Corporate Jets and Private Meetings with Investors

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Abstract

We use corporate jet flight patterns to test whether managers use jets for private, face-to-face meetings with investors. We predict that flights to "money center" locations are more likely to entail private meetings with investors than flights to other locations. Using a sample of almost 400,000 flights undertaken by 396 firms between 2007 and 2010, we find evidence consistent with money center flights being used to privately communicate with investors. First, we find that the number of flights to money center cities is significantly associated with a number of proxies for incentives to privately meet with investors. Second, we find that three-day windows including money center flights exhibit significantly greater information content than windows with only flights to other cities. Third, we find that flights to non-money-center cities with high local firm-specific institutional ownership exhibit greater information content than flights to cities with little or no institutional ownership in the firm. Fourth, we find that changes in flights to a metro area are positively associated with changes in local institutional ownership. Overall our evidence suggests that these private meetings are an important information event for the participating investors.

1. Introduction

We use corporate jet flight patterns to test whether managers use jets for private, face-to-face meetings with investors. While we cannot directly observe private meetings, we can identify periods during which managers are likely to be flying to "money centers" with a large portion of the firm's investor base. We first examine whether jet flights to money centers are associated with incentives for private face-to-face meetings, such as maintaining a commitment to transparency, responding to investor demands for access to management, and filtering complex information through sophisticated investors during times of high uncertainty. Next, we examine whether flights to money centers have information content, consistent with private meetings that allow investors to revise their beliefs about the firm. While Regulation Fair Disclosure (Reg FD) prohibits selective disclosure of material information, it does not explicitly prohibit private meetings that enable investors to ask managers questions to fill in their mosaic of private information. Finally, we test whether the number of flights to a city is associated with changes in local institutional ownership. Using a sample of almost 400,000 flights undertaken by 396 firms between 2007 and 2010, we find evidence consistent with money center flights being used to privately communicate with investors.

Corporate jets are often viewed as an agency cost representing perquisite consumption by managers (e.g., Yermack [2006]). But, prior research suggests that managers devote a considerable amount of time traveling to investor conferences and analyst meetings, suggesting that corporate jets facilitate these trips (Bushee, Jung, and Miller [2011b], Solomon and Soltes [2012]). In an interview with a former top executive, we confirm that corporate jets are often used to facilitate private meetings with investors or analysts. A unique feature of the corporate jet setting is that, unlike investor conferences or analyst presentations, there is no public knowledge

of the jet flights in real time. Investors or analysts that are not meeting with managers have no way to know that they might be at an information disadvantage, and hence stay out of the market. Thus, private meetings potentially give participants an information advantage over nonparticipants.[1]

We collect flight data from the *Wall Street Journal* Jet Tracker database. We eliminate flights to airports near each firm's headquarters (i.e., return flights) and we eliminate jets that are operated by subsidiaries. We define a flight to a "money center" city as any flight to an airport in the Boston, Chicago, New York, and San Francisco Metropolitan Statistical Areas (MSAs). These metro areas host the majority of investor and analyst conferences (Bushee, Jung, and Miller [2011a]) and we find that institutional investors based in these cities account for over 34% of the holdings in the average sample firm. However, flights to money centers account for only 17.5% of the total flights, indicating that the vast majority of corporate jet flights are used for operational or personal reasons.

We first examine potential determinants for flights to money centers. These determinants reflect incentives for the manager to rely on a purely private form of disclosure and to incur the cost of flying out to meet investors face-to-face. Prior research suggests that managers prefer private disclosure when their information is subject to misinterpretation by unsophisticated investors (e.g., the information is high complexity), when there is high uncertainty, and when institutional investor demands for privileged access are high (e.g., Matsumoto [2002], Bushee, Matsumoto, and Miller [2003]). While such private discussions need not happen in a face-to-face setting, prior research finds that a large percentage of information is communicated through nonverbal cues (see, e.g., Mehrabian [1971]). The value of nonverbal cues should be greater

