides some support for the “information” hypothesis.

Next we examine if this link between abnormal trading profits and the likelihood of voting with management increases in the case of conflicted proposals. As documented before, connected funds are significantly more likely to vote with management in conflicted proposals and when they are sponsored by institutional shareholders. It is not clear whether this extra support in difficult voting situations will be forthcoming only as a quid pro quo for greater abnormal profits than normal. On the one hand, it can be argued that in normal situations firms do not need the support of connected funds. As this support is required only in conflict situations the information transfer that is the basis of higher trading profits is for fund support in potential difficult voting situations. By this argument, management support should be forthcoming irrespective of a conflict or not. However, it is also possible that the connected fund disagrees with management in conflicted proposals and requires a large return for its support. We examine this in the Model 2.

The coefficient of the interaction of Connected and Conflict is positive and significant like before while that of Conflict is negative and significant. Consistent with prior results, connected funds are more likely to vote with management in proposals that have a negative ISS recommendation. The coefficient of the triple interaction between Connected, Conflict and Aearned is positive though not significant. This suggests that the association between abnormal trading returns (Aearned) and connected fund support does not vary in conflict situation relative to others. In model 3, we extend the conflict situation to also include shareholder sponsored proposals by institutions. In other words, the dummy Conflict takes the value of one if the proposal has a negative ISS recommendation or if it was sponsored by an institutional shareholder. This does not change the results – there is no evidence that connected funds require higher abnormal returns to support management in these difficult voting situations

## **2.6. Likelihood of Attending Shareholder Meetings**

So far we have examined the likelihood that a connected fund votes with management. However, as documented by Calluzzo (2014) only 5% of the connections are held.<sup>2</sup> Therefore, there are likely to be many instances when the connected fund does not vote at all because it does not hold any stock of the connected firm. In this section, we examine the likelihood that a connected fund holds and therefore votes the stock of the connected firm. Specifically, prior to difficult voting situation connected funds should be more likely to hold the firm's

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<sup>2</sup> Calluzzo (2014) reports that of the 645 fund firm connections only 31 funds hold stock in the connected firm each year.

stock and hence be present for voting. As seen before, once present they are more likely to vote with management in conflict situation. In this section, we examine if connected firms are more likely to be present for voting in difficult voting situation.

Once present, funds tend to vote on all proposals presented at the shareholder meeting. As the fund's decision is to be present for a shareholder meeting, rather than to be present for a specific proposal we model this at the meeting level. In other words, we estimate the likelihood the fund is present at the meeting rather than for the proposal. Since there are several proposals voted on in any meeting this reduces the number of observations. For our sample, there are a total to 774 meetings over the sample period. We create a dummy variable *Pvote* that takes the value of one for fund firm meetings when the fund is present for the firm's shareholder meeting. All the other funds, in the risk metrics dataset but not voting at the firm's meeting, are regarded as not holding (and hence not voting) the firm. *Pvote* takes the value of zero for these fund firm meetings. As we include values for funds that did not vote at the meeting our final sample consists of 2.93 million observations. The mean value of *Pvote* is 6.5% for our sample.

We estimate the likelihood of the fund being present in a meeting and voting, i.e., the value of *Pvote* being equal to one as a function of whether the fund is connected to the firm and if there is a conflict situation. We create a variable *Conflict\_m* that takes the value of one if there is at least one proposal at the meeting that has a negative recommendation from ISS and zero otherwise.

Similarly, the variable `Inst_sponsor_m` takes the value of one there is at least one proposal at the meeting that is sponsored by an institutional shareholder. To capture whether connected funds are more likely to be present and voting we include the interaction of `Connected` with `Conflict_m` and `Inst_sponsor_m` in our estimation. We control for the propensity of a fund to be present and voting by including `FundQ` which is the percent of firms in the sample that the fund voted on in a given year. This captures fund characteristics like indexing that imply that the fund is likely to hold and vote on a lot of firm meetings. We also control for firm characteristics by including `FirmQ` which is the fraction of funds that vote in the firm in a given year.<sup>3</sup> This captures firm characteristics that make it attractive for funds to hold it in their portfolios.

