Business Connections and Informed Trading of Mutual Fund Managers

Yue Tang[1]

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Abstract

This paper explores the hypothesis that investors gain information advantages through business connections made during prior employment. Mutual fund managers who previously worked as sell-side analysts put significantly more weight on the stocks they previously covered, and holdings of those stocks outperform their other holdings by 18% annually. These abnormal returns are concentrated around earnings announcements. However, the superior performance of covered stocks decreases significantly after the implementation of Regulation-FD or after executive changes at the covered companies. The results indicate that fund managers may have access to inside information through the business connections they made while working as analysts.

[1] Department of Finance, Insurance, and Real Estate, Warrington College of Business Administration, University of Florida, Gainesville FL 32611. Tel: (352) 273-4447 and e-mail: yue.tang@warrington.ufl.edu. I thank Narasimhan Jegadeesh, Clifton Green, Jay Shanken, Tarun Chordia, Jin (Ginger) Wu, Byoung-Hyoun Hwang, Seoyoung Kim, Jay Ritter, and the seminar participants at Emory, Drexel, University of Florida, LBS, Baruch College, DFA, Rutgers, WFA meetings 2010, CICF meetings 2010 for very helpful comments.

I. Introduction

A recent article in the *Wall Street Journal* asserts that "information flows these days are increasingly about networks." [2] The observation about network communication raises an important question: Do investors gain information advantage through their network connections? One network that can potentially serve as an information conduit is the connections formed through business interactions. Ubiquitous business connections seem to be a natural channel for the flow of business-related information. Thus, this paper examines whether investors collect important information through their business connections that affects their investment decisions and performance.

Business connections are the most frequently used relationships in financial markets. Money managers advertise that their business networks help their investments by "allowing them to gain rapid and high-level access to senior management in companies."[3] Despite the awareness of the significance of business relationships in financial markets, researchers have not examined whether business connections can form a direct channel for some investors to obtain information advantages—primarily because business connections are difficult to quantify. To overcome the challenges in studying these relationships, this paper focuses on business connections formed during previous employment. Specifically, I look at mutual fund managers who have previously worked as financial analysts. The paper tests whether their prior work connections—formed

[2] "Outsider Trading and Too Much Information." *Wall Street Journal*, October 26, 2009.
[3] AIG investments website, 2009.

while working as analysts—provide them with an information advantage on the stocks they covered as analysts.

The fact that sell-side analysts build connections with the management teams of those companies for which they provide research coverage is hardly a secret—it is documented both in research and the media. Easy access to management may help build these connections. Companies traditionally provide analysts with easy access not only to gain publicity, but also to attract analyst attention and coverage (Healy, Hutton and Palepu (1999)). Analyst coverage has been shown to increase firm value (Chung and Jo (1996)) while lack of analyst coverage may lead to lack of liquidity[4] and increased volatility in stock price (Schutte and Unlu (2007)). A 2008 *Institutional Investor Magazine* survey [5] reveals that institutional investors view management access as one of the most important analyst attributes[6]. Furthermore, through such frequent communications as company visits or conference calls, analysts may build closer relationships with companies' management teams over time. Lim (2001) offers evidence that analysts provide optimistic forecasts in order to build favorable relationships with management. In return, these relationships grant analysts better access to a firm's information[7].

The connections made as analysts may provide fund managers with an information advantage for their covered stocks in numerous ways. These connections could lower fund managers' cost or increase the speed of gathering information—it might take either fewer phone calls to reach

[4] "The Art of the Analyst Conference Call and Earnings Forecasts — To Guide or Not to Guide", 2007 National Directors Institute.
[5] http://www.iimagazinerankings.com/rankingsEqtyTeamAmerica08/whatInvestorsWant.asp
[6] Buy side fund managers often do not have easy access to management. They usually ask analysts to arrange meetings with the management of the companies they want to evaluate for investment.
[7] See also Chen and Matsumoto (2006).

the management or people might be more forthcoming when discussing the company. Frequent interaction with the management may also help fund managers better assess management quality (Previts, Bricker, Robinson and Young (1994))[8]. Finally, connections may also help fund managers obtain information that is not usually available to the public[9].

To test whether business relationships made during previous employment as analysts provide fund managers with information advantages on their once-covered stocks, I examine fund managers' portfolio choices on their covered stocks. I compare both the holdings and returns of these covered stocks with those of the stocks not covered by fund managers when they were previously employed. I predict that, if managers have information advantages in the stocks they have previously covered, one should observe that those managers place larger bets on the previously covered stocks and earn higher abnormal returns on them. Through the use of a hand-collected list of mutual fund managers in the United States who have previously been employed as sell-side financial analysts, the results of this study strongly confirm this prediction. Fund managers place more than double weights on the stocks they once covered than they do on the average stocks in their portfolios. The calendar portfolio, which mimics the aggregate holdings of the funds on covered stocks, significantly outperforms the portfolio on non-covered stocks. The strategy of buying covered holdings and selling non-covered holdings earns a risk-adjusted

[8] This point is well illustrated by a quote from a fund manager: "there's nothing I like more than to invest in companies where I've known the management for a long time. You get comfortable with their ability to deliver and can believe what they say." *Financial Express*, August 17, 2009.

[9] The recent insider trading case of Galleon group serves as an example. Mr. Rajaratnam, founder of the fund, built an extensive network around the companies that he covered originally while working as an analyst covering semiconductor industry. He was later accused of obtaining inside information through such connections. See more at "The man who wired silicon valley." *Wall Street Journal*, December 29, 2009.

return of 18% annually. I also find that the covered stocks that fund managers chose not to hold underperform the covered stocks they chose to hold by 17% annually. This finding confirms that fund managers do have an information advantage on their covered stocks and that rather than hold some because of familiarity, fund managers actively select stocks from those they previously covered.

I also examine the persistence of abnormal returns on the covered stocks. If the abnormal returns are due to fund managers' superior information, the returns should diminish over time as such information gradually disseminates through the market and is incorporated into prices. Consistent with this, the abnormal returns decrease monotonically over time and disappear four months after portfolio formation. Fund managers also typically hold covered stocks for a shorter time than non-covered stocks, consistent with the concept of information-driven buying. The abnormal return persists three months after the portfolio formation, suggesting a potential profitable replicating strategy if an uninformed investor can get timely access (within three months) to the reported holdings of the funds.

Furthermore, I look at the returns of covered holdings around corporate earnings announcements. If the higher returns are due to fund managers' superior information that they have obtained through their business connections, the returns would be mostly concentrated around events such as earnings announcements when the information is eventually released to the public and incorporated into prices. Consistent with this, the evidence indicates that fund managers' covered holdings realize a disproportionally larger amount of positive returns around earnings announcements. Most of the difference in returns between covered holdings and non-

covered holdings is concentrated around earnings announcements. In addition, fund managers' trades of covered stocks predict subsequent earnings surprises, while their trades on non-covered stocks do not. This indicates that fund managers possess information beyond what is publicly available on covered stocks; this information potentially helps them better predict the firms' earnings.

While business connections may be the most easily recognizable source of fund managers' information advantages, there are other possible interpretations of the results. The superior performance of investments in covered stocks might be due to fund managers' knowledge or skills gained as analysts. Providing research coverage may endow analysts with valuable knowledge about the companies, including their fundamentals, operations, and profitability (Lev and Thiagarajan (1993)). In addition, analysts, through experience, may develop skill in better interpreting the firm's public information (Maines, McDaniel and Harris (1997)), for example, being able to identify significant details in a report that might otherwise be ignored by those without the analyst's experience.

To rule out the explanations based on knowledge or skill, I perform three tests. First, I explore a regulation change that occurred during the sample period: Regulation FD; this prohibits firms from selectively disclosing corporate information to a subset of market participants as opposed to the general public. Such selective disclosure [10] represents exactly the type of privileged information that fund managers might have obtained through their previous work connections. The results reveal that fund managers' performance on covered stocks decreases significantly

[10] Effects of selective disclosure on analysts have been discussed in Bowen, Davis and Matsumoto (2002) and Gintschel and Markov (2004).

after Regulation FD—a finding consistent with the idea that fund managers' information is mostly connection-based. Second, I examine the fund managers' performance on the industries they covered previously as analysts. Working as analysts might help fund managers gain extensive knowledge and skills in analyzing their specialized industries[11] (Clement (1999); Jacob, Lys and Neale (1999)). While knowledge and skills may more easily be generalized to industries, relationships are more company-specific and, therefore, not easily replicable to other companies in the industry. I find that fund managers' holdings in their covered industries do not outperform, nor do their stock picks within their covered industries. This result indicates that connections—rather than knowledge or skills—play a major role in helping fund managers obtain information advantages. Third, I explore a natural experiment when company executives leave a firm. If fund managers obtain information advantage through their relationships with company management, executive change will break up the fund manager's information channel. The results reveal that fund managers put less weight on their covered stocks after executive changes, and no longer earn any abnormal returns. This provides further evidence to support the importance of relationships.

Given these findings, it is natural for one to ask when the information advantage from business connections is strongest. This paper explores two factors to answer this question: first, the length of time since a manager left her previous analyst job, and second, the number of analysts covering the stock. Fund managers should lose their information advantages as their connections naturally loosen over time. Consistent with this, I find that fund managers earn

[11] An *Institutional Investor Magazine* survey in 2009 shows that industry knowledge is the most important factor institutional investors consider when evaluating analysts.

higher abnormal returns on stocks they hold shortly after providing coverage, and no abnormal returns on stocks they hold long after they left their analyst positions. Fund managers' information advantage could also be affected by the number of analysts covering the stock, as a stronger or more personal relationship can be built when fewer analysts provided coverage on the company. With less competition while building relationships, for example, an analyst might have more chances to ask questions, more time to interact with the management, and greater access to other opportunities. The evidence supports this hypothesis—the holdings of covered stocks with lower analyst coverage earn 20% more returns than those stocks with higher analyst coverage.

