Connected Companies' Compensation

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Abstract

When portfolio managers trade the stocks of companies run by people with whom they have social connections, these trades earn better returns than trades in companies with whom they have no connections (Cohen et al., 2008). We look at the effects of social connections from the firm's side, examining the compensation of firm executives. Executive compensation in connected firms is substantially higher than in unconnected firms. The channel through which this result occurs appears to be share voting—connected funds are more likely to vote against shareholder-initiated proposals on executive compensation, thereby protecting their cronies from the discipline of corporate governance. The evidence is consistent with higher compensation being the *quid pro quo* for information flow from firm to fund.

1 Introduction

Social connections seem to matter for finance transactions. In a recent paper, Cohen, Frazzini, and Malloy (2008) document a particularly intriguing result that involves the trades made by portfolio managers who invest in companies run by people with whom they have social ties (an overlap in educational background). These trades appear to outperform substantially the other trades made by the same portfolio manager in firms with which they have no social connections. One interpretation of this result is that social connections generate information flow that enables portfolio managers to make better trading decisions. Our paper addresses this interpretation and asks: What is the nature of this information flow?

One possibility is that information flow is indirect. Socially connected fund managers may receive no specific "inside" information, but still have soft information about how an executive's educational background will translate into firm performance. Having a social connection could provide a fund manager with first-hand or indirect knowledge of an executive's abilities, training, character, risk tolerance, or other traits that might impact the company executive's performance. We refer to this possibility as the *familiarity hypothesis*.

Another possibility is that information flow reflects the explicit passing of value-relevant information from top managers at firms to their cronies at mutual funds and pension funds. If this is the channel, it would be at odds with securities laws intended to encourage a level playing field for all investors because investors without important social connections would be at a disadvantage relative to their connected counterparts. We refer to this more salacious possibility of explicit information flow as the *confidants hypothesis*. The purpose of our paper is to distinguish between these two hypotheses.

We examine the effect of social connections from the firm's perspective. We aggregate connected holdings by mutual fund managers to the firm level to identify firms

that are more or less socially connected to their investors. We then ask whether top officers at connected firms are compensated differently than counterparts at less-connected firms. That is, we turn the Cohen et al. tests around to examine the impact of connections on the connected firms' managers, rather than on the connected portfolio manager.

Institutional investors such as mutual funds can exert some control over corporate decisions and outcomes, including corporate compensation policies (e.g., Hartzell and Starks (2003)). In our view, if information flow from firms to connected investors is explicit, as in the *confidants hypothesis*, then in equilibrium corporate officers should receive some *quid pro quo* for their helping connected investors better understand the information environment in which the firm operates. That *quid pro quo* might take various forms, but one possibility for a payback channel is through higher compensation to the officers who make information more accessible to connected investors.

Using Execucomp data from 1992-2006, and hand-collected data on social ties between firm executives and mutual fund managers, we document a result that is consistent with such a *quid pro quo*. We show that connected firms have significantly higher executive compensation than less connected counterparts. Controlling for other determinants of compensation, we show that for each percentage of connected ownership, total executive compensation is 2.6% higher. When computed at the mean compensation in our sample, a one standard deviation increase in connected ownership correlates with an increase in total compensation of about $165,000 to $231,000, depending on the stringency of our definition of connected. A change from the bottom decile to the top decile of connected ownership corresponds with a total compensation increase of about $258,000 to $471,000 (roughly 6% to 10% of the mean compensation), ceteris paribus. The magnitude of the regression coefficient attenuates when we use firm fixed effects, but remains statistically significant and economically meaningful. Although we find that

the implementation of Regulation FD (RegFD) corresponds to a substantial reduction in executive compensation in our sample, RegFD did not affect the *sensitivity* of compensation to connections.

We perform several tests to distinguish between the *familiarity* and *confidants hypotheses*. First, as a placebo test we construct a measure of *geographic* connectedness, rather than social connectedness. The idea here is that geographic proximity enhances soft information availability (e.g., Coval and Moskowitz (1999), Malloy (2005), Butler (2008)), but would not merit *quid pro quo* from nearby investors. As with our socially connected ownership measure, we compute the percentage of each firm's ownership that is held by geographically proximate mutual funds. If *geographic* connectedness has an effect on compensation, that result would be consistent with the familiarity hypothesis, and would cast doubt on the *confidants hypothesis*. Controlling for other determinants of compensation, we find that the magnitude of the geographic connectedness effect is less than one third of that of social connectedness, and it is not statistically significant. Thus this placebo test fails to rebuff the *confidants hypothesis*.

Our second test examines the notion of whether better quality information flow from firm to fund is rewarded in executive compensation. In the spirit of Sias, Starks, and Titman (2006), Campbell, Ramadorai, and Schwartz (2008), and others, we examine the effect on executive compensation of the correlation of socially connected fund holdings and subsequent company stock returns. (We provide more details in the results section below.) The idea here is that a higher correlation between holdings and subsequent returns may indicate more perspicacious trades, perhaps due to having a better information set on which to trade. Under the *confidants hypothesis,* better quality information flow from firm to fund should generate a *quid pro quo* in the form of higher compensation. We find this effect in our data: a one standard deviation increase in the abnormal trading ability of socially connected funds relates to approximately 3.1% higher

total executive compensation, other things equal. An increase from the bottom decile of smart trading to the top decile relates to approximately 10.7% higher total executive compensation, other things equal.

Third, we examine how mutual funds vote on executive compensation proposals. Under the *familiarity hypothesis*, there should be little reason to expect mutual fund family voting patterns to be related to their connectedness to firms. But under the *confidants hypothesis*, connected funds should cast votes in shareholder meetings that are in line with management's preferences. We find strong evidence in favor of the latter. Connected fund families are far more likely to vote *against* shareholder-initiated proposals regarding executive compensation than non-connected fund families. On average, connected fund families are up to 20% more likely to vote against shareholder-initiated proposals regarding executive compensation than non-connected fund families. This result documents a channel through which connections directly relate to compensation. The result continues to hold with mutual fund family fixed effects, firm fixed effects, or proposal fixed effects. The result also holds with *firm-fund dyad* fixed effects. This specification allows us to escape any fund or firm level effects by achieving identification through the forming and breaking of connections between a given firm and a given mutual fund because of changes in top level personnel. Our interpretation is that these voting results are consistent with socially connected executives receiving *quid pro quo* for information flow to socially connected fund managers. The form of this *quid pro quo* is that executives receive protection by their cronies from shareholder proposals designed to restrain executive compensation.

Because shareholder-initiated proposals are an important form of market discipline for management (Brav et al. (2008)), we view the relation between social connections and compensation as a type corporate governance failure. Our findings are analogous to the "mutual back scratching" documented by Brick, et al. (2006) between

CEOs and highly compensated directors. Our results favor the idea that corporate executives benefit from social connections with mutual fund managers. We view this finding as the natural complement to the result by Cohen et al. (2008) that mutual fund managers benefit from their social connections to corporate executives.

The paper proceeds as follows. Section 2 describes our data and methods. Section 3 presents our results. After discussing sample characteristics, we replicate one of the main results from Cohen et al. (2008) to assess the similarity between their data and ours. Next, we establish our main result that compensation is higher in connected firms and show that part of the reason why is related to the quality of information flow from firm to fund. We then show a channel through which funds can impact compensation: through abnormally favorable voting by connected fund families. Section 4 concludes.

2 Data and Methods

We use several sources to collect data on mutual fund holdings, votes on share holders meeting proposals, individual educational backgrounds, company locations, firm specific and fund specific data. We obtain stock return and accounting data from CRSP/Compustat. Appendix 1 gives additional detail.

2.1 Mutual fund holdings data

We calculate the weight of stock holdings in a given fund using the CDA/Spectrum Mutual Fund Holdings database. This database includes information from all registered mutual funds filing with the SEC. The data include holdings of individual funds which come from fund prospectuses and SEC N30D filings at either quarterly or semi-annual frequency. We only include CRSP share codes 10 or 11 holdings of mutual funds. The fund family names, which we use to match funds to voting data, and mutual fund family locations, come from the CRSP mutual fund database. Morningstar's biographical data and fund family names are linked to CDA/Spectrum

Mutual Fund Holdings data using MFLINKS database (see Wermers (2000) for details of merging these two databases).