The results are displayed in Table 8. The coefficient of `Connected` is negative and significant while the coefficient of the interaction of `Connected` with `Conflict_m` is positive and significant. In normal situations connected funds are less likely to be present and voting but not if the meeting involved a conflicted vote. In these meetings, connected funds are more likely to be holding the stock and present to vote. Interestingly, the coefficient of `Conflict_m` is negative and significant. In conflict situations, all institutions, other than connected ones, are less likely to be present and voting. The coefficient of both `FundQ` and `FirmQ` are positive and highly significant. Funds that are more likely to hold more stocks are significantly more likely to be present and voting. Firms that are more likely to be

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<sup>3</sup> Specifically, `FundQ` is the ratio of the firms voted in Year T by the fund and Total number of firms in the sample in year T. `FirmQ` is the ratio of the funds that voted in the firm in year T and the total number of funds in year T.

part of fund portfolios are more likely to have funds present and voting. In model 2, we repeat the analysis with shareholder proposals sponsored by institutions. Though the coefficient of Connected and Inst\_sponsor\_m is positive it is not significant. There is no significant greater likelihood of holding and voting for meetings with proposals sponsored by institutional shareholders.

## **2.7. Director Connections**

So far we have examined the instances when executives of firms are on the board of directors of funds. However these firm fund connections can also be formed at the director level. In other words, if Jane Doe is a director at GE and also on the board of Windsor Fund we will say that GE and Windsor Fund are connected at the director level. The advantage of examining director level connections is that there are more of them. The disadvantage is that directors could be on the board of several firms and the mutual fund connection to the firm at the director level is likely to be weaker than at the executive level. Consequently, the results are likely to be weaker.

As seen in Table 9 there are about 2269 funds, almost 60% of our sample that are connected to a S&P 1500 firm through a director connection. Each year, on average there are 207 firms that have a director connection with a fund for a total of 439 unique firms with at least one director connection over the sample period. In line with our study of executive connections we restrict the sample to these 439 firms with at least one director connection for a total of 7.7 million fund

votes over our sample period. We begin by examining if funds that share a director connection with a firm are more likely to vote with management. We create a variable *Dconnected* that takes the value of one if the fund and firm share a director connection in that year.

As seen in Table 10 the coefficient of *Dconnected* is positive but not significant. We then examine if these weaker connections are likely to be invoked for proposals that are difficult for management, i.e., those with a negative ISS recommendation. As seen in Model 2, the coefficient of the interaction of *Dconnected* and *Conflict* is positive and significant at the 1% level. Though funds with director connections do not generally vote any different from other funds, for proposals that have a negative ISS recommendation they are significantly more likely to vote with management. However, we find no evidence of similar support from director connected funds for shareholder sponsored proposals (Model 3) or for proposals sponsored by only institutional shareholders (Model 4). As these director connections are weaker than executive connections, it is not surprising that they have little impact on fund voting in normal times. However, though they are weak connections, they can be and are used to garner support during conflict situations as represented by a negative ISS recommendation.

## **2.8. Shareholder Activism**

So far we have examined the likelihood of connected funds voting with management. Firms that are connected garner higher support from the connected funds, especially when the proposal has a negative recommendation from ISS or

is sponsored by an institutional shareholder. This gives distinct advantages to the firm, especially in difficult voting conditions. In this section, we explore potential advantages that might arise for connected firms outside the proxy voting area.

As connection with mutual funds allows the firm to have “supportive” shareholder we examine the implication of this for the likelihood of being a target for shareholder activism. Shareholder activism has become one of the important mechanisms through which shareholders bring changes in management policies. Brav, Jiang, Partnoy and Thomas (2008) document that hedge funds attain success or partial success in two-thirds of the firms they target. The target firm experiences on average 7% abnormal stock return on announcement. Does the likelihood of firm management garnering support from connected funds, and against the position of the activist, make activists reluctant to target these connected firms?

To study this we collect data on activism. We examine 13D filings of S&P 1500 firms, over the sample period 2004 to 2012 and collect data whenever a 5% stake is registered. We only include cases when the intent of the shareholder is to bring about changes in management. The variable *Activism* takes the value of one for firm years when an activist files a 13D filing and zero otherwise. Over the sample period there are 834 cases of activism. We use two measures to capture the influence of connected funds. First, the variable *Connected* takes the value of one if the firm is connected to at least one fund in that year. Secondly, we count the number of connected funds that hold the firm stock, referred to as *Connected\_held*. This is captured by the number of connected funds that voted in



the most recent meeting. If the presence of connected funds dissuades activism the coefficient of both measures of connection should be negative and significant.