[1] While private discussions could take place through a number of media (e.g., phone calls, emails), an advantage of the corporate jet setting is that we can identify times when these private meetings are likely taking place.

when the information is more complex and when there is greater uncertainty because both managers and investors can better read each other's nonverbal cues and tailor their discussion accordingly. Finally, prior work suggests that commitments to a higher level of transparency through a costly mechanism are associated with a lower cost-of-capital and greater increases in investor and analyst following (Leuz and Verrecchia [2000], Bushee and Miller [2012]). Thus, managers can signal a greater commitment to transparency through a regular schedule of costly flights to meet directly with investors.

We estimate regressions of the number of flights to money centers in a month on the potential determinants for private meetings and a set of control variables. We find that money center flight activity is positively associated with the proportion of intangible assets, which is a proxy for information complexity, and with the level of institutional investor ownership, which proxies for investors' demand for privileged access. We also find that managers are more likely to fly to money centers to meet with investors in reaction to events that create uncertainty about the firm (i.e. upcoming debt/equity issue and recent bad news earnings announcement). Our results further suggest that managers use money center flights to commit to a higher level of transparency, as the 12-month lagged measure of money center flight activity is positive and highly significant. When we estimate the regression using non-money-center flights as the dependent variable, none of our determinants has a significant coefficient with the same sign as in the money center regression. Thus, our determinants results likely reflect managerial incentives to meet with investors, rather than a general motivation for a high number of flights.

Next, we examine the information content of flights to money centers. Managers are unlikely to disclose material quantitative information (e.g., earnings forecasts) during private meetings with investors given concerns about violating Reg FD. Instead, the information content

of these meetings likely stems from investors revising their beliefs based on qualitative information that complements their private information, consistent with the "mosaic" view that is implicitly permitted under Reg FD (Cooley Godward [2000]). Because the direction of belief revision is unclear *ex ante* in this setting, we measure information content with abnormal absolute size-adjusted returns and abnormal share turnover.

We test for the information content of money center flights by comparing non-overlapping three-day windows that include money center flights to windows that only contain flights to other locations. We also compare windows with flights to multiple money centers ("road shows") to those with flights to a single money center. Road show windows are more likely to contain investor meetings than flights to a single money center, which could be due to operational or personal reasons. We estimate a regression of abnormal absolute returns and share turnover on indicators for windows with single and multiple money center flights and controls for Form 8-K filings, presentations at investor conferences, and other firm characteristics. We find that the information content of money center flight windows is significantly greater than other windows. Moreover, road show flight windows have significantly greater information content than windows with a single money center flight. While the economic magnitudes of the coefficients are small (e.g., road show windows result in a 3.7% increase in absolute size-adjusted returns), the fact that we statistically detect information content due to a small subset of investors updating their private information suggests that those investors are receiving an information advantage through the meetings.

As an additional test of whether jet flights are used to meet with investors, we examine flights to non-money-center cities that comprise a significant portion of the firm's investor base. As these cities vary across firms, this test addresses the possibility that the results are solely

driven by some other factor associated with money center flights. We find that flights to multiple non-money-center airports with high local firm-specific institutional ownership are associated with significantly greater information content than other flight windows, with the magnitude of the coefficients similar to those found for money center flights.

Furthermore, we test whether the flights to a metro area are associated with changes in local institutional ownership in the firm. Prior work finds that face-to-face meetings at investor conferences positively influence investors' assessments of managers' credibility and commitment to transparency, leading to sustained increases in institutional ownership (Bushee, et al. [2011a]). We find that both the number of flights and the initiations of flights to a metro area are associated with significant increases in local institutional ownership, whereas cessations of flights are associated with a significant decrease in local institutional ownership. Overall, the evidence supports our prediction that corporate jets are used to facilitate private meetings with investors, resulting in a significant short-term price and volume reaction, as well as changes in local institutional ownership.