2.2 Mutual fund manager education data

All of our mutual fund manager education data come from the Morningstar, Inc.'s OnDisk and Principia Advanced database.[1] We use the beginning of year CDs to collect manager education data as the January CDs report data as of December 31st of the previous year. We include in our sample all the domestic equity funds with a self-declared investment objective of growth, aggressive growth, growth-income, or equity-income that started their operations after 1992, so as to mitigate concerns about survivorship bias. We exclude index funds, balanced funds, funds of funds, as well as other types of funds that are in some way restricted in their investment decisions. A given fund may have multiple managers and a given manager may manage multiple funds at a given time. In dealing with such instances, we used the most up-to-date information. Our search yielded 3,116 mutual fund managers for 1,736 funds between 1992 and 2006.[2]

2.3 Company manager education data

Senior officer names (CEO, CFO, and Chairman) come from the Execucomp database. We supplement senior officer names with board members found in the 2006 IRRC Directorship file. We screen titles of individuals to identify CEO, CFO, and Chairman/President. We exclude individuals without title identifications. We obtain education information for these people from Bloomberg through its BIO function and from an online database (Zoominfo.com). In Appendix 1, we outline the data search

[1] Morningstar, Inc. used different names for this database throughout our sample period. The three different names are Principia Mutual Funds Plus, Principia Mutual Funds Pro Plus, and Principia Mutual Funds Advanced.

[2] We are grateful to Iordanis Karagiannidis for providing mutual fund manager education data between 1992 and 2003. See Karagiannidis (2007) for a detailed description of data collection procedure. We use CRSP Mutual Funds database Summary file to identify mutual fund manager names between 2004 and 2006. Additional names thus obtained are searched in Zoominfo.com to obtain educational background information.

process. In gathering our education data, we follow Cohen, Frazzini and Malloy (2008), treating each satellite campus as a separate university (e.g. UCLA, UCSD, and UC Berkeley are treated as separate universities). Similarly, if just a university name is given for a university system that has satellite campuses (e.g. University of Texas for the Texas system of schools), we code the entry as belonging to the main campus. If an educational institution's name given applies to two educational institutions and the individual biography is not clear about which institution was attended, we drop the observations from our sample.

Of the firms in the Execucomp and IRRC Directorship databases (primarily the S&P 1500 companies), we were able to collect educational background information for 6,037 senior officers for 1,840 CRSP stocks between years 1992 and 2006. This reflects about 71% of the Execucomp firm-years, and our data requirements tilt our sample slightly toward firms that are larger and (perhaps because they are larger) have higher compensation levels than firms with missing educational data. Because Cohen et al. (2008) do not require executive compensation data, their sample includes not only these Execucomp firms but also many smaller firms. They have information on 14,122 senior officials for 7,660 CRSP stocks between 1990 and 2006.

2.4 Mutual fund voting data

The votes in shareholder meetings in the U.S. were confidential until 2003. Beginning in 2003, the SEC required all mutual funds to disclose their votes in N-PX and N-PX/A filings. Our dataset comprises the voting records disclosed by the funds between July 2003 and February 2008.[3] These filings contain information on votes in 8,932 shareholder meetings (66,066 proposals). In the N-PX and N-PX/A filings, each fund must report the names and identifiers of the companies where voting took place, meeting and record dates, short descriptions of the proposals being voted on, management

[3] We are grateful to Andy Eggers for providing this dataset to us.

recommendations on the issues, and the fund's votes (see Matvos and Ostrovsky (2008) for a detailed description of mutual fund filing procedure). Since the SEC does not specify a particular format in which these reports should be submitted, funds submit their filings in a wide variety of formats. In their filings, the funds are not required to include any fund-specific identifiers; they only include fund family-specific identifiers as well as fund names. Our database reports the votes of the 75 largest mutual fund families. We use information on mutual fund-fund family links in the CRSP mutual fund database to merge voting data to firm/fund connection relationships.

The proposals on which votes take place range from mergers and acquisitions to election of directors and shareholder resolutions. Because our focus is linked to managerial compensation, we focus on proposals regarding managerial compensation. Of the 66,066 total proposals, 648 of them are shareholder initiated proposals to reduce the executive compensation (e.g. "Limit Executive Compensation") and 4,156 of them are management initiated proposals to increase the executive compensation (e.g. "Approve Executive Incentive Bonus Plan"). Overall, we have information on 12,874 votes in shareholder initiated proposals and 35,649 votes in management initiated proposals.

2.5 Location information

We collect company location information (zip codes) from Bloomberg and obtain mutual fund family location from CRSP Mutual Fund database. Both firms and fund location information represent the most current locations, therefore if firms or funds move, our data do not capture their prior locations. We use Spheresoft software to calculate the distance between the zip codes of mutual fund family and firms. This software calculates the great circle distance (taking into account the curvature of the Earth) between the centers of two given zip codes.

2.6 Final datasets

For our analysis, we form three final databases. In our mutual fund level analysis, we create a file in which a record contains a $Weight_{mft}$ variable that represents the relative dollar investment in firm *f* in fund *m*'s total dollar investment at time *t*, a *Broad Connect* dummy variable that takes a value of 1 if one of the senior officers/directors of firm *f* and one of the manager's of fund *m* attended the same school, *Narrow Connect* dummy variable that takes a value of 1 if the one of the senior officers/directors attended at the same time as fund managers. The definitions of our *Broad Connect* and *Narrow Connect* variables follow those of Cohen et al. (2008). In our compensation analysis, we collapse fund level information to firm level to calculate the firm level connected ownership variable. Finally, in our voting and connection analysis, we link the connections between fund managers and firm executives/directors to votes of mutual fund families.

3 Results

In this section we present our empirical results.

3.1 General summary statistics

Because our data are similar to, but not exactly the same as the data from Cohen et al. (2008), we describe the distributional characteristics of our data in detail and replicate some of the results from Cohen et al. In Table 1, Panel A, we show the most represented universities in our sample. Harvard University is the most represented institution for both executives and fund managers. Other common institutional affiliations of corporate executives in our sample are Stanford University, University of Pennsylvania, Columbia University, and University of Michigan. Common institutional affiliations of mutual fund managers are University of Pennsylvania, Columbia University, University of Chicago, and New York University.

< Insert Table 1 about here >

Table 1, Panel B gives distributional characteristics of the number of mutual funds, fund managers, firms, and academic institutions each year in the sample.

3.2 Portfolio holdings and stock characteristics

Table 2 presents details about the mutual fund portfolio holdings data. In Panel A, we present basic distributional statistics of the variables that we use to examine the portfolio holdings of mutual funds. The variable *Weight* is the portfolio weight in a given stock, measured in basis points. Thus, the average fund in our sample has 0.878% of its assets invested in its average stock. The dummy variables *Broad Connect* and *Narrow Connect* are measures of social connectedness; the former takes a value of one if a fund manager and a corporate executive both attended the same university, though not necessarily at the same time (and the variable takes a value of zero otherwise). In our sample, 3.5% of mutual fund investments (weighted by stock, not by dollars invested) are connected in this sense. The latter connectedness measure is more stringent— *Narrow Connect* takes a value of one if the fund manager and corporate executive attended the same school at the same time (and the variable takes a value of zero otherwise). For *Narrow Connect* to take a value of one, we do not require the matriculation and/or graduation dates to be the same, only that there be at least one year of overlap. In our sample, 1.7% of mutual fund investments (weighted by stock, not by dollars invested) are connected in this sense.

< Insert Table 2 about here >

A mutual fund manager's choice of portfolio holdings may be based in part on the fund's geographical proximity to companies. We measure distance between mutual fund headquarters and firm headquarters as the straight-line distance from zip code to zip code, accounting for the curvature of the Earth. We convert this continuous measure of miles to a dummy variable, *Distance within 10 miles*, which takes a value of one if the mileage between the firm and fund is 10 miles or less and the variable takes a value of

zero otherwise. In our sample 2.4% of mutual fund investments (weighted by stock, not by dollars invested) are within 10 miles of the fund headquarters. The 10-mile cutoff is arbitrary, but we note that using other cutoffs besides 10 miles does not fundamentally alter our results.