We control for several factors that have been shown to impact the likelihood of being a target for shareholder activism. We control for the level of institutional holdings as firms with more institutional ownership are more likely to be subject to activism. Our variable *Inst\_holding* is the proportion of the firms shares held by institutions. To control for firm size we include the log of the total assets, referred to as *LogTA*. We also include *LogMV*, the log of the market value of the firm. Larger firms are less likely to be subject to activism. To calculate growth opportunities we include *MB*, the market to book ratio. Finally we include, the stock return over the past twelve months, *Lagret12*, to control for firm performance. Firms that are performing poorly are more likely to be a target for hedge fund activism.

The results are displayed in Table 11. The coefficient on the *Connected* variable is negative and highly significant. The presence of a connection with mutual funds reduces the likelihood that the firm will be targeted by activists. The coefficients on the control variables are as expected. The coefficient of *LogMV* is negative and significant. Larger firms are less likely to be targeted as it is more difficult for the activist to accumulate a 5% stake in the firm. The coefficient of *Lagret12* is negative and significant – the higher the firm performance the less likely it will be targeted. Higher institutional ownership and lower market to books increase the likelihood of being targeted. Overall, there is significant evidence that

the presence of connections with mutual funds reduce the likelihood of being targeted by activists.

## **2.9. Conclusion**

This paper studies the impact of the fund firm connections on the mutual fund proxy voting process. We find that connected funds are more likely to vote with management and this bias is significantly higher for proposals that have a negative recommendation by ISS and those that are sponsored by institutional shareholders. Evidence suggests that this bias towards management is increasing in the abnormal profits made by the fund in the firm's stock. Further, we find that connected funds are more likely to hold the stock and therefore present for voting when management faces voting challenges. We also classify fund firm connections at the director level. These director connections are more frequent but weaker. Though there is no evidence that in normal time director connected funds vote with management, they are significantly more likely to do so in conflict situation. Overall, the results suggest that firms gain significant support from these connected funds, especially in conflict situations when this support is more needed.

We find some evidence that the presence of connected funds, and therefore management friendly institutional shareholders significantly reduces the likelihood that an activist will target the firm. The results suggest that, with the support of connected funds, management can mitigate the pressures originating from shareholder advocacy.

Table 2.1. Variable definitions

Variable	Definition
Institution ID	This is RMG's unique proprietary identifier applied to identify each institution. Each institution has a unique InstID and each InstID may link to multiple FundIDs.
Fund ID	This is RMG's proprietary identifier applied to identify each mutual fund. Each FundID associates with one InstID to identify the mutual fund family it belongs. On the contrary, each InstID link to multiple FundIDs.
Firm ID	This is RMG's unique proprietary identifier applied to identify each institution. Each institution has a unique InstID and each InstID may link to multiple FundIDs.
Proposal ID	This is RMG's proprietary coding key applied to categorize meeting agenda. Every agenda will first be assigned an appropriate ISSAgendaItemID during RMG's flow of processes.
ISS Agenda Item ID	This is RMG's proprietary coding key applied to categorize meeting agenda. Every agenda will first be assigned an appropriate ISSAgendaItemID during RMG's flow of processes.
Item Description	This is the agenda item description for each meeting agenda displayed in company's SEC filing.
Meeting Date	This is the date that a meeting is held.
Fund Vote	This is the disclosure of NPX how a mutual fund voted on certain agenda item. This is annual data updated around Oct of each year. Most common value of this data are For, Against, Withhold, and Abstain.
Mgmt Vote Recommendation	This is management vote recommendation for a proposal disclosed in proxy.
ISS Vote Recommendation	This is RMG's vote recommendation published on proxy research. The vote recommendation for each meeting agenda can be looked up by ItemonAgendaID. In other words, each ItemonAgendaID associates with a unique ISSRec.
Proposal Sponsor	Mgmt represents a proposal submitted by management. Shdr represents a proposal submitted by shareholder.
WithMgmt	A dummy variable which takes the value of one if the fund vote aligns with management's vote recommendation.
POutcome	The percent of all votes within a proposal that align with management's vote recommendation.
Connected	A fund and firm are defined as connected if an executive at that firm is a director on the fund's board.
Preconnected	Identifies all years before a fund and firm become connected.
Preconnected2	Identifies the two years before a fund and firm become connected.
Postconnected	Identifies all years after a fund and firm are connected.
Postconnected2	Identifies the two years after a fund and firm are connected.
Aearned	Measures the Abnormal Trading Return earned by the specified fund family in the specified stock.