My paper contributes to the literature in several dimensions. First, it adds to the growing literature studying how investors acquire information beyond traditional paid information gathering, such as equity research and investment advising, by identifying another important channel—business connections built from prior employment. Coval and Moskowitz (2001) find that fund managers are more informed about geographically proximate companies. Hong, Kubik and Stein (2005) show that fund managers obtain information through word-of-mouth communication with neighboring managers. Cohen, Frazzini and Malloy (2008) reveal that fund managers have information advantage on companies with whose board members they went to the same schools.

This paper shares the basic theme with Cohen, Frazzini and Malloy (2008) that networks help mutual fund managers obtain information. However, there are key distinctions. First, Cohen et al. focus on the shared education networks where they infer possible connections when fund managers attended the same school with directors. This paper focuses on connections built from

prior work interaction. Such connections may be a more natural channel to convey business related information. And in our case since analysts cover only a handful of companies and they interact with company executives, the connections can be more directly identified. This lends us more power to detect a strong information advantage from connections. Second, Cohen et al. study the shared education networks in a social network setting. Social connections work on different mechanism than business connections and may also differ in intensity. Borrowing from sociology research, social ties are informal and relies on homophily (an affinity for similar others) to facilitate interactions (Marsden (1987); McPherson, Smith-Lovin and Cook (2001)), while business connections are direct, stronger and allow agents to pursue repeated, enduring exchange relations (Rauch (2001)[12]). Therefore the potential information advantage investors get from business connections can be significant. Last, we identify business connections from fund managers' previous employment. Prior work connections are likely to have significant influence on a person current job, since people usually move between jobs that are highly related. For example, there have been concerns with "revolving door", when personnel move between roles as regulator and the industry being regulated. Therefore, while the effect of social networks is illuminating to study, how people utilize prior work connections is interesting in its own right. This paper studies the influence of prior work connections on investors. It helps us to better understand how information travels through the network to facilitate price efficiency, while at the same time helps us to ensure equal access to information and a level playing field.

[12] Rauch (2001) shows two definitions of economic networks used in the sociological literature. The first, based on Podolny and Page (1998), defines an economic network as a group of agents that pursue repeated, enduring exchange relations with one another. The second, weaker definition is based on the work of Granovetter (1973), (1983): a set of actors who know each others' relevant characteristics or can learn them through referral.

This paper also contributes to the research that examines the role of business connections in the financial markets. Business connections have been shown to influence the preferential hiring of fund directors (Kuhnen (2008)), the winning of lead investment banking mandates (Ljungqvist, Marston and Wilhelm (2009)), pricing and distributing corporate securities (Cornelli and Goldreich (2001)), obtaining better venture capital deals (Hochberg, Ljungqvist and Lu (2007)), and spinning hot IPOs (Liu and Ritter (2010)). This paper adds to it by showing that business connections can be a direct channel for investors to obtain information.

This paper links to the debate on whether mutual fund managers have stock-picking abilities (Jensen (1968); Carhart (1997); Daniel, Grinblatt, Titman and Wermers (1997); Chen, Jegadeesh and Wermers (2000)) and whether managers' characteristics matter (Chevalier and Ellison (1999)). Rather than using their entire portfolios to evaluate performances, this paper emphasizes managers' information advantages on some stocks and the channels through which they acquire such information.

It also relates to papers in analyst literature that evaluate the investment value of analyst research in a broader setting (Elton, Gruber and Grossman (1986); Stickel (1995); Womack (1996); Barber, Lehavy, McNichols and Trueman (2001); Jegadeesh, Kim, Krische and Lee (2004)). Recently, however, the possible biases in analysts' forecasts and recommendations have been called into question (Dugar and Nathan (1995); Irvine (2004)). By identifying those analysts who trade on the information themselves later on as fund managers, this paper avoids the contamination of biases in analysts' reports and presents a more focused and powerful test for such investment values.

The paper is organized as follows: Section 2 describes the data and the process of collecting the fund managers. Section 3 shows the tests and discusses the results, and Section 4 offers conclusions.

II. Data

This study uses data from several sources. The CRSP survivor-bias-free mutual fund database, which started collecting fund manager names in 1993, provided mutual fund manager names. The database lists fund manager names and the start and end dates of managers, and it notes whether the fund is team managed. It also contains the basic fund information such as fund names, management companies, fund advisors, self-declared investment objectives, and total assets under management. I supplemented CRSP fund manager data with the Morningstar mutual fund monthly discs. Besides offering similar fund information to CRSP, Morningstar provides a short biography of managers, including managers' start dates, previous positions held, and the employers of those positions. Managers' employment information is helpful in identifying their previous work history as analysts.

Identifying those managers who were formerly employed as analysts involves several steps. First, I obtained brokerage firm analyst information from the Institutional Brokers' Estimate System (I/B/E/S). I/B/E/S provides analysts' earnings forecasts and recommendations. The data includes the analyst's identity code, the brokerage house to which the analyst belongs, the security identity, and the research report date. I use the I/B/E/S Broker Translation File to translate analyst codes into last names and initials of first names. To get analysts' full names, I

hand collect data from the corresponding annual edition of *Nelson's Directory of Investment Research,* which contains analysts' full names, brokerage firms, and contact information. The last name and the initial of the first name are the main matching links. When the match is not unique, the analysts' employing brokerage firms and employment period[13] are also used to help find a unique match. Second, mutual fund manager names are matched with analyst names to generate a potential list of managers with analyst backgrounds. Third, to ensure that the name-matched manager and analyst are the same person, the manager's employment history from Morningstar's manager biography is used to discern whether she indeed worked at the same brokerage firm as the name-matched analyst. If managers' employment histories are not available from Morningstar, resumes from Zoominfo[14] and Google search are used as well. Other sources, including contacting the companies to verify the identity and employment history of the managers, are used to ensure data accuracy.

Mutual fund holdings data from the Thomson Financial CDA/Spectrum Mutual Funds database is used to study the trading decisions of mutual fund managers. This data contains portfolio holdings of all registered mutual funds from their filings with the Securities and Exchange Commission (SEC) at quarterly or semiannual frequency. To link the fund managers from CRSP to their holdings, the funds in the CRSP database are compared to CDA Funds—primarily by their names. Investment objectives, management company names, and total net

[13] Both the employing brokerage firm and employment time can be inferred from the I/B/E/S detail file.
[14] www.zoominfo.com is a search engine specializing in collecting and indexing biographical and employment data from publicly available documents through the Web.

assets are also used to help make comparisons between the databases.[15] This study focuses specifically on managers of actively managed U.S. equity funds[16] excluding index funds. A conservative method of selecting samples has been employed in this study. Team managed funds are excluded from the sample because the trading of such funds may not reflect the decision of a single manager.

Table 1 shows the summary statistics of the sample. The above procedure identifies 152 mutual fund managers who previously worked as financial analysts. These individuals managed 199 mutual funds[17] between 1993 and 2006. The fund net asset values range from $4 million to $16 billion, with an average value of $883 million. In terms of total assets under management, they represent, on average, 5.88% of the actively managed equity fund universe over the sample period. Fund holdings are reasonably diversified, with an average of 94 stocks held at one time.

In addition, Table 1 illustrates the characteristics of managers' holdings related to their previous analyst jobs. Managers covered an average of 25 stocks in their analyst careers.[18] On average, fund managers hold 2.77 covered stocks at one time and 4.47 of them over their tenures. They hold their covered stocks for about six months, two-months shorter than non-covered stocks.[19] This is more consistent with information-driven buying, as opposed to the valuation-driven long term buy-and-hold. A different characteristic, the number of analysts who followed

[15] For detailed procedure, see Wermers (2000).
[16] With the investment objectives of aggressive growth, growth, or growth and income.
[17] Funds with different share classes are counted as one.
[18] Only stocks that managers had once covered as a single analyst—not as a team member—are considered because how much they had been involved and had contributed to the research as a team member is unclear and difficult to discern.
[19] Because managers report holdings only quarterly, the calculated holding time is in 3 month increments. The minimum holding time is calculated to be 3 months.

the fund managers' covered stocks, ranges widely. The fund manager could have been the only analyst providing coverage, or one out of sixty-one analysts. Another interesting variable is the length of time between a manager's last coverage of a stock and when she begins managing the fund. These periods range from four months to nearly twenty years, with an average length of about four years.

III. Results

1. Holdings of Covered Stocks

This subsection reviews the portfolio choices of mutual fund managers. Fund managers may put more weights on certain stocks for many reasons. They may prefer stocks in accordance with their funds' investment styles, or follow such trading strategies as value or momentum investing. Fund managers might also place large concentrated bets on certain stocks because of their comparative advantage in collecting information about those stocks. In order to test if fund managers acquire information advantages in certain stocks through their business connections, the weights they choose to put on the stocks they covered previously as analysts are compared to those on the stocks they did not cover.

Table 2 reports the pooled OLS regressions[20] of stock portfolio weights on the coverage dummy variable and control variables. The dependent variable is the dollar weight (in percentage) of a given stock in its fund portfolio. The coverage dummy (Covered) is equal to 1 if the fund manager has provided analyst coverage on the stock before, and 0 otherwise. Stock size (ME),

[20] As portfolio weights are limited by 0 and 100 bound, the regression has censored dependent variable. OLS may not be appropriate in this case. When the Tobit regression with lower and upper bounds is run, the results are similar.

book-to-market (BM), and past 12-month return (R12) are included as control variables, as they have implications for cross-sectional stock returns and represent stock characteristics that may be preferred by some managers. These control variables are in percentiles for easier comparison of the coefficients. Following Cohen, Frazzini and Malloy (2008), I also include %Style, the percentage of the fund's total net assets invested in the style corresponding to the stock in question, where style is defined in Daniel, Grinblatt, Titman and Wermers (1997) (hereafter DGTW) as one of the 125 portfolios formed by sorting CRSP stocks into size, book-to-market, and past 12-month return quintiles. The regression is conducted on quarterly holdings of all stocks by all managers. As ME, BM, and R12 control for the stock characteristic preferences across managers, %Style will capture such preferences within a manager. Standard errors are adjusted for clustering at the fund-stock level.