Elite institutions may produce better corporate executives and/or fund managers. We construct a measure of whether a fund manager or a corporate executive has a degree from an elite institution. Defining a cutoff for what constitutes elite and what does not is somewhat arbitrary. In Appendix 2, we list the thirteen institutions that we characterize as elite and discuss our methods for selecting these institutions. In our sample, 21.5% of fund managers have an affiliation with an elite institution, and 69.0% of firms have an executive with an affiliation with an elite institution.

Fund managers may choose to hold firms in a major index due to the visibility of these firms and the liquidity of their stock. We construct a dummy variable, *Index Member*, to denote whether the company is part of the S&P500 index. In our sample, 40.8% of firms are in the S&P500 index at the time of the portfolio holding.

Fund managers may choose to invest in firms on the basis of characteristics of the stock. For each firm-quarter, we compute measures of *Earnings Surprise*, *Illiquidity*, *Volatility*, *Market Value*, *Market to Book*, and *Momentum*. *Earnings Surprise* is computed using seasonal random walk model (Bernard and Thomas (1989)). We use the most recent earnings release date (RDQT) prior to each calendar quarter, and earnings per share values (Data 19) from CRSP/Compustat Merged Database. We use the price of the security four months before earnings announcement as the scaling factor. Our proxy for *Illiquidity* is the Amihud (2002) illiquidity measure, which is computed as the average over the previous calendar year of the daily ratio of the absolute value of stock return for the day over dollar trading volume for the day. *Volatility* is computed as the variance of monthly returns volatility calculated over the twelve months before the quarter beginning.

Market Value is the market value of equity, computed as the product of the average number of shares times the average price over the previous quarter. *Market to Book* is the ratio of *Market Value* to most recently reported book value of equity (Compustat item #60). *Momentum* is the cumulative return, excluding dividends, on a stock over the twelve months period that ends at the beginning of the quarter.

Fund managers may change their holdings at the end of the year in an effort to engage in "window dressing" (Sias and Starks (1997)). We compute an *End of Year* dummy variable that takes a value of one for the last quarter in the year and zero otherwise.

In Table 2, Panel B we present correlations among these variables. Connected portfolio holdings are positively correlated with elite firms and elite fund managers, firms in the S&P500 index, and larger firms. None of these correlations is larger than 18%.

3.3 Determinants of portfolio weights: Comparing our data with those of Cohen et al. (2008)

Because our connectedness data are slightly different than those of Cohen et al. (2008), we want to be sure that we are measuring essentially the same thing that they are measuring so that our results are comparable. Our study is limited to firms in Execucomp and IRRC Directorship databases, which comprise primarily the S&P 1500 companies. Of these firms, we were able to collect 6,037 senior officials' educational background information for 1,840 CRSP stocks between years 1992 and 2006. Cohen et al. (2008)'s sample includes not only these larger firms but also smaller firms. They have information on 14,122 senior officials for 7,660 CRSP stocks between 1990 and 2006. Cohen et al. (2008) report that their sample of firms averages approximately 4,500 per year, which account for 96% of total market value. The number of firms in our mutual fund holdings analysis averages approximately 4,400 per year, which comprise more than 90% of total

market value. We have about 1,100 firms with senior officer education information per year.

In Table 3, we examine the determinants of portfolio holdings by mutual fund managers, particularly as a function of their social connectedness to firms. These results are not new—they replicate one of the main findings from Cohen et al. (2008).

< Insert Table 3 about here >

We find, as do Cohen et al. (2008), that mutual fund managers overweight substantially the firms with which they have social connections. All of our regression tests are based on quarterly holdings, and we cluster standard errors by fund-quarter and include fixed effects for firm industry, year, and fund. Including these fixed effects helps us rule out the possibility that unobserved fund, industry, or year characteristics drive our results.

The overweighting of socially connected firms is statistically significant in all our tests, and is about 3.1 to 4.2 basis points, depending on the stringency of the measure of connectedness. (Though we do not include the results in the table, we note that when we do not control for stock characteristics the magnitude is 21 to 22 basis points.) The effect of our *Broad Connect* (same school) and *Narrow Connect* (same school and a temporal overlap in attendance) variables is distinct—the regression that we report in the last column has both variables, and both load significantly and with comparable magnitude (2.0 to 2.6 basis points). Each of these regressions controls for geographic proximity, "eliteness" of the educational institution of the firm's executives' and fund manager's degree-granting institutions, index membership, earnings surprise, illiquidity, idiosyncratic volatility, market value, book-to-market, momentum, and whether the quarter is the last of the year.

Thus, despite the fact that there are some differences between our data and those of Cohen et al., we reach the same basic conclusion in a regression of portfolio weights

on connectedness measures and other control variables. We surmise that any differences in the data sources and collection procedures are minor and not material to our purposes.

3.4 Connected firms: Characteristics and determinants

Cohen et al. (2008) examine the effects of social connections on mutual fund managers' holdings and performance. We turn the relation around and examine the effects of social connections on the firms. We do this by computing the percentage of a firm's stock held by socially connected mutual fund managers. Table 4, Panels A, B, and C present some descriptive statistics for our sample.

< Insert Table 4 about here >

Most firms have no connected ownership. The median firm in our sample of Execucomp firms has zero percent of its stock held by mutual funds in which the fund manager has a social connection to the firm's executives, even by our less stringent *Broad Connect* measure. This understates true connectedness, of course, because we have data only on mutual fund holdings but not the holdings of hedge funds or pension funds. Including all the firms with zero connected ownership, the average firm in our sample has 0.68% of its stock held by mutual fund managers to whom they are socially connected. Using our more restrictive measure of connectedness, the average is 0.36%. For comparison, the percentage of ownership held by geographically proximate mutual funds is 0.24%. Of the subset of firms with non-zero connected ownership, the conditional mean of connected ownership is 1.56% for the *Broad Connect* measure and 1.15% for the *Narrow Connect* measure.

In Panel D of Table 4 we examine differences in firm characteristics of highly connected firms (firms with more than 2.5% connected ownership) and unconnected firms (firms with 0% connected ownership). We report difference of means tests for each pair, with p-values computed using standard errors adjusted for clustering by firm. These tests indicate that connected firms have total compensation that is more than double that

of unconnected firms. But without controlling for other factors that impact compensation, it is hard to put too much of a point on this result. After all, connected firms also have significantly larger firm size, market to book ratio, and momentum. The connected firms also have less past volatility and illiquidity. Connected firms' CEOs also have higher salaries, bonuses, and option compensation.

In Panel E of Table 4 we examine determinants of the percentage of ownership that is socially connected in a panel regression where each observation is one firm-year. For comparison, we also examine the determinants of the percentage of ownership that is geographically proximate (within 10 miles). Because the dependent variables, percent of ownership that is socially connected or geographically proximate, take only values from zero to 100, we use a Tobit regression with standard errors clustered by firm. Primary determinants of connected ownership are S&P500 index membership (positive), illiquidity (negative), size (positive), momentum (negative), and, to a lesser extent, volatility (positive). Size and momentum have similar effects on geographically proximate ownership, but none of index membership, illiquidity, or volatility affects geographically proximate ownership.

3.5 Main results: The effect of connectedness on compensation

Our main results document a positive correlation between socially connected investments and executive compensation. Specifically, we regress the natural logarithm of total CEO compensation on a measure of connected ownership and control variables.

We control for whether the CEO attended an elite institution (defined in Appendix 2), which might be correlated with CEO ability and compensation. We also control for other factors that might affect compensation, including profitability (measured as return on assets), sales growth, whether the firm is a member of the S&P500 index, firm size (measured as beginning of the year market value of equity), future growth prospects (market to book equity), and stock volatility, momentum (i.e. twelve month

contemporaneous equity return), and illiquidity.[4] We also include industry fixed effects (or, as in one specification, firm fixed effects), year dummies, and an intercept term. For our main tests we have 15,575 firm-year observations. We compute heteroskedasticity-robust standard errors adjusted for clustering by firm. Table 5 presents the results of several regression specifications.

< Insert Table 5 about here >

3.5.1 Compensation baseline result

Our first specification uses a relatively inclusive definition for connected ownership—whether a mutual fund manager and at least one member of the executive team of the company attended the same educational institution, even if their dates of attendance did not overlap. The coefficient on connected ownership is 0.026 and is statistically significant. This result means that, other things equal, a one percentage point increase in connected ownership is associated with a 2.6% increase in total CEO compensation. To put this in perspective, a one standard deviation increase in connected ownership translates into an increase in CEO total compensation of about $231,000 for the mean company in our sample.