The next section discusses prior literature and develops our predictions. Section 3 describes the sample. Section 4 reports results for the determinants analysis, Section 5 presents results for the information content tests and Section 6 discusses the change in institutional holdings results. Section 7 offers conclusions.

2. Motivation and predictions

2.1 Prior research on corporate jets

Prior research on corporate jets focuses on the potential agency costs. Several papers provide evidence that managers exploit access to corporate jets for private benefits at the expense

of firm value. Yermack [2006] finds sustained underperformance by firms that allow the CEO to use the corporate jet for personal travel. Edgerton [2011] finds that firms owned by private equity firms have smaller jet fleets on average than publicly-traded firms and that fleets decrease in size for firms undergoing leveraged buyouts. Several studies find significantly negative stock returns around the announcement of personal corporate jet usage by top executives subsequent to the 2007 increase in SEC disclosure rules about corporate jet usage (see, e.g., Grinstein, Weinbaum, and Yehuda [2011] and Andrews, Linn, and Yi [2009]). Yermack [2012] examines the relation between corporate disclosures and CEO vacations. He finds that firms appear to disclose good news prior to when CEOs leave on vacation; that stock volatility decreases while the CEO is on vacation; and that stock volatility increases when the CEO returns from vacation.[2]

2.2 Interview evidence on corporate jets and private meetings.

In contrast to prior literature, we examine the role of jets in facilitating communications with investors, which is a potentially beneficial activity for firm value. To gain a better understanding of how managers use jets to communicate with investors, we interviewed a former top executive of a Fortune 500 company.[3] We asked him to describe his experience and understanding of how corporate jets are used for meetings with investors and sell-side analysts. The executive confirms that CEOs and CFOs often use corporate jets to make visits to investors and analysts in money centers. He says that such "road show" trips generally involve flights to multiple money centers over short windows (e.g., three-to-four days). Thus, focusing on short windows that involve multiple money centers should allow us to isolate investor and analyst meetings from flights that are taken for operational or personal reasons. Moreover, he mentioned

[2] As an alternative view, Rajan and Wulf [2006] find that CEOs are provided a corporate jet when it is likely to increase productivity, suggesting that perks are a rational business expense.
[3] This executive's former company is not in our sample.

that CEOs and CFOs often use jets to fly to non-money-center cities that have large concentrations of institutional investors.

The executive gave several motivations for such "road shows," including: (1) inducing institutional investors to purchase more shares in the company; (2) facilitating the raising of capital; (3) promoting the company's stock to potential investors; (4) providing guidance to institutional investors and sell-side analysts while complying with Reg FD; and (5) attending meetings with buy-side analysts that are organized by sell-side analysts.

These motivations suggest that road show flights to meet with investors and analysts can be triggered both by new developments in the firm and by the desire to maintain communications with investors in the absence of news. We will test whether these motivations are systematically related to money center flights in our determinants test. However, regardless of the motivation, all road shows flights allow investors to update their beliefs, suggesting that such trips will be accompanied by significant market reactions and changes in institutional investor ownership.

2.3 Relation to prior research on direct communications with analysts and investors

Our examination of money center flights is also motivated by the literature on face-to-face management communications with investors and analysts. Francis, Hanna, and Philbrick [1997] examines the effects of management presentations made at the New York Society of Securities Analysts. They argue that these face-to-face presentations provide management with the opportunity to discuss broader, more qualitative issues that can be difficult to address in other forms of voluntary disclosure. Such presentations also allow analysts greater opportunities to evaluate the managers' credibility. They find significantly positive abnormal returns on presentation dates, particularly for undervalued firms, which suggests that the presentations help to mitigate visibility or credibility issues. They also find significant increases in analyst coverage

subsequent to the presentation, but do not find that analysts' post-presentation forecasts are more accurate or less biased than their pre-presentation forecasts. Thus, these presentations are not used to announce new information, but rather to provide more visibility for the firm and a deeper understanding of its business and strategy.