The results listed in Table 2 indicate that fund managers place larger bets on stocks they covered previously as analysts. As seen from the univariate regression result in column 1, they put an additional 101 basis-point weight on stocks they covered before—more than double the weight of 89 basis points they put on other stocks. The multivariate regression (in column 2) indicates that fund managers place larger weights on large size stocks, low book-to-market stocks and past winners among the stocks in their portfolios. Yet these effects are dwarfed by the coverage effect. For example, the weight of the stocks in a higher size percentile is only 1.5 basis points more. Since this is a pooled regression with the stock-fund-quarter as the unit of observation, I also consider possible fixed effects. For example, some stocks might become attractive at certain times for reasons that may or may not correlate with other characteristics;

therefore the regression includes quarter fixed effects. Weights on a stock may also be due to reasons related to the firm, its industry, the fund, or the fund's investment objective. So in other specifications I also include fixed effects for industry, firm, fund, and fund investment objective code. In all specifications, the results consistently reveal that fund managers place larger than normal bets on stocks that they have covered when employed as analysts.

2. Returns on Covered Stocks

2.1. Covered Stock Holdings

The larger bets that fund managers place on their covered stocks may not necessarily mean that such bets are profitable. Fund managers could have information about these stocks, or they could merely be over-confident—believing that they know more about these stocks because they have followed these firms closely as analysts. To test whether fund managers' business connections provide them with information advantages on their covered stocks, this subsection examines the performance of their covered stock holdings versus their non-covered stock holdings.

I construct calendar time portfolios based on fund managers' holdings in covered stocks and non-covered stocks. At the beginning of each calendar quarter, stocks in each mutual fund portfolio are assigned to one of the two portfolios: covered and non-covered, based on whether the fund manager has provided research coverage for the stock as analysts. For each portfolio, value-weighted monthly returns are computed, weighting stocks by their actual dollar weights in the fund. The portfolios are rebalanced each quarter based on the most recent SEC filings. This

calculation assumes that a fund does not change its holdings until the next report.[21] Then the value-weighted returns of the portfolios across funds are calculated, weighting each individual fund portfolio by the fund's net asset value. This results in the calendar-time returns of two portfolios: covered stocks and non-covered stocks. The portfolios represent the investing strategy on covered and non-covered stocks based on the actual weights mutual fund managers chose.

Table 3 lists the excess returns of the two portfolios (over Treasury bill returns). Covered holdings earn an annualized excess return of 28.45%, compared to 8.54% for non-covered holdings. A strategy of buying covered holdings and shorting non-covered holdings earns 19.91% per year—statistically significant with a t-statistic of 2.89. The higher returns from covered holdings do not seem to be solely explained by increased risk, as their Sharpe ratio equals 0.97, compared to 0.44 for non-covered holdings.

Next, the risk-adjusted returns of the two calendar-time portfolios are reviewed. Characteristic-adjusted returns and factor regression alphas are calculated as the abnormal returns. Following DGTW, the characteristic-adjusted return is calculated by subtracting from the raw return the return on a value-weighted portfolio of CRSP stocks in the same size, book-to-market, and 12-month past return quintile. Factor regression alpha is the intercept of the regression of monthly excess returns on the Fama and French (1993) three factors and the Carhart (1997) momentum factor.

[21] This follows the common practice in the mutual fund literature using quarterly holdings data; see, for example, Grinblatt and Titman (1989), Daniel, Grinblatt, Titman and Wermers (1997) and Chen, Jegadeesh and Wermers (2000). Recent papers show such omissions of intra-quarter trades may obscure some abnormal performance of the manager (Elton, Gruber, Krasny and Ozelge (2006); Puckett and Yan (2008)). However, this omission would only bias this paper against finding any results.

Panel A of table 4 details the results. Although both covered holdings and non-covered holdings earn significant raw returns, the risk-adjusted returns reveal the differences. Non-covered holdings earn a small DGTW-adjusted return of 0.19%—not significantly different from 0. In contrast, covered holdings earn a DGTW-adjusted return of 18.29%—both statistically (t=3.2) and economically significant. Factor regression alphas indicate similar results. The alpha of covered holdings is 18.27% (t =2.46), compared to that of non-covered holdings, -1.36% and not significant. Given that funds hold covered stocks for an average of 6 months, the average holding period return of covered stocks is about 9%. The long-short portfolio of buying covered holdings and shorting non-covered holdings earns more than an 18% DGTW risk-adjusted return per year, and has a factor alpha of 19.88% per year—both are significant at the 1% level. As a robustness test to check whether the returns are driven solely by large funds, I also compute the equal weighed returns of the calendar portfolio. Panel B shows that covered holdings outperform non-covered holdings by 10.46% in DGTW adjusted return, and 12.48% in factor alpha. The results are consistent with the hypothesis that fund managers have information advantages on the stocks they covered when previously employed as analysts, and the fund managers earn abnormal returns by holding them.

It should be noted that, although covered holdings earn large abnormal returns, they represent only a small portion of the funds' total assets (2.3% on average). This implies that the return of the overall holdings attributable to covered holdings is small. Subsection 6 of this paper investigates why, despite their high returns, fund managers do not increase their holdings of covered stocks.

2.2. Covered Held vs. Covered Non-held

In addition to examining the returns on the fund managers' holdings of covered stocks, I also look at the returns on those stocks that fund managers covered when employed as an analyst but chose not to hold as a manager. Because mutual funds are often restricted from short selling, fund managers' portfolio allocations may not reflect their full information advantage. The stocks that managers hold do not reveal to outside observers what, if any, information managers may possess about those covered stocks they have chosen not to hold. Moreover, comparing the returns of the covered stocks they hold with the returns of the covered stocks they do not hold aids me in ruling out familiarity-based explanations. [22] If fund managers hold covered stocks simply because they are familiar with them, but not because they have information, one would observe that the covered stocks they hold and those they do not hold perform comparably. If, on the other hand, they possess better or more information about their covered stocks, the stocks they choose should outperform those they do not choose.

The value-weighted (market capitalization) return of covered stocks that managers choose not to hold is computed using the same portfolio approach. Table 5 indicates that the previously covered stocks not held by fund managers earn an insignificant DGTW-adjusted return of 0.64% per year, compared to those previously covered stocks that managers choose to hold, which earn a statistically significant DGTW-adjusted return of 18.29%. If managers held all the stocks they covered previously, the abnormal return would have been reduced to 2.73% and becomes statistically insignificant. The risk-adjusted return of a long-short portfolio buying the covered

[22] See Grinblatt and Keloharju (2001) for a discussion on familiarity based portfolio choice.

held stocks and shorting the covered non-held stocks is 17.02% per year (t=2.93). The results for factor regression alphas are largely similar. The results are consistent with the hypothesis that fund managers have an information advantage on their covered stocks. Managers engage in actively selecting from them, rather than holding some because of simple familiarity.

If fund managers have information advantage on their covered stocks and they choose to hold some because of positive views on them, one might expect they also have negative views on some stocks they choose not to hold. Yet this is not supported by the results. Covered stocks not held by fund managers do not underperform the market. The results indicate fund managers obtain mostly positive information about the covered firms through their business connections[23]. Nevertheless, I should acknowledge the possibility that because the number of covered stocks not held is large and we do not observe specific stocks that fund managers may want to bet against, the test may lack power to detect the negative information that fund managers might have on some covered stocks.

2.3. The Persistence of Covered Holdings' Performance

This subsection explores how long the information advantages and the better performances of fund managers in those covered stocks are able to persist. In particular, the previous portfolio strategy is repeated, using various lags between the reported fund holdings and the returns. That is, the portfolios are constructed using the reported fund holdings; however, I wait one to four

[23] This is consistent with the finding by {Kothari, 2009 #2963} that management, on average, is less willing to release bad news.

months before starting to measure their returns. This may also represent the replicating portfolio returns that an investor can earn if she does not have timely access to the SEC holdings data.[24]

The DGTW-adjusted returns in Table 6 indicate that covered holdings continue to outperform non-covered holdings three months after the portfolio formation. The long-short portfolios earn a risk-adjusted return of 15.6% (t=2.89) with a one month lag between reported holdings and risk-adjusted returns, a return of 10.63% (t=1.96) with two month lags, and a return of 8.88% (t=1.68) with a 3 month lag. If uninformed investors can obtain SEC holdings data used in constructing the portfolio within three months after the filing, they could likely implement a profitable trading strategy.

Table 6 also indicates a clear trend that the abnormal returns managers earn on their covered stocks decrease with time and eventually disappear. This serves as further evidence that the abnormal returns on covered stocks are due to managers' information advantages (vs. some spurious reasons), and these abnormal returns diminish as the information disseminates through the market. This is also consistent with managers' trading behavior in that they hold covered stocks for shorter periods of time. Managers buy covered stocks based on their special information about those firms. After the information disseminates and no more abnormal return can be realized, managers move out of these stocks quickly.

[24] The SEC requires funds to file their holdings within 60 days after the end of each fiscal period, although the average time that funds actually take is typically much less.

3. Returns around Earnings Announcements and Earnings Surprise Prediction

In this subsection, I first examine the returns of covered holdings around corporate earnings announcements. If the abnormal returns of covered holdings are due to fund managers' superior information that they have obtained through their business connections, the returns would be mostly concentrated around events such as earnings announcements when the information is eventually released to the public and incorporated into prices. To test this, I separate monthly stock returns into two parts: first, the compounded returns of a three trading-day window (-1, 0, 1) around earnings announcements, and, second, the returns of the remaining days in the month. Earnings announcement returns and returns of other periods for covered holdings, non-covered holdings, and the long-short portfolio are then computed using the same calendar portfolio approach as in the previous subsection.