3.5.2 Firm fixed effects and compensation

Our second specification repeats the first, but replaces industry dummies with firm fixed effects. If some omitted firm-specific, time-invariant factors drive the results in our first specification, adding firm dummies will capture the impact of these factors. The coefficient estimate on connected ownership decreases by about half to 0.014, but remains statistically significant. Thus, even within-firm time series variation in

[4] Others have shown that executive compensation is related to firm size (Almazan et al. (2005), Baker, Jensen and Murphy (1988), Murphy (1998)), firm performance (Smith and Watts (1992)), firm growth opportunities (Smith and Watts (1992) and Harvey and Shrieves (2001)), and firm risk (Aggarwal and Samwick (1999)).

connected ownership is related to CEO compensation, although the cross-firm variation in connected ownership has, not surprisingly, a much stronger effect.

3.5.3 Restrictive measure of connected ownership

Our third specification repeats the first, but uses a more restrictive definition of connected ownership—ownership is connected if a mutual fund manager and at least one member of the executive team of the company attended the same educational institution, and their dates of attendance overlap. The coefficient estimate, 0.027, is statistically significant and nearly identical to that when we use the broader definition of connectedness. However, the overall variation in our narrow definition of connected ownership is much smaller, so a one standard deviation increase in this measure of connectedness translates into an increase in CEO total compensation of about $165,000 for the mean company in our sample, holding other factors equal.

3.5.4 Geographic proximity

Our fourth specification repeats the first, but uses a measure of geographic, rather than social, proximity. Gaspar and Massa (2007) find that local ownership improves corporate governance and induces value-enhancing decisions, while reducing liquidity. Their results suggest that geographical proximity is an inexpensive way to obtain information about a firm. So if the relation between social connectedness and compensation is simply driven by an investor being *familiar* with the firm, then another measure of familiarity, ownership by geographically proximate mutual funds (which we define as the mutual funds located within 10 miles of the firm's headquarters, with other cutoffs giving similar results), should lead to similar results. But it does not. The point estimate on the proximate ownership variable is 0.007, less than one-third of that of the social connectedness measure, and is statistically indistinguishable from zero. Although we do not tabulate the result, we note that if we include firm fixed effects, the magnitude of the geographically proximate ownership coefficient further drops by almost half.

3.5.5 Trading performance and compensation

Our fifth specification repeats the first specification, but adds a new variable to the regression. This new variable, which we informally term *smart trading correlation*, reflects the abnormal within-stock time series correlation between socially connected fund holdings in a stock and subsequent returns in the stock.[5] We note that, of course, this variable is not literally a measure of smartness or of trading insight—in addition to information it also captures luck. However, because we are computing the variable as an abnormal trading performance measure, it captures whether for a given stock socially connected mutual funds' trades are *more* "informed," "smarter," and/or "luckier" than those of unconnected counterparts. We compute *smart trading correlation* for each company in our sample meeting our data requirements. The idea behind the *smart trading correlation* measure is that if socially connected fund managers' trades are premonitory, the fund managers will increase their holdings prior to stock price run-ups, and will decrease their holdings prior to stock price declines. Such trading behavior would result in a positive *smart trading correlation* measure, and the more insightful the trades, the larger the *smart trading correlation* measure.

We insert our *smart trading correlation* measure into our baseline compensation regression. (We note that because the measure is computed using overlapping data, we

[5] To compute the *smart trading correlation* measure we start with socially connected funds, computing a measure, *rho,* as follows. At the beginning of each calendar quarter *q*, we calculate the aggregate mutual fund holdings of each firm *i* for connected funds using fund level share holdings data. For each firm *i* and year *t*, we calculate the correlation between beginning of quarter aggregate share holdings for connected funds and quarterly return. For each year *t*, we use quarterly observations obtained from years *t*, *t*-1, and *t*-2 to compute the correlations. To strike a balance between measurement error problems and inclusiveness, we require at least 8 quarterly observations (out of possible 12) to compute each rho_{it}. Requiring more observations generally strengthens our results, but at the cost of substantially fewer firms in the estimation. Requiring fewer observations exacerbates measurement error problems. Some mutual funds may not report quarterly holdings (e.g. they might report every six months rather than every three months). In such cases, we assume that the holdings at the beginning of last quarter carry over to the following quarter in which no holding is reported. (Omitting these funds gives very similar results.) We repeat the entire process for unconnected funds to produce a *rho'* measure. The difference between *rho* and *rho'* is our measure of *smart trading correlation*.

cluster the standard errors in the regression by firm.) When we do this, not only does the connectedness measure remain positive and significant, but also the *smart trading correlation* measure loads positively and significantly. The coefficient on smart trading is 0.097 and statistically significant. The standard deviation of smart trading is 0.32, so a one standard deviation increase in the *smart trading correlation* measure corresponds with 3.1% more total compensation. One interpretation of this result is that the higher the quality of information flow from a firm to socially connected mutual funds, the more the firm is rewarded with higher executive compensation, ceteris paribus.[6]

3.5.6 Compensation, connected ownership, and corporate governance

Our sixth specification repeats the first specification, but adds the G-Index measure from Gompers, Ishii, and Metrick (2003) as an additional control variable. The G-index, which is the number of governance provisions that reduce shareholder rights in a firm, serves as a "proxy for the balance of power between shareholders and managers" (p. 109). To the extent that stronger corporate governance may attenuate the sensitivity of executive compensation to connected ownership, this proxy is potentially an important control variable. Requiring the G-index reduces our sample size from 15,575 to 14,453 firm-years.

When we include the G-index in our regression, filling in missing values for a firm with the previous year's amount as is common in the literature, the coefficient on connected ownership changes very little (from 0.26 to 0.22, or to 0.24 if we omit observations for which the G-index is "filled") and remains statistically significant. Similarly, using firm fixed effects (untabulated), the coefficient and standard error on connected ownership both remain essentially unchanged from the previous fixed effects

[6] We note that the interpretation is qualitatively similar if we alter the specification: (a) instead of using our *smart trading correlation* variable, we include separately the *rho* and *rho'* defined in the footnote above, or (b) omitting the connectedness measure and keeping just our *smart trading correlation* variable and the controls leads to similar conclusions.

specification. We conclude that corporate governance differences, at least as proxied by the G-index, do not drive our results.

3.5.7 Components of compensation

In untabulated results, we repeat the first specification, but use different dependent variables—the natural logarithm of salary, bonus, or option compensation, respectively. Murphy (1998) reports that option grants have become an increasingly important component of executive pay. Consistent with his report, our results are very strong for the options portion of compensation, with the statistically significant coefficient on connected ownership increasing by more than 50% to 0.041. The connected ownership coefficients for the salary and bonus regressions are positive, but small in magnitude and statistically insignificant.[7] When we estimate all three regressions—bonus, option, salary—jointly, we gain some efficiency and the coefficient on connected ownership for the bonus regression also becomes marginally significant.

3.6 Two-stage least squares results

Although we do not tabulate the results, we also perform a two-stage least squares (2SLS) estimation. (The results are available from the authors upon request.) This analysis allows us to ascertain whether there is a direct effect of social connections *per se* on compensation (consistent with the *familiarity hypothesis*), or whether social connections impact compensation through another channel, which, depending on the channel, could be consistent with the *confidants hypothesis*. For instance, suppose some socially connected mutual funds tend to vote against shareholder-initiated proposals to reduce managerial compensation (a hypothesis we examine directly in the next section). Under such a scenario, socially connected ownership leads to higher executive compensation, but not directly. Rather, the impact comes through the *votes* of the

[7] We also examine whether CEO pay-for-performance sensitivity relates to connected ownership following Muslu (2008) and using the methods of Core and Guay (2002). Our estimates are statistically insignificant.

socially connected mutual funds, not the socially connected *ownership, per se*. An ordinary least squares (OLS) test captures both the direct and indirect effects; the second stage of a 2SLS test captures only the direct effect, but leaves the indirect effects in the residuals of the first stage. The distinction is subtle, but important for identifying the channel through which connections and compensation relate.