**Table 2.2. Descriptive Statistics on the Director Employment Network**

This table reports descriptive statistics for the director employment network. All statistics are reported as the yearly average over the sample 2004 to 2012.

	Mean	Median	Standard Deviation	Min	Max
Funds per Year	3777	4292	1186	881	4668
Connected Funds per Year	1256	1367	511	434	2001
Connected Firms per Year	41	42	8.94	27	53
Fund-Firm Connections Per Year	1759	1966	736	702	3061

**Table 2.3. Descriptive Statistics on the Mutual Fund Proxy Voting Database**

This table reports descriptive statistics on the mutual fund proxy voting database. The sample contains all proposals by firms with at least one connection over the 2004 to 2012 sample period. Conflicted proposals are those where the ISS recommendation is not to vote with management.

	All Proposals		Conflicted Proposals		Shareholder Sponsored	
	Number	Percentage with Management	Number	Percentage with Management	Number	Percentage with Management
2004	324	87.18	23	42.86	24.0	68.05
2005	405	89.91	47	49.81	20.0	66.93
2006	455	85.77	51	43.80	30.0	57.13
2007	425	88.03	40	43.53	17.0	57.86
2008	371	90.11	33	45.52	13.0	55.92
2009	368	84.21	70	45.94	28.0	47.93
2010	326	88.87	46	48.41	22.0	56.28
2011	356	91.15	44	50.91	19.0	57.71
2012	261	93.16	24	48.37	15.0	61.83
Mean	366	88.71	42	46.57	20.9	58.85

Table 2.4. Voting in Connected Stocks

This table reports results from logistic regressions. The dependent variable, *Withmgmt*, is a dummy variable which takes the value of one if the fund vote aligns with management's recommendation. *Connected* is a dummy variable that is equal to one if the firm executive is a director for the fund that is voting. *Proposal\_outcome* is the proportion of all other votes in the specified proposal that align with management's recommendation. Standard errors are clustered at the year (Model 1 & 4), fund (2) and firm (3) level.

	Model 1	Model 2	Model 3	Model 4
Constant	-10.71 *** (-8.12)	-10.71*** (-20.93)	-10.71*** (-26.84)	-11.32*** (-7.66)
Connected	1.164 *** (2.99)	1.164*** (9.48)	1.164*** (3.42)	1.068*** (2.75)
Proposal_outcome	10.59 *** (41.69)	10.59*** (97.73)	10.59*** (40.62)	11.03*** (43.48)
N	2231705	2231705	2231705	2231705
R-sq	0.370	0.370	0.370	0.391
Fixed Effects	Year, Institution	Year, Institution	Year, Institution	Year, Instiution,
Cluster SE	Year	Fund	Firm	Firm Year

Table 2.5. Voting in Connected Stocks: Subsample Analysis

This table presents the results of a logistic regression where the dependent variable is Withmgmt. Withmgmt takes the value one if the fund votes in line with management recommendation and zero otherwise. Connected takes the value of one if the fund and firm have a connection. Conflict takes the value of one if the proposal has a negative ISS recommendation and zero otherwise. Shareholder Proposal (Inst\_Sponsor) takes the value of one if the proposal is sponsored by a (institutional) shareholder. Poutcome is the fraction of all votes in the proposal that are with management. Model 2 (5) includes only proposals that are conflicted (sponsored by institutions). Year and Institution fixed effects are included to control for other factors that influence proxy voting. Standard errors are clustered at the year level.