Panel A of Table 7 shows the annualized returns. Covered holdings earn a statistically significant return of 20.18% during the three-day earnings announcement periods, but only 12.26% (not significant) in the other periods. For non-covered holdings, the average earnings announcement return is 4.99%[25], while the average other-period return is 7.71%. Given that the earnings announcement windows only represent about 14% of the total trading days in a month, both the covered and the non-covered holdings have their returns concentrated disproportionally around earnings announcement. However, this disproportionality is greater for the covered holdings. The average earnings announcement returns for covered holdings represent 62% of

[25] Baker, Litov, Wachter and Wurgler (2007) report that the average earnings announcement period return of mutual fund holdings is 3.48%.

their corresponding total monthly returns[26], compared to 39% for the non-covered holdings. The long-short portfolio of buying the covered holdings and shorting the non-covered holdings earns an annualized return of 14.54% (t=3.58) during earnings announcement periods, compared to 4.25% (t=0.61) on other days. This means 77% of the difference in returns between covered holdings and non-covered holdings is concentrated around earnings announcements. The result is consistent with the hypothesis that managers have superior information about covered firms and the information helps managers predict the firms' earnings better than members of the general public. When such information is released to the public at earnings announcements, the covered holdings earn managers concentrated returns.

Next, I examine whether managers' trades can predict the earnings surprises of their covered firms. Earnings surprise is defined herein as the deviation of actual earnings from analysts' consensus forecasts.[27] Analysts' consensus forecasts represent the expectation of a firm's earnings using all publically available information. If fund managers have more information about the firm, their trades should be able to predict earnings surprises. Using managers' trades instead of their holdings might increase the power to detect their information advantage. Because trading incurs transition costs and the possible realizations of capital gains, it represents a better

[26] The concentration of returns around earnings announcement is much higher than what can be explained by earnings announcement premium---the fact that stocks on average earn positive returns around earnings announcements. The premium was first documented in Beaver (1968) and has since been studied by Ball and Kothari (1991), Cohen, Dey, Lys and Sunder (2007) and Frazzini and Lamont (2007), among others.

[27] Consensus is measured in the month before actual earnings announcements and the difference is scaled by the actual earnings to make earnings surprise comparable across firms. I also winsorize it to be within -100% and 100% so as to alleviate the effect when dividing by actual earnings near 0.

signal of fund managers' information to outside observers than continuing to hold, which might be due to inertia or other difficult to observe factors.[28]

To calculate earnings surprises, I use the consensus forecasts and actual forecasts from I/B/E/S summary file. Stocks that managers bought or sold in a quarter are inferred from comparing the consecutive snapshots of their quarterly holdings. The earnings surprises in the subsequent quarter for stocks that managers bought or sold are averaged using the same calendar-time portfolio approach, both for covered holdings and non-covered holdings. Panel B presents the results. One can observe that for non-covered holdings, both buys and sells predict positive earnings surprises around 2.8%. This is consistent with previous research findings that analysts provide beatable earnings forecasts before the announcements.[29] To adjust for the positive earnings surprise caused by such analysts' forecast biases, I examine the earnings surprise difference between the stocks that managers bought and the stocks they sold. Such differencing cancels out biased positive surprise. In this case, managers' buys-minus-sells do not predict earnings surprise for non-covered stocks (-0.15% and insignificant). On the contrary, their buys-minus-sells predict a positive earnings surprise of 4.86% subsequently for covered holdings. This is due to the large earnings surprise of 6.41% predicted by buys and non-significant surprise of 1.55% predicted by sells. Consistently, the buys-minus-sells predict a surprise of 5% for the long-short portfolio. Overall, the results indicate that managers possess

[28] This methodology was first explored in Chen, Jegadeesh and Wermers (2000).
[29] For example, see Skinner and Sloan (2002), Richardson, Teoh and Wysocki (2004) and Cotter, Tuna and Wysocki (2006).

information beyond what is publically available on covered stocks, and this information potentially helps them better predict the firms' earnings.

4. Alternative Explanations for Fund Managers' Information Advantage

While business connections may be the most naturally considered source of fund managers' information advantage on their covered stocks, there are several other possible interpretations of the results. For example, fund managers that worked as analysts before may possess special ability in analyzing stocks for investment. This interpretation is easy to rule out because if fund managers have such ability, the ability should help them invest in other stocks as well. Yet we do not observe any superior performance from their holdings except for the stocks they covered before. Another alternative story is that the superior performance of investments in covered stocks might be due to the fact that fund managers, while working as analysts, accumulate knowledge about the covered firms or develop better skill in interpreting the firm's public information, such as better understanding of the firm's financial reports. To differentiate business connections from the explanations based on knowledge or skill, I perform three tests.

4.1. Regulation FD

First, a regulation change during the sample period, Regulation FD, which the SEC enacted in October of 2000, is explored. The regulation prohibits the selective disclosure of corporate information by firms to a subset of market participants instead of the general public. This type of disclosure gives a few selected people an information advantage. In this paper, the fund managers are exactly the people who could benefit from selective disclosure through their prior

work-related connections. If the connection-based information advantage exists, one would expect such an advantage to decrease after Regulation FD.

Table 8 reports the calendar portfolio returns before and after Regulation FD. First, focusing on the DGTW risk-adjusted returns, one observes that the return for covered holdings decreased from 24.7% to 10.96% after the implementation of Regulation FD. The difference is 13.74% and statistically significant with a t-statistic of 2.00. As a control, the returns for non-covered holdings are not significantly different from 0 during either the pre- or post-regulation implementation periods. The long-short portfolio return also fell from 23.7% to 12.18%, with a difference of 11.52% (t=1.82). The 4-factor alphas of the returns depict similar results: relationships made during their previous employment as analysts are an important mechanism that fund managers use to obtain their information advantage on covered stocks. Such an advantage decreased when selective disclosure was banned with the implementation of Regulation FD.

4.2. Covered industries

Next, I test whether fund managers have information advantage over their covered industries. Prior employment as analysts might provide managers with extensive knowledge and analyzing skills of their specialized industries, in addition to their expertise on covered stocks (Clement (1999); Jacob, Lys and Neale (1999)). While knowledge and skills might more easily be generalized to industries, connections are more company-specific and therefore not easily replicable to other companies in the industry. If fund managers' information advantage on their

covered stocks comes from their superior knowledge or skills, they would also be more likely to have information advantage on the industries they specialized in.

Table 9 replicates the previous portfolio weights and return tests, replacing the comparisons between covered and non-covered stocks with comparisons between covered and non-covered industries. This study uses the 2-digit Global Industry Classification Standard code (GICS) to identify industries.[30] Panel A shows the pooled regression of stock portfolio weights on an additional covered-industry dummy. The covered-industry dummy equals 1 if the stock belongs to the industry that managers have covered previously. The results show that managers put more weights on stocks in their covered industries, with 35 basis points more weight than the 78 basis points for non-covered industries. If the stock was covered previously by them, the weight increases an additional 77 basis points. The results are similar and significant after adding in controls and possible fixed effects.

Panel B details the returns of calendar-time portfolios on covered industries, non-covered industries, and the differences between them. Covered stocks are excluded in the covered industry calculation. The first three columns indicate that fund managers' holdings in their covered industries do not produce higher returns than their holdings in non-covered industries. This is the case for both raw returns and risk-adjusted returns. For example, the long-short portfolio of buying covered industries and selling non-covered industries only earns a DGTW-adjusted return of -0.75%, which is not significant. Occasionally, fund managers may have to hold stocks in their covered industries not because they expect them to perform better, but for

[30] I also conduct tests using 4-digit and 6-digit GICS, which are finer classification of the industries, and Fama French 48 industry classification. The results are similar.

such reasons as their investment goals, or the characteristics of their funds, or to diversify their funds. In such case, we cannot detect the fund manager's information advantage in these covered industries by comparing the returns of these covered industries with returns of other industries. To address this issue, this study tests the managers' abilities to pick stocks within their covered industry. In other words, if a fund manager possesses superior information about an industry she covered as an analyst, her selection of stocks from within that industry should still outperform other stocks in the industry[31]. I calculate stock returns adjusted for mean return of the industry to measure managers' selections of stocks within industries and report the industry-adjusted returns in the last column. The results show that stocks picked from fund managers' covered industries do not outperform other stocks in the same industry.

Reviewing these findings, neither the managers' performance in their covered industry nor their stock picks within the covered industry reveal evidence that fund managers possess information advantages in their covered industries. Their information advantages for covered stocks most likely come from their connections with the management rather than their knowledge. Another interesting finding is that managers do prefer stocks from their covered industries, possibly because of familiarity, although such preferences do not seem to earn superior returns.

[31] Boni and Womack (2006) show that analyst recommendation changes lead to more profitable trading strategies within industries than across industries, suggesting that analysts are able to distinguish performance within industry, but are not good predictors of sector/industry performance.

4.3. Corporate Executive Changes

As an additional way to discern whether fund managers' information advantages depend on their connections with company management, this subsection explores how changes in corporate executives affect such advantages. If fund managers obtain information advantage through their connections with company management, changes in company executives will cause a breakup of the managers' information channel. This creates a natural experiment through which to examine the effects of business connections on fund managers' information advantage.

Company executive data are obtained from Compustat Executive Compensation database. The database provides executive names filed in company proxy statements each year, from which the executive's employment start and end dates can be obtained. I consider only the instance when an executive left the company, rather than the time she left the position, because as long as she remains in the company, a feed of information may continue. Executives should also have been in their positions when fund managers followed the firms as an analyst, thus ensuring that fund managers had opportunities to build relationships with the executives. For companies with multiple executive changes during a fund managers' tenure, the first executive change is considered.

To determine the effect of company executive changes on fund managers' information advantages, I compare both the portfolio weights and the abnormal returns of covered stocks before and after executive changes. The average portfolio weight is computed for each stock both before and after company executive changes. To reflect fund managers' choice to not hold the stocks, the weight is set to zero if the stock is not held before or after executive change. I then

average the weights across stocks for covered and non-covered stocks, computing t-statistics assuming weight independence across stocks. To calculate returns I form calendar time portfolios by assigning stocks into one of the four portfolios based on whether the fund manager covered the stock before and whether there is an executive change. The portfolios are rebalanced every calendar quarter, and the value-weighted risk-adjusted returns are calculated.