We need an instrumental variable that is strongly related to percent of ownership that is socially connected ownership, but that is unrelated to the residuals in the reduced from equation. Our instrument is the *number of unique bachelor's degrees* held by firm executives.[8] This instrument is strongly related to connected ownership percentage: the F-statistic on the instrument in our first stage is 108.6, which is well above critical values from a Stock-Yogo weak identification test. Further, the first stage R^2 is reasonably large (18.0%), indicating that our estimation is relatively efficient. Because it seems unlikely that the number of unique bachelor's degrees represented in a firm would be related to CEO compensation, we surmise that our instrument is a good one.[9]

Inconsistent with the *familiarity hypothesis*, we find that the coefficient on the instrumented connected ownership variable becomes statistically insignificant, with an imprecisely estimated coefficient of -1.62% (*p*-value of 0.716). Of course, because 2SLS estimation is less efficient than OLS, this non-result could simply be due to an imperfect instrument, and the reader should take appropriate caution in interpreting the result.

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[8] Suppose for instance, in firm A the CEO, CFO and Chairman all attended Yale undergrad; in firm B, the CEO attended Harvard for her undergrad degree, and the CFO and Chairman both attended Michigan for their respective undergrad degrees; in firm C, the CEO attended Harvard, the CFO attended Yale, and the Chairman attended Michigan. We would record the number of unique bachelor's degrees as 1, 2, and 3 for firms A, B, and C, respectively.

[9] We considered, and ultimately rejected, another candidate instrument: the sum of the total *enrollment* in the degree granting institutions from which executives received any and all of their degrees. Higher enrollment should lead to a broader potential network of social connections. However, enrollment also may be related to the quality of the school. For instance, many elite schools are private universities with small enrollments. As such, enrollment may be related to unobserved qualities of the CEO, and hence to her compensation. That is, enrollment fails the exclusion requirement. Nonetheless, the results are qualitatively the same using this instrument.

In sum, connected ownership is positively related to total CEO compensation and each of its components. This relation seems not to obtain simply because of general familiarity between certain investors and firms. Thus far, the evidence supports the *confidants hypothesis*.

3.7 Why do connected companies have higher compensation? Evidence from voting patterns

Our main results, that socially connected investments increase executive compensation on average, raise an important question. What is the channel through which this could occur? The most direct way that equity investors can affect outcomes in the firms in which they invest is through voting.[10] We examine this possibility.

We obtain data on voting records of mutual funds from recent SEC-mandated N-PX and N-PX/A filings. Our database reports the votes of 75 largest mutual fund families. We use information on mutual fund-fund family links in the CRSP mutual fund database to merge voting data to firm/fund connection relationships. We collect information on several types of voting events: shareholder-initiated proposals about executive compensation, management-initiated proposals about executive compensation, and, for use in placebo tests, proposals about auditor ratification and charitable contributions.

We have data for 648 shareholder initiated proposals (12,874 votes) to reduce the executive compensation (e.g. "Limit Executive Compensation"). For comparison tests, we also gather data on 4,156 management initiated proposals (35,649 votes) to increase the executive compensation (e.g. "Approve Executive Incentive Bonus Plan"), 6,188 management initiated auditor ratification proposals (49,666 votes), and 183 shareholder initiated charitable contributions proposals (4,713 votes).

[10] Rothberg and Lilien (2006) find that mutual funds voted 66 percent of the time in managements' favor on issues of compensation. David and Kim (2007) find that proposals concerning limiting executive pay were consistently opposed by mutual funds.

Our tests are centered on the idea that, under the *confidants hypothesis*, connected shareholders are likely to vote against shareholder-initiated proposals to reduce executive compensation and are likely to vote in favor of management-initiated proposals to increase executive compensation. To formally test these ideas, we us a probit model and regress the votes (for = 1, against = 0) on the identity of the voter—that is, whether the vote is coming from a socially connected shareholder or a non-connected shareholder. Theory provides little guide for control variables, but we have enough observations to use a variety of fixed effects: firm, fund, proposal, or firm-fund pair, each in turn. We compute heteroskedasticity-robust standard errors adjusted for clustering by fund. Table 6 presents the results of eight probit specifications.

< Insert Table 6 about here >

3.7.1 Voting on shareholder-initiated proposals to reduce executive compensation

The first specification is our baseline, and in it we regress votes (for/against) in shareholder-initiated proposals to reduce executive compensation on whether the voter is socially connected to the firm in question. We include no fixed effects in this baseline. We find that socially connected mutual funds are much less likely—21 percentage points less likely—to vote for shareholder-initiated proposals to reduce executive compensation than an unconnected investor.

This basic result continues to hold with a variety of fixed effects. In specifications (2), (3), and (4) we add to our baseline, in turn, fund (i.e., voter) fixed effects, firm fixed effects, and proposal fixed effects, respectively. Regardless of the specification, we find that socially connected mutual funds are much less likely—15 to 24 percentage points less likely—to vote for shareholder-initiated proposals to reduce executive compensation than an unconnected investor.

In specification (5), we impose a fixed effect of firm-fund pair. Thus, identification in this test comes from changes in a fund's or a firm's educational

affiliation due to a change in top level personnel (e.g., if a mutual fund changes from a "Harvard fund" to a "Yale fund" with a change in portfolio manager), and hence the effect on voting comes from the connection, not the characteristics of the firm or the fund. As with our previous tests, we find that socially connected mutual funds are much less likely to vote for shareholder-initiated proposals to reduce executive compensation than an unconnected investor.

3.7.2 Voting on other proposals

In specification (6), we examine the voting practices of socially connected mutual funds in *management*-initiated proposals to *increase* executive compensation. Here, we expect to find that that socially connected mutual funds are more likely to vote for these management-initiated proposals. We find this result, though the coefficient is statistically insignificant and the magnitude is small: socially connected mutual funds are about 2.2 percentage points more likely to vote for these management-initiated proposals when we use fund fixed effects. Further, the coefficient loses significance with other fixed effects schemes, so the result should be interpreted with caution.

Specifications (7) and (8) are placebo tests. Here, the proposals we study are auditor ratification (proposed by management) and charitable contributions (proposed by shareholders), respectively. We expect that social connectedness should not relate to voting practices in proposals like these to the extent that they are relatively inconsequential to management. This is what we find. For auditor ratification, social connectedness has no relation to how a mutual fund votes its shares. We report results from a fund fixed effects model, and results from other fixed effects schemes are very similar. For charitable contributions proposals, we report results from a fund fixed effects model; in this model there is no relation between social connectedness and voting patterns. In other fixed effects schemes, the coefficient becomes statistically significant, but is about one-quarter to one-third the economic magnitude (measured as the marginal

effect) of that for compensation proposals. From these placebo tests, we conclude that social connectedness generally does not affect voting patterns in these proposals, and, to the extent that it does, the magnitude is minute compared to compensation proposals. Of course, there is not a tremendous amount of variation in voting patterns on either of these placebo tests (95% of votes are in favor of auditor ratifications, and 86% of votes are against charitable contributions), so perhaps it is not surprising that what variation there is does not relate to social ties.

An important caveat is in order. Due to the relatively recent release of the voting data, most of our compensation data pre-date the voting data. Thus, we cannot definitively link the votes of connected mutual funds to the compensation of firms in our entire sample period. Nonetheless, the results are consistent with the *confidants hypothesis* to the extent that voting practices in 2003 and beyond are similar to those prior to the release of the data.

3.8 Other tests: RegFD results

In their paper, Cohen et al. (2008) show that the social connection premium in stock returns they find still remains large after the implementation of RegFD. In similar spirit, we ask whether the social connections premium in executive compensation remains large after the implementation of RegFD.

For this analysis, we drop our year dummies and replace them with a linear time trend and a dummy variable for post-RegFD. The RegFD dummy allows for a discrete break in the overall trend around RegFD. We then create an interaction term between our social connectedness measure and the RegFD dummy to allow for a differential impact of connectedness after RegFD. Other than these changes, our specification is analogous to the corresponding tests in Table 5 in terms of control variables and how we adjust standard errors for heteroskedasticity and clustering. Table 7 presents the results.