The presentations studied in Francis et al. [1997] occurred prior to the passage of Regulation Fair Disclosure (Reg FD). Reg FD was enacted in October 2000 to stop the practice of selective disclosure of information by managers to investors and analysts, especially through venues such as conference calls. Numerous studies indicate that Reg FD "leveled the playing field" by providing individual investors greater real-time access to disclosure and by reducing analysts' private access to information.[4]

Although managers are subject to restrictions on selectively disclosing material information, Reg FD does not explicitly preclude private meetings. The SEC does not define "material information" and managers have the latitude to discuss details of the business to fill in the "mosaic" of the investors' or analysts' private information without violating Reg FD (Cooley Godward [2000]).[5] In 2005, a district court judge dismissed a Reg FD action against Siebel Systems saying (in part) "Regulation FD does not require that corporate officials only utter verbatim statements that were previously publicly made." The judge also argued that "Although stock movement is a relevant factor to be considered in making the determination as to

[4] A partial list of these studies includes: Heflin, Subramanyam and Zhang [2003], Bailey, Li, Mao and Zhong [2003], Bushee, Matsumoto and Miller [2004], Eleswarapu, Thompson and Venkataraman [2004], Francis, Nanda and Wang [2006], Wang [2007], Duarte, Han, Harford and Young [2008], Ke, Petroni, and Yu [2008], and Kross and Suk [2011].

[5] Here is an example of the "mosaic" view. At a 2007 invitation-only conference, the Del Monte CFO was asked why tuna supplies were low, and he responded that the tuna happen to have been swimming lower than the nets go down, but this issue is expected to be resolved in the next two months. On its face, it is not clear whether this comment is material, or even whether it is good news or bad news. Such a comment would only be valuable to an investor that had gathered private information and could use this "piece of the mosaic" to revise their beliefs. If the CFO had added "but we expect margins to drop 5%", this would have been a clearer violation of Reg FD because it is a selective disclosure of material information that does not require any investor effort to interpret.

materiality, it is not, however, a sufficient factor alone to establish materiality" and that "the actions taken by those in attendance at the speaking engagement, although a relevant consideration, do not change the nature or content of statements" (SEC v. Siebel Systems et al. [2005]). Subsequent to this decision, only three Reg FD actions have been pursued by the SEC.[6]

Recent research suggests that private meetings are quite prevalent subsequent to Reg FD. Bushee et al. [2011a] examines a sample of over 95,000 presentations by corporate managers at invitation-only conferences since 1999 and find significant return and volume reactions in the three days around the presentations. While many of these presentations are webcast to satisfy Reg FD, investors and analysts who are invited to the conference have a potential information advantage in being able to communicate with managers outside of the formal presentation. Consistent with this, Bushee et al. [2011b] finds increases in trade sizes and future trading profits based on trading that occurs in the hours when managers meet "off-line" with investors at conferences, either in breakout sessions or one-on-one meetings. Subasi [2012] finds that institutional investors significantly increase their holdings in M&A target firms that have presented at investor conferences during the twelve months before the takeover is publicly announced, suggesting that the investors obtain material information about future takeover targets through their interactions at the conferences.

Solomon and Soltes [2012] examine all of management's one-on-one meetings with investors for one NYSE firm over a six year period (64% of which are conference presentations) and find that trades among investors who meet with management in the same quarter are more correlated and better predict future returns than trades executed in quarters in which meetings did

[6] As an example, Office Depot management phoned analysts in June 2007 to warn them that weak economic conditions were hurting sales. Days later, the company gave a similar warning in a public filing. Although Office Depot said nothing material was disclosed during the calls, analysts had lowered forecasts by the time of the public announcement. In December 2009, the company settled with the SEC and agreed to pay a civil penalty.

not occur. Using the same firm, Soltes [2012] examines all private interactions between management and sell-side analysts. He does not find that private meetings increase the accuracy of analysts' forecasts and concludes that private meetings complement other interactions between analysts and management.