Panel A of Table 10 presents portfolio weights before and after executive changes. After company executive changes, fund managers decrease the average weight they put on covered stocks from 1.3% to 0.6%. This decrease in weights is 0.7% and significantly different from 0. The significant decrease of covered stock weights indicates that fund managers receive less information about the companies after the loss of their connection. In contrast to the weight change in covered stocks, the average weight of non-covered stocks does not decrease, but rather, increases a little after executive change—0.08%. Because executive changes may lead to other changes in the company, such as policy shifts, the weight change in non-covered stocks serves as a necessary control. For non-covered stocks, the weight increase after executive change may reflect fund managers' optimism about the company when entrenched or less competent executives are replaced with new ones.

Panel B reports the risk-adjusted calendar time portfolio returns of stocks before and after executive changes. The results confirm that fund managers lose their information advantages on their covered stocks after company executive changes. For example, fund managers earn 21.6% DGTW characteristic-adjusted return on their covered stocks before executive change, yet no significant abnormal return after executive changes. As a control, fund managers' performance

on non-covered stocks slightly improves after executive changes, from 0% to 2.38%, although neither is significantly different from zero. The long-short portfolio of buying covered holdings and selling non-covered holdings earns 21.6% before executive changes and no abnormal return after executive changes.

Overall, the test results in this subsection indicate that fund managers obtain information advantage through their business connections rather than superior knowledge or skills[32].

5. Determinants of the Information Advantages

This subsection explores potential factors that might influence fund managers' information advantage obtained from their business connections. To determine when the managers' comparative advantages are stronger—and, therefore, more valuable to them, I examine two variables: the lapse of time and the number of analysts providing coverage of the stocks. The lapse of time is defined as the length of time between when a fund manager last covered the stock as an analyst and when that person begins to manage the fund. Intuitively, fund managers should lose their information advantages as their connections naturally loosen over time. Therefore, one may surmise that the longer the period of time since a manager stopped covering the stock as an analyst, the less information advantages she possesses. As her information advantage decreases, she should earn lower abnormal returns from her covered stocks.

[32] It is beyond this paper's scope to investigate the incentives of company executives who shared information with fund managers. However anecdotal evidence suggests several possibilities: Executives may curry favor with big institutional funds in exchange for price support when bad earnings hit; they may provide information in exchange for proprietary information about other companies or even kickbacks.

The second factor that may affect a fund manager's information advantage is the number of analysts who provided coverage of the manager's previously covered stocks. If a fund manager's information advantage comes from his or her connections with the management, this advantage could depend on how close those relationships were. A closer relationship would predictably be relatively easier to build when the manager was the only one—or one of a few— analysts covering the firm. In other words, the analyst faces less competition while forming the connections. For example, the analyst could get more chances to ask questions or more time to interact with the management. On the other hand, for firms covered by many analysts concurrently, a more personal relationship with the management may be harder to build.

To test these effects, I replicate the calendar portfolio tests with the added determinants of the information advantage. In the case of covered holdings versus non-covered holdings, the covered stock portfolio is divided equally into two portfolios based on the lapse of time or the number of analysts providing coverage. Then I construct the long-short portfolio for each group[33]. The examination of the covered stocks held versus covered stocks not held, and also of the earnings announcement returns for covered versus non-covered stocks employ this same methodology.

Panel A of table 11 reports the DGTW-adjusted returns of the long-short portfolios. For the group with a shorter lapse of time, covered holdings outperform non-covered holdings by 25.45% which is not only statistically significant, but it is also higher than the 18.07% for the whole sample from Table 4. In contrast, the long-short portfolio return is only 2.71% (not

[33] For the analyst coverage test, the non-covered portfolio is also divided into two based on the number of analysts providing coverage. This serves a necessary control, because stocks with less analyst coverage may be more subjected to limits of arbitrage and be more likely to be mispriced, giving fund managers more opportunities to earn higher returns on them.

significant) for the longer lapse-of-time group. The return difference of the long short portfolios between shorter and longer lapse of time is 22.20%, 2.58 standard errors from 0. Similarly, for the shorter lapse-of-time group, the held covered stocks outperform the non-held covered stocks by 21.20%; this greatly contrasts to 1.80% for the longer lapse-of-time group. Likewise, the long-short portfolio returns around earnings announcements show a difference of 5.95% between shorter and longer lapse-of-time portfolios, although the difference is not significant. In general, fund managers have less information advantage and earn lower abnormal returns from their covered stocks the longer the length of time that has passed since they stopped covering the stocks as analysts**.** The results from portfolios sorted by analyst coverage also support this study's hypothesis. For the lower analyst coverage group, the long-short portfolio strategy of buying covered holdings and shorting non-covered holdings earns a DGTW-adjusted return of 24.84%, which is statistically significant[34] and remarkable when compared to the statistically insignificant 3.99% return for the higher analyst coverage group. The return difference between the two analyst coverage groups is 20.13%, and it also is significant. Returns from covered stocks held versus covered stocks not held and earnings announcements show similar results. These findings are consistent with the idea that fund managers gain more of an information advantage on firms with less analyst coverage, a situation which allows the analyst to build relationships with the management team more easily.

Figure 1 presents a more detailed view of how managers' information advantages decrease over the period of time after they have left their analyst positions. The covered stocks are

[34] Although the analyst coverage can also proxy for size, the size effect in return is controlled by DGTW adjustments.

assigned to quintiles based on the lapse of time since managers last covered them. The average lapse of time is plotted on the x-axis, and the DGTW returns of the long-short portfolios of covered versus non-covered stocks are plotted on the y-axis. This figure clearly shows how the managers' information advantages decrease with time, as the long-short portfolio return decreases from 20% at 7 months after the coverage, to 5% at 143 months after the coverage.

One may wonder how the regulation-FD effect interacts with the lapse of time effect. Compared to pre-Regulation-FD period, fund managers may have been away from their analyst job longer in the post-Regulation-FD period. Therefore they may lose their information advantage not because of the regulation, but the loosening of their connections over time. We can make a similar argument about executive changes. The longer it has been since the fund managers stop coverage of the company, the more likely there will be some executive changes at the company. To disentangle these effects, I run a multivariate regression of holding period returns on all the influencing factors and their interaction terms with the coverage dummy.

$$\begin{aligned} Return = {} & \alpha + \beta_1 Covered + \beta_2 Covered \cdot FD + \beta_3 FD + \beta_4 Covered \cdot Analyst + \beta_5 Analyst \\ & + \beta_6 Covered \cdot TimeLap + \beta_7 Covered \cdot CEO + \beta_8 CEO \end{aligned} \tag{1}$$

Specifically, the dependent variable is the average monthly DGTW return of a stock in a fund's holding. Independent variables include a post-Regulation-FD dummy (FD), executive change dummy (CEO), number of analyst coverage (Analyst) and their interactions with the coverage dummy. Independent variables also include coverage dummy and its interaction with lapse of time (TimeLap). Since most of the independent variables are dummy variables and for

easy comparison of the coefficients, I use binary variables to represent high and low levels of analyst covering and lapse of time as well.

Panel B of table 11 presents the regression results. The first specification includes coverage dummy and its interactions with other factors as independent variables. The second specification also includes the other factors with the interaction terms. Including other factors controls for their effects on the returns without coverage effects, so that we can isolate their incremental effects on coverage. Both specifications show similar results that the determinant factors are still significant after controlling for others. Take the first specification for example. The baseline covered holdings generate 4.8% (t=5.18) more risk adjusted return per month than non-covered holdings. The return was 1.6% (t=-2.53) lower after regulation-FD. Similarly, more analyst covered stocks generate 1.7% (t=-2.08) less return. Stocks with longer lapse of time have 1.0% less return, albeit significant at 10% level. The return is also reduced by 3.1% (t=-4.96) after executive changes. Overall, all these factors are independently significant.

6. Optimal Weight of Covered Stocks

Given that covered stocks generate higher returns than non-covered stocks, one might ask: why do fund managers not hold even more of the stocks they once covered as analysts? Several possible reasons may contribute to this. First, mutual funds are investment companies regulated by the Investment Company Act of 1940. They must not have more than 5 percent of its assets invested in the securities of any one issuer and they must not hold more than 10 percent of the voting securities of any one corporation. Second, if fund managers indeed trade on inside

information, they may want to fly under the radar and avoid drawing attention. Third, although non-covered stocks earn lower returns, managers' expected returns on them may be as high as those of covered stocks. Although investigating all these reasons is beyond this paper's scope, it is interesting to entertain another possible important reason: If fund managers had known the covered stocks would perform better, were not subject to the above constraints, and they are also concerned about risk besides alpha, would the chosen weights in covered stocks be optimal? To answer this question, I conduct three tests using Sharpe ratio and information ratio as the criteria for portfolio optimization. Information ratio is considered because a single mutual fund may not truly represent the final portfolios held by investors.

Table 12 presents the results. Panel A lists the average Sharpe ratios and information ratios of individual funds' covered holdings and overall holdings. Although both ratios are higher for the covered holdings than for the overall holdings, the differences between them are very small and not statistically significant, which is unlike the statistics computed on aggregate fund holding portfolios. For example, the Sharpe ratio for the covered holdings is 0.56, higher than 0.53 for the overall holdings, with a t-statistic of only 0.34 on the difference[35]. This suggests that because of the need for diversification it may not be optimal for an individual fund to invest more in covered stocks. Panel B describes the findings of the test to identify funds that had the potential to benefit from investing more in covered stocks. This test runs a time-series regression of a fund's returns in covered holdings on its returns in total holdings. A significant alpha from the regression means that, to improve its Sharpe ratio, the fund could choose a combination of its

[35] The Sharpe ratio differences between a fund's covered holdings and its overall holdings may not be independent across funds. This means the estimate of the t-statistic may be biased upwards.

covered holdings with all its holdings. The result shows that I am able to reject the null that the alpha is equal to 0 for only 5% of the funds, indicating that only a small percentage of funds would have improved their Sharpe ratio by holding more covered stocks. The result in Panel B may be subject to the power of the test. So I resort to simulations for further testing. Finally, Panel C reports the simulation results that assume managers shift their allocation of funds from non-covered stocks into covered stocks (holding total asset constant) by increasing the dollar weights in covered stocks by 2, 5, 10, 20 or 30 times, respectively. The improvements in both the Sharpe ratio and information ratio are small and not significant. For example, the change in Sharpe ratio ranges from 0.02 to 0.04, and none of them are significant. Overall, the results show that only a small number of managers would have been better off by investing more in covered stocks. Because, for each manager, the number of covered stocks is so small, putting more weight on the covered stocks means taking more idiosyncratic risks; this may not improve either their Sharpe ratios or information ratios.