< Insert Table 7 about here >

We have four specifications. The first is our baseline test, adjusted from Table 5 as noted above. The second specification uses firm fixed effects. The third specification uses the narrow definition of social connections. The fourth specification includes our *smart trading correlation* variable. For each specification, we find an overall upward trend in CEO compensation of about 8.6% to 10.8% per year during our sample period. Despite the trend, RegFD corresponds with a substantial reduction of CEO compensation of about 11.6% to 16.5% depending on the specification.

Nonetheless, we find—comparable to Cohen et al. (2008)—that RegFD had no significant effect on the social connections – compensation relationship. The coefficient on the interaction term (*RegFD* × *Connected Ownership*) is insignificant in each specification. The coefficients on the direct effect (*Connected Ownership*) are about the same in this test as they are in Table 5. We conclude that RegFD does not correspond with a change in the social connections – compensation relationship.

4 Discussion and Conclusion

Cohen et al. (2008) show that mutual funds' trades in socially connected firms outperform trades in unconnected firms. We document an analogous result from the firm's side of the connection. CEOs in companies with high levels of socially connected ownership have significantly higher compensation than firms without socially connected ownership, ceteris paribus.

While this result could simply be a matter of investor familiarity, the evidence appears not to support this view. Our other measure of familiarity—geographic proximity between investor and firm—does not yield the same result as social proximity. Instead, the fact that higher executive compensation is positively related to the abnormal trading performance of socially connected funds is more consistent with a *quid pro quo* effect. Furthermore, the evidence from voting patterns of socially connected mutual

funds suggests a direct channel through which socially connected mutual funds influence compensation: socially connected funds are much more likely to vote against shareholder-initiated proposals to reduce executive compensation. Thus, although we cannot completely rule out less salacious explanations, we feel the evidence is consistent with the *confidants hypothesis.*

In closing, we note that our findings are based on the largest, most visible, most diffusely held firms in the U.S. (i.e., the Execucomp sample of firms). These are the firms where the effects of social nepotism and corruption should be smallest. Thus, to the extent that the relation between social connections and compensation is indeed consistent with the *confidants hypothesis*, we speculate that smaller, more opaque, and more closely held firms might have even stronger relation between social connections and compensation.

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Appendix 1. Sample selection

From Execucomp		
Number of unique titles in Execucomp	20,861	(1)
Number of unique firms in Execucomp	2,796	(2)
Total Records between 1992-2006	215,283	
Number of unique executive identification numbers & titles	33,073	
Number of names with titles (CEO,CFO, Chairman) after scanning titles from (1)	**12,684**	(3)
From Riskmetrics directorship file		
Number of Records between 1996-2006	165,728	
Number of Records for Execucomp firms (2)	165,996	
Number of unique names with titles	42,359	
Number of names without (CEO, CFO, Chairman) affiliation	**22,642**	(4)
Total number of names searched in Bloomberg & Zoominfo	**35,326**	(3)+(4)
Number of names with education affiliation found in Bloomberg	4,290	(5)
Number of names with education affiliation found in Zoominfo	1,747	(6)
Total number of names found in Bloomberg & Zoominfo	**6,037**	(5)+(6)

Appendix 2. Elite Schools

The list of elite schools is the intersection of the top 20 ranking lists from *US News* (2008), *Financial Times* (2006), and *Business Week* (2000). Exclusions from our list (e.g., Duke, Cornell, Virginia-Darden) tend to arise because the schools are not on the *Financial Times* list (which has more non-U.S. schools than the other two lists).

1. Berkeley
2. Chicago
3. Columbia
4. Dartmouth
5. Harvard
6. Michigan
7. MIT
8. Northwestern
9. NYU
10. Stanford
11. UCLA
12. University of Pennsylvania
13. Yale

Table 1. Descriptive Statistics on Educational Background

In Panel A of this table, we list the top 5 most connected academic institutions, ranked by the average number of connected firms or funds over the period 1992 to 2006. A firm (fund) is defined as connected to a fund (firm) if a senior officer and portfolio manager hold a degree from the same institution. Panel B shows summary statistics as of December of each year for the sample of mutual funds and their common stock holdings between 1992 and 2006. We include in the sample of funds/portfolio managers actively-managed, domestic equity mutual funds from the merged CDA/Spectrum - Morningstar data with a self-declared investment objective of aggressive growth, growth, or growth-and-income. The sample of firms includes the funds' holdings in common stocks (CRSP share codes 10 or 11).

Panel A: Top 5 most connected academic institutions: 1992-2006

CEO/CFO/ Chairman		Mutual Fund Manager	
Harvard University	691	University of Pennsylvania	291
Stanford University	345	Harvard University	285
University of Pennsylvania	331	University of Chicago	181
Columbia University	220	Columbia University	175
University of Michigan	170	NYU	165

Panel B: Time series (annual observations, 1992—2006)

	Mean	Median	St. Dev.	Min	Max
Number of funds per year	930	909	217	490	1,205
Number of mutual fund managers per year	1,167	1,216	118	899	1,297
Number of firms with educational data	1,145	1,240	280	598	1,435

Table 2. Variables used in portfolio weight determination

Panel A of this table provides summary statistics of our variables. The sample period is 1992-2006 and the units of observation are fund-firm-quarter. *Weight* is the fund's dollar investment in a stock as a percentage of total net assets of the fund. *Broad Connect* is a dummy variable that takes a value of 1 when a senior officer (CEO, CFO, or Chairman) of a firm and a mutual fund manager attended the same school. *Narrow Connect* is a dummy variable that takes a value of 1 when a senior officer (CEO, CFO, or Chairman) of the given firm and the given mutual fund manager attended the same school at the same time. *Distance within 10 miles* is a dummy variable that takes a value of 1 if the distance between firms' headquarters' location and mutual fund family's location is within 10 miles. *Elite Fund Manager* (*Elite Firm*) is a dummy variable that takes a value of 1 if fund manager (one of the firm's officers or chairman) is from one of the 13 schools reported in Appendix 2. *Index Member* is a dummy variable that takes a value of 1 if stock is included in SP500 index. *Earnings Surprise* is price-standardized earnings surprise where the surprise portion is calculated using a seasonal random walk model and price is the beginning of year price. *Illiquidity* is calculated using Amihud illiquidity measure. *Volatility* is the standard deviation of prior 12 months' returns prior to quarter beginning. *Illiquidity* and *Volatility* are standardized by sample mean and standard deviation. *End of Year* is a dummy that takes a value of 1 in the last quarter of calendar years. *Market Value* (in millions) is calculated using the prior quarter's price and outstanding shares. *Market to Book* is calculated using the ratio of Market Value and most recent book value equity value. *Momentum* is the cumulative returns of prior 12 months before the quarter beginning. Panel B reports the correlation matrix.

Panel A. Variables

	Mean	St. Dev.	Q75	Median	Q25
Weight	86.245	123.485	119.295	44.796	8.707
Broad Connect	0.035	0.183	0.000	0.000	0.000
Narrow Connect	0.017	0.130	0.000	0.000	0.000
Distance within 10 miles	0.024	0.152	0.000	0.000	0.000
Elite Fund Manager	0.180	0.384	0.000	0.000	0.000
Elite Firm	0.682	0.466	1.000	1.000	0.000
Index Member	0.408	0.491	1.000	0.000	0.000
Earnings Surprise	-0.001	0.037	0.004	0.001	-0.005
Illiquidity	-0.257	0.298	-0.238	-0.301	-0.333
Volatility	-0.224	0.611	0.012	-0.381	-0.623
Market Value	15,178	41,694	9,218	1,887	471
Market to Book	4.252	50.959	4.540	2.705	1.732
Momentum	0.077	0.510	0.338	0.116	-0.132
End of Year	0.230	0.421	0.000	0.000	0.000