Our corporate jet setting differs from the above papers in that the jet flights are largely unobservable to non-participants and do not contain a public disclosure component.[7] In contrast, market participants excluded from investor conferences can determine whether they are at an information disadvantage by identifying when the company is presenting and by listening to any public portion of the disclosure. Thus, the corporate jet setting allows us to examine the determinants and market consequences of a private disclosure that we can identity *ex post*, but the broader market could not identify *ex ante.* In doing so, our paper is similar to Soltes' private meetings papers, but our setting has the advantage that we can study a larger sample of firms, which increases the potential generalizability of the results.

2.4 Predictions

2.4.1 Determinants of money center flights

We define "money center" flights as those arriving in airports located in the Boston, Chicago, New York, and San Francisco Metropolitan Statistical Areas (MSAs). Flights to money centers are more likely to be associated with investor meetings than flights to other locations given the high concentration of current and potential investors located there. In considering potential determinants for money center flights, we identify incentives for managers to rely on a purely private form of disclosure and to fly out to meet investors face-to-face, rather than communicate through distance media, such as phone calls, emails, or Skype.

[7] Using the Freedom of Information Act, the *Wall Street Journal* obtained records of all private aircraft flights in the Federal Aviation Administration's air traffic management system for 2007 to 2010. Prior to this, access to the flight records was generally not available to the public due to privacy concerns (Maremont and McGinty [2011]).

Some evidence on incentives for private disclosure is provided by studies examining restricted-access conference calls in the pre-Reg FD period. Tasker [1998] and Bushee et al. [2003] find that companies are more likely to use restricted-access conference calls when they have more complex financial disclosures and higher institutional ownership. Thus, managers prefer private disclosure when their information is likely to be misinterpreted by unsophisticated investors and when investor demands for privileged access are high. In addition, Matsumoto [2002] finds that managers guide analyst forecasts through private channels to avoid a negative reaction to a public expectations adjustment and, hence, ensure they meet-or-beat expectations at the earnings announcement. Thus, managers wishing to correct market expectations have incentives to do so through private communications with sophisticated investors.

There are at least two reasons why managers have incentives to prefer costly face-to-face meetings over distance communication media.[8] First, research on nonverbal cues finds that a large percentage of information is communicated through body language, facial expressions, and vocal tone (Mehrabian [1971], Andersen [2008], Mayew and Venkatachalam [2012]). Bushee et al. [2011b] argues that investors prefer private, face-to-face communications at investor conferences because they can assess nonverbal cues in managers' responses (or nonresponses) to questions in a less-rehearsed setting than a public disclosure.[9] Managers also benefit from the face-to-face communication because they can better read the nonverbal cues of investors and tailor their message accordingly. Furthermore, Elliott, Hodge, and Sedor [2012] finds that restatements announced via video have stronger influences on investors' judgment and investment decisions than restatements announced via text, suggesting that the sensory

[8] We are not arguing that jet trips are a complete substitute for phone calls; managers likely use both. Rather, we are discussing incentives for the managers to not solely rely on low-cost distance communications.

[9] Bushee et al. [2011a] notes that "virtual" investor conferences, in which investors participate in interactive webcasts with a large number of managers on a given day, have almost completely died out despite their low costs in terms of time and travel. They argue that this phenomenon illustrates the value of face-to-face interactions.

experience provided by a rich communication venue engages the audience and enhances information processing. Second, prior work suggests that commitments to a higher level of transparency through a costly mechanism, such as a change in accounting standards or retention of an investor relations consultant, are associated with lower cost-of-capital and greater increases in investor and analyst following (Leuz and Verrecchia [2000], Bushee and Miller [2012]). Thus, managers who commit to a number of costly flights to meet directly with investors, regardless of news, will be signaling a greater commitment to transparency and to credible disclosures.

We predict that the number of money center flights will be positively associated with investor demands for face-to-face access and the complexity of firms' financial information. We also predict that money center flights will be associated with opportunistic reasons for managers to meet face-to-face with investors, such as the desire to privately manage investor expectations in the face of high uncertainty or to build demand for an upcoming issuance of capital. Finally, we predict that the number of money center flights will be associated with prior levels of money center flights, consistent with some managers using flights as a device to commit to a higher level of transparency.