IV. Conclusions

This study identifies an important source from which some informed investors obtain their information advantage: business connections garnered from their prior employment. In particular, the findings indicate that mutual fund managers, specifically, place more weight and earn substantial abnormal returns on stocks for which they had provided research coverage when previously employed as financial analysts. Additional tests show that fund managers' holding of their covered is driven by their information advantage, rather than simple familiarity. The

majority of the abnormal returns on covered stocks are realized around earnings announcements, and funds' trades predict subsequent earnings surprises—thus indicating that fund managers possess superior information about the covered firms and the information helps them better predict firm future earnings. Further tests indicate that the connections made through a fund manager's previous employment as an analyst---rather than skills or knowledge---play a major role in their information advantage.

By focusing on mutual fund managers who were previously employed as financial analysts, the results of this paper's research illustrate that an investor's connections formed during prior employment can significantly impact his or her information set. Other interesting possibilities to explore related to this research include looking at other types of employment histories of fund managers to see what effect, if any, the connections built might have on those managers' investing decisions. This paper also links sell-side information generation with buy-side decisions. By comparing managers' research performance as analysts with their trading decisions as fund managers, future research could study the effects of skills versus biases in analyst research. In addition to fund managers, financial analysts move on to different positions in the financial industry. It is also worth studying the potential impact their experience as analysts has on their future decisions.

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Table 1: Summary Statistics

This table reports the summary statistics of the sample mutual fund managers who once worked as financial analysts. Mutual fund and their manager information are from the CRSP mutual fund database and Morningstar. Fund holdings are from CDA/Spectrum. Analyst names and their research coverage information are from Nelson's Directory of Investment Research and I/B/E/S. The sample period of mutual fund managers is from 1993 to 2006. Panel A shows the number of managers and the number of funds they manage. Panel B shows the summary of the funds, their holdings, the managers and their work as analysts. "% of active equity fund universe" is the time series statistics of the sample funds' total assets as a percentage of the active equity fund universe. Statistics for the remaining variables are cross sectional average.

Panel A: Fund Manager Sample

Fund Managers	Funds
152	199

Panel B: Characteristics of Funds, Managers and Stocks.

	Average	Std	Min	Median	Max
% of active equity fund universe (assets)	5.88	1.84	2.65	5.57	13.71
Fund assets (million)	883	2,257	4	209	15,967
Number of stocks in funds	94	79	10	69	453
Number of stocks analysts covered	25	24	1	18	116
Number of covered stock held at one time	2.77	2.55	1	2	12
Number of total covered stock held	4.47	3.77	1	3	17
Holding time of non-covered stocks (month)	8.25	4.93	3	3	120
Holding time of covered stocks (month)	6.34	4.70	3	3	33
Number of analyst covering the stock held	19	13	1	16	61
Time between last coverage and start to manage a fund (month)	51	49	4	40	213

Table 2: Portfolio Weights: Covered vs. Non-covered Stocks

This table examines fund managers' portfolio weights in covered and non-covered stocks using pooled OLS regression. Mutual funds' quarterly portfolio weights in stocks are regressed on the covered-stock dummy (Covered) and the control variables. The units of observation are fund-stock-quarter. The dependent variable is the dollar weight (in percentage) of a given stock in its fund portfolio. The Covered dummy is equal to 1 if the fund manager has provided analyst coverage on the stock before, and 0 otherwise. The control variables included are: ME, BM, and R12, which are percentiles of market value of equity, book to market, and past 12-month return; %Style, the percentage of the fund's total net assets invested in the style corresponding to the stock in question, where style is defined in Daniel, Grinblatt, Titman and Wermers (1997) as one of the 125 portfolios formed by sorting CRSP stocks into size, book-to-market, and past 12-month return quintiles. Quarter, firm, industry (Fama French 48), IOC (funds' investment objective code) and fund fixed effects are included where indicated. Standard errors are adjusted for clustering at the fund-stock level and are reported in parenthesis below the coefficient estimates. 5% statistical significance is indicated in bold.

	1	2	3	4	5	6	7	8
Constant	**0.888**	**-0.340**	**-0.317**	**-0.122**	**2.106**	**1.631**	**1.788**	**1.354**
	(0.009)	(0.049)	(0.048)	(0.046)	(0.241)	(0.157)	(0.162)	(0.177)
Covered	**1.010**	**0.988**	**0.967**	**0.781**	**0.721**	**0.769**	**0.703**	**0.414**
	(0.115)	(0.113)	(0.110)	(0.118)	(0.116)	(0.116)	(0.113)	(0.093)
ME		**0.015**	**0.014**	**0.012**	**0.005**	**0.013**	**0.018**	**0.015**
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
BM		**-0.002**	**-0.002**	**-0.002**	**-0.001**	**-0.001**	**-0.001**	**-0.001**
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R12		**0.001**	**0.001**	-0.000	**0.001**	-0.000	-0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
%Style			**0.020**	**0.020**	**0.019**	**0.020**	**0.020**	**0.019**
			(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Fixed effects				Quarter	Quarter	Quarter	Quarter	Quarter
Fixed effects					Firm	Industry	IOC	Fund
Adjusted R^2	0.005	0.041	0.185	0.261	0.332	0.266	0.299	0.434

Table 3: Returns on Covered Holdings

This table shows calendar time portfolio returns of covered holdings and non-covered holdings. At the beginning of each calendar quarter, stocks in each mutual fund portfolio are assigned to one of the two portfolios: covered and non-covered, based on whether the fund manager has provided research coverage for the stock as analysts. Value-weighted monthly returns are computed, weighting stocks by their actual dollar weights in the fund. The portfolios are rebalanced each quarter based on the most recent SEC filings. This calculation assumes that a fund does not change its holdings until the next report. Then the value-weighted returns of the portfolios across funds are calculated, weighting each individual fund portfolio by the fund's net asset value. Excess returns are computed as portfolio raw returns minus Treasury bill returns. Returns are in annual percentage. Long/Short is a zero-cost portfolio which holds the portfolio of covered stocks and sells short the portfolio of non-covered stocks. T-statistics are shown below the coefficient estimates; 5% statistical significance is indicated in bold.

Annual value-weighted excess returns	All Holdings	Covered Holdings	Non-covered Holdings	Long/Short
Mean	8.63	**28.45**	8.54	**19.91**
t	(1.65)	(3.62)	(1.64)	(2.89)
Std	19.52	29.43	19.55	25.78
Skewness	-0.63	0.05	-0.63	0.00
Kurtosis	1.37	1.16	1.37	1.11
Sharpe ratio	0.44	0.97	0.44	0.77

Table 4: Abnormal Returns on Covered Holdings

This table shows risk-adjusted calendar time portfolio returns of covered holdings and non-covered holdings. At the beginning of each calendar quarter, stocks in each mutual fund portfolio are assigned to one of the two portfolios: covered and non-covered, based on whether the fund manager has provided research coverage for the stock as analysts. In Panel A, value-weighted monthly returns are computed, weighting stocks by their actual dollar weights in the fund. The portfolios are rebalanced each quarter based on the most recent SEC filings. This calculation assumes that a fund does not change its holdings until the next report. Then the value-weighted returns of the portfolios across funds are calculated, weighting each individual fund portfolio by the fund's net asset value. DGTW characteristic-adjusted returns are defined as raw returns minus the return on a value-weighted portfolio of CRSP stocks in the same size, book-to-market, and 12-month past return quintile. 4-factor regression alpha is the intercept on the regression of monthly excess returns on the Fama and French (1993) three factors and the Carhart (1997) momentum factor. Returns and alphas are in annual percentage. Long/Short is a zero-cost portfolio which holds the portfolio of covered stocks and sells short the portfolio of non-covered stocks. T-statistics are shown below the coefficient estimates; 5% statistical significance is indicated in bold. Panel B presents the equal weighted returns of the calendar time portfolios.

Panel A: Value weighted			
	Raw	DGTW	4-factor
All holdings	**13.20**	0.45	-1.28
	(2.82)	(0.34)	(-0.85)
Covered	**34.68**	**18.29**	**18.27**
	(4.62)	(3.20)	(2.46)
Non-covered	**13.05**	0.19	-1.36
	(2.79)	(0.14)	(-0.90)
Long/Short	**19.35**	**18.07**	**19.88**
	(3.08)	(3.18)	(2.74)
Panel B: Equal weighted			
All holdings	**13.94**	0.82	0.71
	(3.28)	(0.56)	(0.43)
Covered	**27.15**	**11.09**	**13.11**
	(5.05)	(3.53)	(3.38)
Non-covered	**13.77**	0.58	0.57
	(3.25)	(0.39)	(0.34)
Long/Short	**11.90**	**10.46**	**12.48**
	(3.50)	(3.43)	(3.43)

Table 5: Returns: Covered Stocks Held vs. Covered Stocks Not held

This table shows calendar time portfolio returns of covered stocks being held and covered stocks not being held by funds. At the beginning of each calendar quarter, stocks that each mutual fund manager has covered previously are assigned to one of the two portfolios: Held and Not-held, based on whether the fund manager hold the covered stock in their fund portfolio. Value-weighted monthly returns are computed, weighting stocks held by their actual dollar weights in the fund and stocks not held by their market value. The portfolios are rebalanced each quarter based on the most recent SEC filings. This calculation assumes that a fund does not change its holdings until the next report. Then the value-weighted returns of the portfolios across funds are calculated, weighting each individual fund portfolio by the fund's net asset value. Panel A lists the average number of covered stocks per manager, the equally weighted (EW), and the value weighted (VW) percentage of covered stocks held by the manager. Panel B reports average returns, DGTW-adjusted returns and 4-factor regression alphas. DGTW characteristic-adjusted returns are defined as raw returns minus the return on a value-weighted portfolio of CRSP stocks in the same size, book-to-market, and 12-month past return quintile. 4-factor regression alpha is the intercept on the regression of monthly excess returns on the Fama and French (1993) three factors and the Carhart (1997) momentum factor. Returns and alphas are in annual percentage. Long/Short is a zero-cost portfolio which holds the portfolio of covered stocks held by the funds and sells short the portfolio of covered stocks not held by the funds. T-statistics are shown below the coefficient estimates; 5% statistical significance is indicated in bold.