Panel B. Correlation Matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1)	*Weight*	1.00													
(2)	*Broad Connect*	0.05	1.00												
(3)	*Narrow Connect*	0.03	0.61	1.00											
(4)	*Distance within 10 miles*	0.04	0.04	0.03	1.00										
(5)	*Elite Fund Manager*	0.03	0.19	0.12	0.02	1.00									
(6)	*Elite Firm*	0.09	0.14	0.09	0.04	0.05	1.00								
(7)	*Index Member*	0.24	0.12	0.08	0.05	0.03	0.21	1.00							
(8)	*Earnings Surprise*	0.01	0.00	0.00	0.00	-0.01	0.00	0.01	1.00						
(9)	*Illiquidity*	-0.07	-0.03	-0.02	-0.01	-0.01	-0.04	-0.11	-0.01	1.00					
(10)	*Volatility*	-0.14	-0.05	-0.03	-0.02	-0.02	-0.06	-0.28	-0.02	0.01	1.00				
(11)	*End of Year*	0.00	0.00	0.01	0.00	0.01	0.00	0.00	-0.01	-0.04	0.01	1.00			
(12)	*Market Value*	0.38	0.14	0.09	0.06	0.04	0.24	0.72	0.02	-0.25	-0.38	0.00	1.00		
(13)	*Market to Book*	0.02	0.01	0.01	0.00	0.01	0.01	0.03	0.00	-0.02	0.02	0.00	0.05	1.00	
(14)	*Momentum*	0.09	0.00	0.00	0.00	-0.01	0.01	0.04	0.17	-0.02	-0.13	-0.03	0.19	0.03	1.00

Table 3. Portfolio Weights in connected and non-connected firms

This table reports the results of the following pooled OLS regression: *Weight* = a + b**Connect* + c**Controls* + d**Fixed Effects* + residual, where *Connect* is either *Broad Connect* or *Narrow Connect* and *Controls* is a vector of control variables. All variables are defined in Table 2. The sample period is 1992-2006 and the units of observation are fund-stock-quarter. *Ln(Market Value), Market to Book, and Illiquidity* and *Momentum* variables are standardized. Fixed effects for Year, Industry (Fama-French 48 industry classification), Fund and fund investment objective (Aggressive Growth, Growth and Income/Growth) are included but not reported. Huber/White Robust standard of estimates are provided below the estimated values. The errors (reported in parenthesis) are clustered by fund-quarter. ***, **, and * represent significance at 1%, 5% and 10%.

	Weight	*Weight*	*Weight*
Broad Connect	3.087***		1.963***
	(0.305)		(0.385)
Narrow Connect		4.196***	2.591***
		(0.480)	(0.604)
Distance within 10 miles	6.179***	6.208***	6.167***
	(0.440)	(0.440)	(0.440)
Elite Fund Manager	-1.749***	-1.620***	-1.749***
	(0.210)	(0.209)	(0.210)
Elite Firm managers	-0.386***	-0.336**	-0.393***
	(0.114)	(0.114)	(0.114)
Index Member	-3.269***	-3.261***	-3.267***
	(0.166)	(0.166)	(0.166)
Earnings Surprise	2.806*	2.814*	2.810*
	(1.350)	(1.350)	(1.350)
Illiquidity	11.500***	11.500***	11.499***
	(0.664)	(0.664)	(0.664)
Volatility	-3.024***	-3.024***	-3.024***
	(0.115)	(0.115)	(0.115)
Ln(Market Value)	47.202***	47.223***	47.196***
	(0.132)	(0.132)	(0.132)
Market to Book	0.473***	0.471***	0.472***
	(0.107)	(0.107)	(0.107)
Momentum	3.653***	3.647***	3.654***
	(0.131)	(0.131)	(0.131)
End of Year	0.964***	0.956***	0.959***
	(0.128)	(0.128)	(0.128)
Industry Dummies	Included	Included	Included
Year Dummies	Included	Included	Included
Fund Strategy Dummies	Included	Included	Included
Fund Dummies	Included	Included	Included
Intercept	Included	Included	Included
N	2,844,614	2,844,614	2,844,614
R^2	0.47	0.47	0.47

Table 4. Connected Ownership and its Determinants

Panel A reports the sample statistics on the ownership amount (in percentages) of connected mutual fund managers using *Broad Connect* and *Narrow Connect* definitions of connectedness. This panel also reports sample statistics on the percentage ownership amount of nearby mutual funds. *Market Value* is the beginning of the fiscal year market value. Correlation Panel B summarizes the level of compensation variables used to estimate equation (2). The sample period is 1992-2006 and the units of observation are firm-year. *Total Compensation* is the total dollar value of compensation. *Salary*, *Bonus* and *Option* components of Total compensation are obtained from the Compustat Execucomp database. Other control variables (defined in Table 2), except *Momentum*, reported in Panel C are measured at December of each year. Momentum is the twelve month return corresponding to the fiscal year. Panel D reports differences in means of various firm specific variables of connected and unconnected companies. Panel E reports the determinants of connected ownership (defined using *Broad Connect* and *Narrow Connect* definitions) and local ownership using the following pooled Tobit regression: *Connected Ownership %* = f(*Elite*, *Index Member*, *Illiquidity*, *Market to Book*, *Past Volatility*, *Market Value*, *Momentum*, *Industry fixed effects*) + residual. Industry fixed effects are based on the Fama-French 48 industry classification. The standard errors (reported below estimates) are clustered by firm. ***,**, and * represent significance at 1%, 5% and 10%.

Panel A. Ownership

	Ownership				
	Broad Connect	*Narrow Connect*	Within 10 miles	Smart Trading Correlation	Market Value
Mean	0.68	0.36	0.24	0.003	6,768
Standard Dev.	1.92	1.32	1.18	0.323	22,807
Q95	3.92	2.07	1.34	0.558	25,923
Median	0.00	0.00	0.00	0.003	1,372
Q5	0.00	0.00	0.00	-0.538	154
N	18,200	18,200	18,190	6,055	17,507

Panel B. Compensation

	Total Comp.	Salary	Bonus	Option
Mean	4618.90	624.71	703.30	3289.08
Standard Dev.	19905.63	344.46	1454.01	19634.00
Q95	15437.71	1166.17	2424.90	12239.95
Median	2135.40	567.50	331.35	1048.14
Q5	403.54	220.00	0.00	4.60
N	18,121	18,200	18,200	18,121

Panel C. Other Firm Characteristics

	Illiquidity	Market to Book	Past Volatility	Momentum	Index Member	Sales Growth
Mean	0.02	3.76	0.11	0.10	0.30	14.98
Standard Dev.	0.11	51.94	0.07	0.44	0.46	28.20
Q95	0.09	8.31	0.23	0.73	1.00	52.79
Median	0.00	2.29	0.09	0.12	0.00	10.20
Q5	0.00	0.92	0.04	-0.63	0.00	-10.03
N	15,711	17,507	17,181	17,181	17,507	18,177

Panel D. Differences in means (Unconnected = 0% connected ownership, Connected ≥ 2.5% connected ownership). The p-values are computed based on standard errors clustered at the firm level.

	Overall	Unconnected	Connected	p-values for difference of means = 0
Total Compensation	4618.90	3325.03	7232.58	0.000
Salary	624.71	568.75	688.42	0.000
Bonus	703.30	561.61	1009.44	0.001
Option	3289.08	2192.88	5536.98	0.000
Market Value	6768.16	2978.02	13385.11	0.001
Illiquidity	0.02	0.03	0.01	0.000
Market to Book	3.76	2.85	3.33	0.080
Past Volatility	0.11	0.11	0.12	0.000
Momentum	0.10	0.09	-0.03	0.000
Index Member	0.30	0.18	0.47	0.000
Sales Growth	14.98	14.71	16.83	0.049
Elite	0.159	0.032	0.561	0.000

Panel E. Determinants of Ownership

	Connected Ownership (broad definition)	Connected Ownership (narrow definition)	Geographically Proximate Ownership
Elite	3.044***	2.443***	0.368***
	(0.179)	(0.217)	(0.041)
Index Member	0.451***	0.299**	0.241***
	(0.162)	(0.162)	(0.048)
Illiquidity	-2.507***	3.924***	-4.685***
	(0.616)	(0.740)	(0.165)
Market to Book	0.008	0.019	-0.052***
	(0.019)	(0.014)	(0.007)
Past Volatility	0.376***	0.354***	0.080*
	(0.102)	(0.102)	(0.033)
Ln(Market Value)	0.697***	0.79***	0.571***
	(0.087)	(0.102)	(0.018)
Momentum	-0.891***	-0.638***	-0.625***
	(0.105)	(0.104)	(0.016)
Industry Controls	Included	Included	Included
N	15,689	15,689	15,682
Pseudo R^2	0.081	0.089	0.047

Table 5. Compensation Determinants

Panel A of this table reports estimates the following pooled OLS regression equation: *Compensation* = a + b**Connected Ownership* + c**Controls* + d**Fixed Effects* + residual. *Compensation* is the natural logarithm of *Total Compensation*. *Connected Ownership* is either the broad or narrow definition of connected ownership defined in Table 2. *Controls* is a vector of control variables: *Market Value* is the beginning of the fiscal year market value. *Momentum* is the twelve month return corresponding to the fiscal year. Other control variables (defined in Table 2) are measured at December of each year. *Fixed effects* refer to a series of year, industry (Fama-French 48 industry classification) and/or firm dummies (coefficients not reported). Dependent variables are reported in column headings. The standard errors (reported in parenthesis) are clustered by firm. ***,**, and * represent significance at 1%, 5% and 10%.