	Model 1	Model 2	Model 3	Model 4	Model5
Constant	-6.517*** (-4.39)	-6.417*** (-5.28)	-11.16*** (-8.22)	-10.67*** (-7.90)	-7.958*** (-7.53)
Connected	0.435 (1.35)	0.585* (1.76)	1.031*** (2.82)	0.940*** (3.03)	1.608*** (2.91)
Connected x conflict	0.962** (2.38)				
Conflict	-1.803*** (-13.01)				
Connected x Shareholder			0.347 (0.92)		
Shareholder			0.238 (2.88)***		
Connected x Inst_sponsor				1.077* (1.93)	
poutcome	6.162*** (15.73)	4.240*** (15.17)	11.03*** (41.64)	10.56*** (39.62)	6.975*** (17.79)
Observations	2231705	305860	2231705	2231705	80594
Pseudo R-squared	0.392	0.240	0.371	0.370	0.262

**Table 2.6. Voting Before and After the Connection**

The dependent variable is *Withmgmt*, a dummy that takes the value of one if the fund votes with management. *Connected* is a dummy that takes the value of one if the fund and firm are connected. *Preconnected2* (*Preconnected\_all*) takes the value of one in the two (all) years prior to the formation of the connection. *Postconnected2* (*Postconnected\_all*) takes the value of one in the two (all) years after the connection has been terminated. *Poutcome* is the fraction of all votes for that proposal that are with management. Year and Institution fixed effects are included to control for other factors that influence proxy voting. Standard errors are clustered at the year level.

	Model 1	Model 2	Model 3	Model 4
Constant	-10.71*** (-8.12)	-10.71*** (-8.14)	-10.71*** (-8.13)	-10.71*** (-8.14)
Connected	1.164*** (2.99)	1.170*** (3.07)	1.170*** (3.07)	1.169*** (3.07)
PreConnected2	-0.0223 (-0.04)		-0.0214 (-0.04)	
Postconnected2		0.393 (0.37)	0.393 (0.37)	
Preconnected_all				-0.624* (-1.75)
Postconnected_all				0.241 (0.52)
poutcome	10.59*** (41.67)	10.60*** (43.17)	10.60*** (43.15)	10.60*** (43.19)
N	2231705	2231705	2231705	2231705
R-sq		0.370	0.370	0.370



**Table 2.7. The Relationship between Connected Voting and Trading Returns**

The dependent variable is *withmgmt*, a dummy that takes the value of one if the fund votes with management. The variable *Connected* takes the value of one if the fund and firm are connected. *Aearned* is the abnormal trading return earned by the fund in the firm in the prior 4 quarters. *Conflict* in Model 2 (3) takes the value of one if the proposal has a negative ISS recommendation (or was sponsored by an institutional shareholder). *Poutcome* is the fraction of all votes for that proposal which are with management. Model 1 to 3 are estimated using the entire sample over 2004 to 2012. Model 4 includes only proposals that either have a negative ISS recommendation (conflicted) or were sponsored by an institutional shareholder (*Inst\_sponsor*). Year and Institution fixed effects are included to control for other factors that influence proxy voting. Standard errors are clustered at the year level.

	Model 1	Model 2	Model3
Constant	-8.056*** (-28.99)	-5.084*** (-17.10)	-4.877*** (-15.90)
Connected	1.376*** (3.19)	0.0800 (0.29)	0.0430 (0.14)
Aearned	0.108 (0.78)	0.149 (0.94)	0.134 (0.85)
Aearned x Connected	1.418* (1.67)	-0.983 (-0.85)	-0.990 (-0.83)
Connected x Conflict		1.518*** (3.33)	1.513*** (3.01)
Aearned x Connected x Conflict		2.366 (1.40)	2.371 (1.36)
Conflict		-1.287*** (-9.89)	-1.341*** (-10.85)
Poutcome	10.12*** (44.14)	6.954*** (22.06)	6.820*** (21.97)
Observations	1156502	1156502	1156502
Pseudo R-squared	0.364	0.375	0.377

**Table 2.8. Likelihood of being Present and Voting at Meeting**

This table reports logistic regressions with the dependent variable is Pvote. Pvote takes the value one if the fund is present and voting at the meeting and zero otherwise. Connected is a dummy variable that takes the value one if the fund firm are connected. Conflict\_m takes the value of one if the meetings included at least one proposal that had a negative ISS recommendation. Inst\_sponsor\_m takes the value one if the meetings included at least one proposal that was sponsored by an institutional shareholder. FundQ is the ratio of the number of firms that the fund voted on in the year to the total number of firms in the sample. FirmQ is the ratio of the number of funds that voted on its proposals for the year over the total number of funds in the sample. Year fixed effects are included and standard errors are clustered at the year level.