Panel A: Covered Stock Universe

Number of Covered Stocks	% Held (EW)	% Held (VW)
25.05	9.83	22.20

Panel B: Returns

	Raw	DGTW	4-factor
All covered	**16.40**	2.73	2.86
	(4.10)	(1.55)	(1.32)
Covered held	**34.68**	**18.29**	**18.27**
	(4.62)	(3.20)	(2.46)
Covered not-held	**14.61**	0.64	1.44
	(3.62)	(0.41)	(0.68)
L/S	**17.89**	**17.02**	**16.61**
	(2.86)	(2.93)	(2.34)

Table 6: Reporting Lags and Risk Adjusted Returns

This table reports how long the risk-adjusted return of covered holdings can persist by introducing various lags between the reported fund holdings and the measured returns. At the beginning of each calendar quarter, stocks in each mutual fund portfolio are assigned to one of the two portfolios: covered and non-covered, based on whether the fund manager has provided research coverage for the stock as analysts. Value-weighted monthly returns are computed, weighting stocks by their actual dollar weights in the fund. The portfolios are rebalanced each quarter based on the most recent SEC filings. This calculation assumes that a fund does not change its holdings until the next report. Then the value-weighted returns of the portfolios across funds are calculated, weighting each individual fund portfolio by the fund's net asset value. DGTW characteristic-adjusted returns are defined as raw returns minus the return on a value-weighted portfolio of CRSP stocks in the same size, book-to-market, and 12-month past return quintile. The table reports a long-short portfolio which holds the portfolio of covered stocks and sells short the portfolio of non-covered stocks. Reported returns are expressed as annual percentage rates. T-statistics are shown below the coefficient estimates; 5% statistical significance is indicated in bold.

	Lags between reported holdings and risk-adjusted returns			
	1 month	2 month	3 month	4 month
Covered - Non-covered	**15.60**	**10.63**	8.88	5.76
	(2.89)	(1.96)	(1.68)	(1.12)

Table 7: Returns around Earnings Announcements and Earnings Surprise Prediction

Panel A shows calendar time portfolio returns around earnings announcements. At the beginning of each calendar quarter, stocks in each mutual fund portfolio are assigned to one of the two portfolios: covered and non-covered, based on whether the fund manager has provided research coverage for the stock as analysts. Monthly stock returns are separated into two parts: first, the compounded returns of a three trading-day window (-1, 0, 1) around earnings announcements, and, second, the returns of the remaining days in the month. Value-weighted returns are then computed for each portfolio, weighting stocks by their actual dollar weights in the fund. The portfolios are rebalanced each quarter based on the most recent SEC filings. This calculation assumes that a fund does not change its holdings until the next report. Then the value-weighted returns of the portfolios across funds are calculated, weighting each individual fund portfolio by the fund's net asset value. The first row reports the proportion of trading days in the earnings announcement window to the total trading days in a month (assuming 252 trading days per year). Long/Short is a zero-cost portfolio which holds the portfolio of covered stocks and sells short the portfolio of non-covered stocks. Returns are in annual percent. T-statistics are shown below the estimates; 5% statistical significance is indicated in bold. Panel B shows the subsequent earnings surprise following fund managers' trades. The earnings surprise is the difference between the actual and consensus forecast of earnings per share (EPS), scaled by the actual EPS. Consensus and actual EPSs come from the I/B/E/S summary file. The subsequent earnings surprises within the quarter are averaged equal-weighted across managers' buys, sells, and buys-minus-sells, on covered holdings, non-covered holdings, and the long-short portfolio buying covered stocks and shorting non-covered stocks. Earnings surprises are in percentage.

Panel A: Returns around Earnings Announcements

	Others	Earnings Announcements
% of trading days in a month	86%	14%
Covered	12.26	**20.18**
	(1.60)	(4.97)
Non-covered	7.71	**4.99**
	(1.62)	(4.94)
Long/Short	4.25	**14.54**
	(0.61)	(3.58)

Panel B: Earnings Surprise

	Buys	Sells	Buys - Sells
All holdings	**2.78**	**2.94**	-0.16
	(7.34)	(4.30)	(-0.23)
Covered	**6.41**	1.55	**4.86**
	(4.93)	(1.17)	(2.64)
Non covered	**2.74**	**2.89**	-0.15
	(7.28)	(4.16)	(-0.20)
Long/Short	**3.67**	-1.33	**5.00**
	(2.81)	(-0.91)	(2.58)

Table 8: Returns on Covered Holdings: Regulation FD

This table shows risk-adjusted calendar time portfolio returns before and after the Regulation FD (before 2001 and from 2001 onwards). The last column shows the t test statistic on the equality of DGTW returns before and after Regulation FD. At the beginning of each calendar quarter, stocks in each mutual fund portfolio are assigned to one of the two portfolios: covered and non-covered, based on whether the fund manager has provided research coverage for the stock as analysts. Value-weighted monthly returns are computed, weighting stocks by their actual dollar weights in the fund. The portfolios are rebalanced each quarter based on the most recent SEC filings. This calculation assumes that a fund does not change its holdings until the next report. Then the value-weighted returns of the portfolios across funds are calculated, weighting each individual fund portfolio by the fund's net asset value. DGTW characteristic-adjusted returns are defined as raw returns minus the return on a value-weighted portfolio of CRSP stocks in the same size, book-to-market, and 12-month past return quintile. 4-factor regression alpha is the intercept on the regression of monthly excess returns on the Fama and French (1993) three factors and the Carhart (1997) momentum factor. Returns and alphas are in annual percentage. Long/Short is a zero-cost portfolio which holds the portfolio of covered stocks and sells short the portfolio of non-covered stocks. T-statistics are shown below the coefficient estimates; 5% statistical significance is indicated in bold.

	Before Regulation FD			After Regulation FD			Before - After
	Raw	DGTW	4-factor	Raw	DGTW	4-factor	DGTW
All holdings	**16.58**	0.91	0.89	4.62	-0.89	-2.38	1.80
	(3.90)	(0.72)	(0.45)	(0.56)	(-0.40)	(-0.93)	(0.77)
Covered	**43.90**	**24.70**	**21.13**	**19.34**	10.96	12.63	**13.74**
	(4.27)	(2.97)	(2.16)	(1.97)	(1.72)	(1.70)	(2.00)
Non covered	**16.47**	0.77	0.79	4.56	-1.10	-2.44	1.87
	(3.87)	(0.61)	(0.40)	(0.56)	(-0.50)	(-0.94)	(0.84)
Long/Short	**22.67**	**23.70**	**20.20**	**14.19**	12.18	**15.41**	11.52
	(2.56)	(2.89)	(2.12)	(1.97)	(1.90)	(2.19)	(1.82)

Table 9: Portfolio Weights and Returns in Covered vs. Non-covered Industries

Panel A examines fund managers' portfolio weights in covered and non-covered industries using pooled OLS regression. Mutual funds' quarterly portfolio weights in stocks are regressed on the covered-stock dummy, covered industry dummy and the control variables. The units of observation are fund-stock-quarter. The dependent variable is the dollar weight (in percentage) of a given stock in its fund portfolio. Covered stock/Covered industry dummy is equal to 1 when the fund manager used to cover the stock or the industry as an analyst, and 0 otherwise. The control variables included are: ME, BM, and R12, which are percentiles of market value of equity, book to market, and past 12-month return; %Style, the percentage of the fund's total net assets invested in the style corresponding to the stock in question, where style is defined in Daniel, Grinblatt, Titman and Wermers (1997) as one of the 125 portfolios formed by sorting CRSP stocks into size, book-to-market, and past 12-month return quintiles. Quarter, firm, industry (Fama French 48), IOC (funds' investment objective code) and fund fixed effects are included where indicated. Standard errors are adjusted for clustering at the fund-stock level and are reported in parenthesis below the coefficient estimates. Panel B shows calendar time portfolio returns on covered industries and non-covered industries. The first three columns list the results using normal stock returns. The last column list the results using stock returns adjusted for industry average, which emphasize managers' abilities to pick stocks within certain industries. At the beginning of each calendar quarter, stocks in each mutual fund portfolio are assigned to one of the two portfolios: covered and non-covered, based on whether the fund manager has provided research coverage for the industry as analysts. Value-weighted monthly returns are computed, weighting stocks by their actual dollar weights in the fund. The portfolios are rebalanced each quarter based on the most recent SEC filings. This calculation assumes that a fund does not change its holdings until the next report. Then the value-weighted returns of the portfolios across funds are calculated, weighting each individual fund portfolio by the fund's net asset value. DGTW characteristic-adjusted returns are defined as raw returns minus the return on a value-weighted portfolio of CRSP stocks in the same size, book-to-market, and 12-month past return quintile. 4-factor regression alpha is the intercept on the regression of monthly excess returns on the Fama and French (1993) three factors and the Carhart (1997) momentum factor. Returns and alphas are in annual percentage. Long/Short is a zero-cost portfolio which holds the portfolio of covered stocks and sells short the portfolio of non-covered stocks. T-statistics are shown below the coefficient estimates; 5% statistical significance is indicated in bold.