	(1)	(2)	(3)	(4)	(5)	(6)
Connected Ownership (broad definition)	0.026***	0.014***			0.031***	0.022***
	(0.006)	(0.004)			(0.007)	(0.005)
Connected Ownership (narrow definition)			0.027***			
			(0.006)			
Geographically Proximate Ownership				0.007		
				(0.010)		
Smart Trading Correlation					0.097**	
					(0.040)	
Elite CEO	0.016	-0.041	0.032	0.053	0.005	0.015
	(0.040)	(0.026)	(0.039)	(0.038)	(0.047)	(0.045)
ROA	-0.002	0.001**	-0.002	-0.002	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Sales Growth	0.000	0.001***	0.000	0.000	0.000	0.001
	(0.001)	0.000	(0.001)	(0.001)	(0.001)	(0.001)
Index Member	0.045		0.047	0.048	0.037	0.022
	(0.048)		(0.048)	(0.048)	(0.062)	(0.050)
Ln(Market Value)	0.674***	0.577***	0.675***	0.678***	0.670***	0.674***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.040)	(0.025)
Illiquidity	0.03	-0.213	0.023	0.025	0.014	0.163
	(0.152)	(0.164)	(0.152)	(0.151)	(0.484)	(0.166)
Market to Book	-0.016	-0.009	-0.016	-0.017	-0.013	-0.004
	(0.012)	(0.013)	(0.012)	(0.012)	(0.012)	(0.017)
Past Volatility	0.140***	0.044***	0.143***	0.146***	0.075*	0.131***
	(0.023)	(0.017)	(0.023)	(0.023)	(0.039)	(0.026)
Momentum	-0.110***	-0.085***	-0.116***	-0.121***	-0.004	-0.135***
	(0.033)	(0.017)	(0.033)	(0.034)	(0.042)	(0.045)
Institutional Ownership	0.283***	-0.01	0.288***	0.292***	0.222**	0.341***
	(0.055)	(0.049)	(0.055)	(0.055)	(0.091)	(0.066)
G-index						0.026***
						(0.006)
Fixed Effects	Industry	Firm	Industry	Industry	Industry	Industry
Year Dummies, Intercept	Included	Included	Included	Included	Included	Included
N	15,575	15,575	15,575	15,568	6,055	14,453
R^2	0.41	0.68	0.41	0.41	0.40	0.40

Table 6. Voting and Connections

Panel A of this table summarizes the mutual fund vote database. Panel B reports estimates of the following probit model: *Vote for proposal* = f(*Connected*, *fixed effects*) + residual. *Fixed effects, "f.e.,"* are dummies for each fund, firm, proposal dummies, or fund-firm pairs (or none, as in model (1)), with the particular fixed effects for each model listed in each regression column (fixed effect coefficients not reported). The standard errors (reported in parenthesis) are clustered by fund. ***,**, and * represent significance at 1%, 5% and 10% significance.

Panel A. Descriptive Statistics on Mutual Fund Voting

	Vote in favor? 1=for, 0=against	Vote by a connected fund? 1=connected, 0=unconnected
Mean	0.365	0.024
Std. Dev	0.481	0.153
N	12,874	12,874

Panel B. Votes and Connections

	(1) Vote for *shareholder's* compensation proposal?	(2) Vote for *shareholder's* compensation proposal?	(3) Vote for *shareholder's* compensation proposal?	(4) Vote for *shareholder's* compensation proposal?	(5) Vote for *shareholder's* compensation proposal?	(6) Vote for *management's* compensation proposal?	(7) Vote for an *auditor ratification* proposal?	(8) Vote for a *charitable contributions* proposal?
Connected (broad)	-0.654***	-0.446***	-0.469***	-0.476**	-0.450***	0.090	-0.134	-0.037
	(0.150)	(0.148)	(0.191)	(0.246)	(0.179)	(0.090)	(0.161)	(0.259)
Fund f.e.	No	Yes	No	No	No	Yes	Yes	Yes
Firm f.e.	No	No	Yes	No	No	No	No	No
Proposal f.e.	No	No	No	Yes	No	No	No	No
Firm-Fund Pair f.e.	No	No	No	No	Yes	No	No	No
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.004	0.139	0.131	0.224	0.136	0.103	0.427	0.358
Number of obs.	12,874	12,874	11,655	9,526	11,610	35,509	49,666	3,377
Marginal Effect	-0.207	-0.145	-0.158	-0.173	-0.155	0.022	-0.008	-0.006

Table 7. Impact of Reg FD on Compensation/Connectedness relationship

This table reports estimates the following pooled OLS regression equation: *Compensation* = a + b_1**Connected Ownership* + b_2**(RegFD* x *Connected Ownership)* + c**Controls* + d**Fixed Effects* + residual. *Compensation* is the natural logarithm of *Total Compensation*. *Connected Ownership* is either the broad or narrow definition of connected ownership defined in Table 2. *RegFD* is dummy that takes a value of 1 if observation belongs to post RegFD (year 2000) era. *Controls* is a vector of control variables: *Market Value* is the beginning of the fiscal year market value. *Momentum* is the twelve month return corresponding to the fiscal year. Other control variables include variables defined Table 2, the RegFD dummy and a linear time trend. *Fixed effects* refers to either industry (Fama-French 48 industry classification) or firm dummies (coefficients not reported), but not year dummies. The standard errors (reported in parenthesis) are clustered by firm. ***, **, and * represent significance at 1%, 5% and 10%.

	(1)	(2)	(3)	(4)
Connected Ownership (broad def.)	0.025***	0.012*		0.030***
	(0.007)	(0.006)		(0.009)
Connected Ownership (narrow def.)			0.027**	
			(0.009)	
RegFD × Connect (broad)	0.002	0.006		0.001
	(0.008)	(0.007)		(0.010)
RegFD × Connect (narrow)			0.000	
			(0.010)	
Smart Trading Correlation				0.099*
				(0.039)
Elite CEO	0.021	-0.030	0.034	0.003
	(0.039)	(0.031)	(0.040)	(0.045)
ROA	-0.002	0.001	-0.002	-0.004**
	(0.001)	(0.001)	(0.001)	(0.001)
Sales Growth	0.000	0.002	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Index Member	0.050		0.047	0.041
	(0.047)		(0.048)	(0.062)
Ln(Market Value)	0.668***	0.558***	0.673***	0.663***
	(0.023)	(0.031)	(0.024)	(0.039)
Liquidity	-0.177	-0.641***	-0.156	-0.511
	(0.128)	(0.125)	(0.152)	(0.355)
Market to Book	-0.016	-0.009	-0.016	-0.014
	(0.012)	(0.010)	(0.012)	(0.012)
Past Volatility	0.138***	0.041*	0.147***	0.072
	(0.023)	(0.018)	(0.026)	(0.040)
Momentum	-0.105***	-0.080***	-0.127***	0.010
	(0.031)	(0.023)	(0.028)	(0.040)
Time Trend	0.086***	0.108***	0.089***	0.106***
	(0.004)	(0.004)	(0.004)	(0.007)
Reg FD Dummy	-0.121***	-0.116***	-0.120***	-0.165***
	(0.027)	(0.026)	(0.027)	(0.046)
Institutional Ownership	0.277***	-0.018	0.245***	0.214*
	(0.054)	(0.054)	(0.058)	(0.090)
Fixed effects & Intercept	Industry	Firm	Industry	Industry
N	15,575	15,575	12,636	6,055
R^2	0.41	0.68	0.41	0.40