2.4.2 Market reaction to money center flights

Regardless of the motivation, money center flights allow investors to update and revise their beliefs about the firm. Managers are unlikely to disclose material quantitative information (e.g., earnings or sales forecasts) during private meetings with investors given concerns about violating Reg FD.[10] Instead, the information content of these meetings is more likely to arise from qualitative information that complements the investors' private information, consistent with the "mosaic" view that is implicitly permitted under Reg FD (Cooley Godward [2000]). Because

[10] To ensure that we are measuring the impact of private meetings, we will explicitly control for any public disclosure during the period, such as Form 8-K filings or conference presentations.

investors' *ex ante* expectations and *ex post* belief revision cannot be measured with precision, we measure information content with abnormal price variability and share turnover (e.g., Beaver [1968], Landsman and Maydew [2002], Cready and Hurtt [2002]). We predict that money center flights are associated with higher abnormal return variability and share turnover than flights to airports outside of money centers.

The information content of the flights is influenced by the number of meetings the manager has with investors and analysts. Holthausen and Verrecchia [1990] show that the information content of a disclosure is increasing in the number of investors that become informed by the disclosure. While we cannot measure the number of meetings that occur after a given flight, we can measure the number of flights to different money centers within a certain window. Our interview with the former executive indicates that the investor meetings are often combined on the same extended trip. In contrast, a single flight to a money center could result from perquisite consumption (shopping and a Broadway show in New York). Thus, we predict that flights to multiple money centers ("road shows") within a three-day window are associated with higher abnormal return variability and share turnover than flights to a single money center.

While the largest concentrations of a firm's current and potential investors are located in money centers, other metropolitan areas may have a large concentration of investors in a given firm's stock. As an additional test, we classify flights to non-money-center cities based on the number and percent of firm-specific institutional ownership located in the area. If such flights also include private meetings with investors, we expect that flights to cities with a high level of firm-specific institutional ownership are associated with significantly greater information content than flights to cities where the firm has little or no institutional ownership.

2.4.3 Changes in institutional ownership after flights

Finally, the number of corporate jet flights to investor locations likely affects the willingness of investors to own the company's stock. Prior work finds that increases in disclosure measured using AIMR ratings are associated with changes in institutional investor ownership due to the beneficial impact of disclosure on liquidity and monitoring costs (Healy, Hutton, and Palepu [1999], Bushee and Noe [2000]). Bushee et al. (2011a) finds sustained increases in institutional investor ownership subsequent to presentations at investor conferences, providing evidence that face-to-face meetings positively influence investors' assessments of managers' credibility and commitment to transparency. If managers use jets to meet with investors, we expect that the number of flights to a given metropolitan area is positively associated with changes in ownership by institutional investors located in that metro area.

3. Sample

Our sample period is from 2007 to 2010, which are the years that flight data is available on the *Wall Street Journal* Jet Tracker database.[11] For each flight, the database provides the flight operator's name; the departure date, time, and location; the arrival date, time, and location; the distance travelled; the tail number; and the approximate cost of the flight.[12] We construct a list of 5,627 unique firms available on Compustat, CRSP, and I/B/E/S between 2007 and 2010 and match each Compustat firm name on the list to operator names on Jet Tracker. This matching results in 510 pairs of jet operator names and Compustat firm names.

[11] http://projects.wsj.com/jettracker/

[12] One limitation of using the Wall Street Journal Jet Tracker database is that we are unable to identify companies that use chartered flights because the flight is operated under the private charter jet operator's name. Thus, we are unable to address the question of why a CEO decides to use corporate vs. charter jets. However, this decision doesn't matter for our research design as we examine cross-sectional variation among corporate jet users in the frequency with which they fly to money centers.