Panel A: Portfolio weights in covered vs. non-covered industries

	1	2	3	4	5	6	7	8
Constant	**0.779**	**-0.569**	**-0.544**	**-0.283**	**2.014**	**1.478**	**1.728**	**1.331**
	(0.011)	(0.047)	(0.046)	(0.047)	(0.245)	(0.165)	(0.164)	(0.176)
Covered stock	**0.766**	**0.723**	**0.704**	**0.639**	**0.559**	**0.630**	**0.651**	**0.411**
	(0.115)	(0.114)	(0.111)	(0.116)	(0.114)	(0.115)	(0.113)	(0.093)
Covered industry	**0.353**	**0.387**	**0.384**	**0.243**	**0.250**	**0.243**	**0.097**	0.009
	(0.019)	(0.018)	(0.018)	(0.019)	(0.018)	(0.019)	(0.018)	(0.016)
ME		**0.016**	**0.015**	**0.013**	**0.004**	**0.013**	**0.018**	**0.015**
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
BM		**-0.002**	**-0.001**	**-0.001**	**-0.001**	**-0.001**	**-0.001**	**-0.001**
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R12		**0.001**	0.000	-0.000	**0.000**	-0.000	-0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
%Style			**0.020**	**0.020**	**0.019**	**0.020**	**0.020**	**0.019**
			(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Fixed effects				Quarter	Quarter	Quarter	Quarter	Quarter
Fixed effects					Firm	Industry	IOC	Fund
Adjusted R^2	0.019	0.057	0.201	0.266	0.336	0.271	0.300	0.434

Panel B: Returns on covered industries vs. non-covered industries

	Raw	DGTW	4-factor	Stock Selection
Covered	**13.47**	-0.72	-0.16	0.76
	(3.13)	(-0.39)	(-0.07)	(0.46)
Non covered	**13.29**	0.02	-0.27	-0.83
	(3.62)	(0.01)	(-0.14)	(-0.69)
Long/Short	0.16	-0.75	0.11	1.60
	(0.06)	(-0.36)	(0.04)	(0.96)

Table 10: Portfolio Weights and Abnormal Returns Before and After Corporate Executive Changes

This table shows the portfolio weights and the abnormal returns of covered and non-covered stocks before and after corporate executive changes. For companies with multiple executive changes, the first executive change is considered. Panel A presents portfolio weights before and after company executive changes. Portfolio weight is the fund's dollar investment in a stock as a percentage of total net assets of the fund. The average weight before and after the executive change is computed for each stock, then averaged across stocks for covered and non-covered stocks. T-statistics are computed assuming weight independence across stocks and are shown below the estimates. Panel B shows the risk-adjusted calendar time portfolio returns of stocks before and after executive changes. At the beginning of each calendar quarter, stocks in each mutual fund portfolio are assigned into one of the four portfolios based on whether the fund manager covered the stock before and whether there is an executive change. Value weighted monthly returns are computed, weighting stocks by the fund's dollar holdings, and across fund weighting by the fund's total net asset value. Portfolios are rebalanced every calendar quarter based on the most recent SEC filing. DGTW characteristic adjusted returns are computed as raw returns minus the returns on a value weighted portfolio of all CRSP firms in the same size, book-to-market, and one year momentum quintile. 4-factor alpha is the intercept of regression of monthly returns on Carhart (1997) four factors. Returns are annual percentages. T-statistics are shown below the coefficient estimates, and 5% statistical significance is indicated in bold.

Panel A: Portfolio Weights

	Before	After	Difference
Non-covered	**0.569**	**0.646**	**0.077**
	(48.81)	(40.68)	(4.24)
Covered	**1.301**	**0.603**	**-0.698**
	(11.85)	(5.17)	(-4.63)

Panel B: Abnormal Returns

	DGTW			4-factor alpha		
	Covered	Non-covered	Long/Short	Covered	Non-covered	Long/Short
No Executive Change	**21.60**	0.00	**21.60**	**25.68**	-1.16	**27.13**
	(3.62)	(0.00)	(3.67)	(2.55)	(-0.54)	(2.77)
Executive Change	5.67	2.38	3.23	-0.49	2.50	-2.92
	(0.42)	(0.94)	(0.23)	(-0.04)	(0.86)	(-0.21)

Table 11: Determinants on Managers' Information Advantage

This table shows the effects on fund managers' information advantage of both the lapse of time and the number of analysts providing coverage of the firm once covered by that fund manager. Lapse of time is the length of time between when the fund manager last covered the stock as an analyst and when she began to manage the fund. The number of analysts providing coverage is the number of analysts covering the stock during the year when the fund manager last covered the stock as an analyst. Panel A shows the returns of covered stocks and non-covered stocks sorted on lapse of time and analyst coverage. I first divide the covered stock portfolio equally into two portfolios, based on the lapse of time or the number of analysts providing coverage, and then construct the long-short portfolio for each of them. The first two rows detail calendar time portfolio returns of longing covered stocks and shorting non-covered stocks. The next two rows detail the calendar time portfolio returns of longing covered stocks being held by funds and shorting covered stocks not being held by funds. The last two rows show calendar time long-short portfolio returns of longing covered stocks and shorting non-covered stocks over the three-day window periods around earnings announcement days. At the beginning of each calendar quarter, stocks in each mutual fund portfolio are assigned to one of the two portfolios: covered and non-covered, based on whether the fund manager has provided research coverage for the stock as analysts. Value-weighted monthly returns are computed, weighting stocks by their actual dollar weights in the fund. The portfolios are rebalanced each quarter based on the most recent SEC filings. This calculation assumes that a fund does not change its holdings until the next report. Then the value-weighted returns of the portfolios across funds are calculated, weighting each individual fund portfolio by the fund's net asset value. DGTW characteristic-adjusted returns are defined as raw returns minus the return on a value-weighted portfolio of CRSP stocks in the same size, book-to-market, and 12-month past return quintile. Returns are in annual percentage. T-statistics are shown below the coefficient estimates. Panel B shows the regression of stock returns on variables that determine manager's information advantage. The dependent variable is the average monthly DGTW return of a stock in a fund's holding. Independent variables include post-Regulation-FD dummy, executive change dummy (CEO), number of analyst coverage (Analyst), lapse of time and their interactions with coverage dummy. 5% statistical significance is indicated in bold.

Panel A: Returns sorted on determinants

	Lapse of time			Number of Analyst Covering		
	Shorter	Longer	Shorter-Longer	Fewer	More	Fewer-More
L/S portfolio return in covered vs. non-covered (DGTW)	**25.45**	2.71	**22.2**	**24.84**	3.99	**20.13**
	(3.49)	(0.56)	(2.58)	(3.02)	(0.73)	(2.07)
L/S portfolio return in covered held vs. covered not-held (DGTW)	**21.2**	1.80	**19.08**	**17.53**	7.82	9.06
	(2.63)	(0.33)	(2.25)	(1.80)	(1.08)	(0.83)
L/S portfolio return around EAD in covered vs. non-covered	**13.18**	7.23	5.95	**18.85**	2.46	16.04
	(2.54)	(1.08)	(0.68)	(2.43)	(0.52)	(1.80)

Panel B: Regression results

	Coefficient	T-stats	Coefficient	T-stats
Constant	**-0.001**	-2.24	-0.000	-0.46
Covered	**0.048**	5.18	**0.047**	5.05
Covered * Post-FD	**-0.016**	-2.53	**-0.014**	-2.16
Post-FD			**-0.002**	-3.26
Covered * Number of analyst	**-0.017**	-2.08	**-0.016**	-1.96
Number of analyst covering			0.000	-0.66
Lapse of time	-0.010	-1.64	-0.010	-1.61
Covered * CEO/CFO change	**-0.031**	-4.96	**-0.035**	-5.48
CEO/CFO change			**0.004**	4.46
N	31208		31208	
Adjusted R^2	0.002		0.003	

Table 12: Optimal Weight in Covered Stocks

This table reports the results of several tests to determine how optimal the funds' actual weights on the covered stocks are. Panel A shows the average Sharpe ratios and information ratios of individual funds. For each fund manager, I compute the ratios for covered stocks and all holdings, and then average them across funds. The third column shows the t-statistics of the difference between covered stocks and all holdings. Panel B reports the percentage of funds that could have increased their Sharpe ratio in-sample by investing more in covered stocks. This percentage is computed for each fund manager using a time-series regression of the fund's monthly returns in covered stocks in excess of Treasury bills on the fund's total excess returns: the fraction of funds for which the null hypothesis alpha=0 is rejected at 5% significance are reported. Panel C shows the resulting Sharpe ratios and information ratios if fund managers increase the dollar weights in covered stocks by 2, 5, 10, 20 or 30 times (holding total assets constant). T-statistics are shown below the changes in ratios.

Panel A: Average Ratio of Individual Funds

	Covered	Overall	T-statistic of difference
Sharpe Ratio	0.56	0.53	0.34
Information Ratio	0.45	0.33	0.61

Panel B: Funds with potential increase in Sharpe ratio (Regression)

Funds with Potential Increase in SR	5%

Panel C: Funds with potential increase in Sharpe ratio (Simulation)

	Original	2 times	5 times	10 times	20 times	30 times
Change in Sharpe Ratio	0.53	0.02	0.04	0.03	0.02	0.03
		(1.13)	(0.73)	(0.38)	(0.23)	(0.25)
Change in Information Ratio	0.33	0.06	0.14	0.20	0.14	0.12
		(1.74)	(1.61)	(1.62)	(0.88)	(0.66)

Figure 1: Abnormal Return of Covered Holdings and the Lapse of Time Since Coverage

This graph shows DGTW risk-adjusted returns of long-short portfolios that long covered holdings (for different lapse of time since the manager last covered the stock) and short non-covered holdings. Lapse of time is the length of time between when the fund manager last covered the stock as an analyst and when she began to manage the fund. At the beginning of each calendar quarter, stocks in each mutual fund portfolio are assigned to one of the two portfolios: covered and non-covered, based on whether the fund manager has provided research coverage for the stock as analysts. The covered stocks are further assigned to quintiles based on the lapse of time since managers last covered them. Value-weighted monthly returns are computed, weighting stocks by their actual dollar weights in the fund. The portfolios are rebalanced each quarter based on the most recent SEC filings. This calculation assumes that a fund does not change its holdings until the next report. Then the value-weighted returns of the portfolios across funds are calculated, weighting each individual fund portfolio by the fund's net asset value. DGTW characteristic-adjusted returns are defined as raw returns minus the return on a value-weighted portfolio of CRSP stocks in the same size, book-to-market, and 12-month past return quintile. Returns are in annual percentage. The average lapse of time is plotted on the x-axis and the returns are plotted on the y-axis.