	Model 1	Model 2
Constant	-5.572*** (-49.08)	-5.588*** (-49.78)
Connected	-0.358* (-1.86)	-0.231* (-1.87)
Connected x Conflict_m	0.353** (2.25)	
Conflict_m	-0.0801** (-2.42)	
Connected x Inst_Sponsor_m		0.310 (1.35)
Inst_sponsor_m		-0.0229 (-0.34)
FundQ	9.399*** (34.72)	9.396*** (34.89)
FirmQ	16.00*** (26.65)	15.88*** (29.62)
Observations	2,934,228	2,934,228
Pseudo R-squared	0.290	0.290

**Table 2.9. Summary Statistics on Director Connections**

This table provides summary statistics on director connections over the sample period 2004 to 2012. A fund and firm are regarded as Dconnected if they share a board of director.

Variable	Mean	Median	Standard Deviation	Min	Max
Funds Per Year	3777	4292	1186	881	4668
DConnected Funds per Year	2269	2511	717	546	2946
DConnected Firms per Year	207	220	51	105	257
Fund-Firm DConnections Per Year	13,598	15,896	5312	1870	17,802

Table 2.10. Director Connections

This table modifies the previously developed logistic regression model to examine proxy voting behaviour in the period after the connection between the fund and firm ends. Two new independent variables of interest are introduced, conflict, a dummy variable identifying if there was disagreement between management's and ISS's recommendation on the specified vote, and shareholder which indicates if the specified vote was proposed by shareholders. Dconnected\_conflict and Dconnected\_shareholder are the interaction between the dconnected and conflict and dconnected and shareholder variables respectively. Column (2) and (4) focus on the subsample of conflicted and shareholder sponsored votes respectively. Again, Poutcome, as well as Year and Institution fixed effects are included to control for other factors that influence proxy voting. Standard errors are clustered at the year level.

	Model 1	Model 2	Model 3	Model 4
Constant	-6.371*** (-42.02)	-2.428*** (-9.10)	-6.363*** (-25.75)	-6.478*** (-34.04)
Dconnected	0.0663 (0.47)	-0.227 (-1.31)	0.0252 (0.14)	0.0629 (0.39)
Dconnected_conflict		0.763*** (6.09)		
Conflict		-1.800*** (-14.60)		
Dconnected_shareholder			0.200 (0.76)	
Shareholder			-0.00757 (-0.10)	
Dconnected x Inst_sponsor				0.0155 (0.04)
Inst_sponsor				0.169* (1.89)
Poutcome	9.561*** (54.54)	5.450*** (19.81)	9.553*** (35.82)	9.667*** (45.32)
Observations	7,743,824	7,743,824	7743824	7743824
Pseudo R-squared	0.298	0.322	0.298	0.298

Table 2.11. Likelihood of Shareholder Activism

The dependent variable is *New\_Activist* that takes the value of one if the firm was subject to shareholder activism in the year. All independent variables are lagged one year. *Connected* is a dummy that takes a value of one if there is at least one connection with a fund. *Connected\_held* takes the value of one if at least one connected fund voted and hence owned the firm in the most recent meeting. *LogTA (MB) {Inst\_holding}* represents the total asset (market to book) {total institutional ownership} of the firm. *LogMV* is the log of market value of the firm. *Lagret12* is the stock return for the past 12 months. Standard errors are clustered at the year level.

	Model 1	Model 2
Constant	0.0136*** (11.38)	0.0137*** (10.86)
Connected	-0.0273** (-2.69)	
Connected_Held		-0.000894*** (-4.17)
Connected Ownership		
LogTA	0.00629 (1.76)	0.000574 (1.63)
MB	-0.000744 (-0.79)	-0.000803 (-0.82)
LogMV	-0.0185** (-3.22)	-0.0182*** (-3.20)
Lagret12	-0.0139** (-3.34)	-0.0138** (-3.32)
Inst_holding	0.0263* (2.22)	0.0261* (2.19)
Observations	8507	8507
R-squared	0.018	0.018

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