We take the following steps to identify the flights that are most likely used by top management. First, we require the top arrival location of the jet to be within 100 miles of the firm's headquarters location as identified in Compustat.[13] Second, we exclude jets operated by subsidiaries. Finally, we eliminate all flights arriving at the top arrival location and/or within 100 miles of the corporate headquarters location to remove return flights from the sample. We end up with a total of 395,386 flights for 396 unique Compustat firms. On average, each flight covers a distance of 676 miles in 1.6 hours and costs approximately $4,888.[14] In dollar terms, the total direct cost of these flights is just slightly below $2 billion.

Panel A of Table 1 reports the total number of flights to the top twenty MSAs ranked in terms of total flights.[15] The New York MSA is the number one destination, reflecting the large number of businesses and financial institutions in the area (as well as cultural attractions), followed by the Chicago, Washington, and Los Angeles MSAs. There are some "vacation" areas in the top 20, including Miami, Phoenix, and Orlando. About 5% of total flights are to non-US cities, but none of these cities are in the top twenty (London is the most frequent). The second column of Panel A shows the number of our sample firms headquartered in each metro area. Not surprisingly, New York is also the most common headquarters location, but only accounts for about 5% of the sample firms.

We define a money center flight as one in which the jet's arrival location is located in the Boston, Chicago, New York, and San Francisco MSAs. We chose these four MSAs following

[13] There are 33 pairs for which the top arrival location of the operator's jets is not within 100 miles of the matched firm's headquarters location (for non-U.S. companies, we use the location of the U.S. corporate headquarters from the company's website). We include these in the sample because the name matches are almost exact and we cannot find any evidence indicating that the operator and the firm are two different companies.

[14] The reported values are the means. The cost is based on *Wall Street Journal*'s estimated cost to operate each flight. The detailed estimation process is available on the *Wall Street Journal* Jet Tracker website.

[15] We use MSA definitions from the 2010 Census. We also estimated our tests using the definitions from prior to 2000, which are more expansive for the money centers (e.g., the New York MSA also included the Bridgeport CT MSA and the Trenton NJ MSA). Our results were similar using the prior definitions.

the classification in Bushee et al. [2011a], which finds that the majority of investor conferences are hosted in those four cities. We classify institutional investors by metro area using the zip code listed on their Form 13-F filing. In Panel B of Table 1, we show that the four money center MSAs are also the top four metro areas in terms of number of institutional investors (*NII*) with equity positions in our sample firms during any time in the sample. The last two columns in Panel B report the mean number of institutional investors owning the firms' stock (*MNIH*) and the mean percentage of institutional holdings (*MPIH*) for each metro area during our sample period. These columns show that the average firm in our sample has 112 institutional owners in the four money center cities that account for about 30% of the holdings in the firms' stock. Note that two metro areas, Los Angeles and Philadelphia, have higher *MNIH* than San Francisco. We do not classify these two cities as money centers to be consistent with Bushee et al. [2011a]. However, we will account for large ownership in non-money-center metro areas in Section 5.4.

4. Determinants of Flights to Money Centers

4.1 Sample and Flight Variables

We combine the flight data with financial data from the Compustat database; stock return and trading volume data from the CRSP database; analyst following and forecast data from the I/B/E/S database; institutional investor ownership data from the Thomson Reuters Form 13-F database; and debt and equity issuances from SDC Platinum database. We eliminate firms that do not have at least thirteen months of flight data because we require flight data in the same month in the prior year in our determinants analysis. The data requirements result in a final sample of 265,884 flights by 339 firms from years 2008 to 2010.

In our determinants regression, the dependent variable is a firm's money center flight activity in a month. We measure money center flight activity in two ways. First, we use the log of the number of money center flights operated by the firm in a month (*LMCEN*). Second, we use the log of the number of road shows (*LROADSHOW*) taken by the firm in the same month. We define a road show as a three-day money center flight window where there are flights to two or more money centers (see Section 5.1 for more details). The road show measure potentially gives us more power to detect investor meetings by separating multiple-city road shows within a short window from one-off trips to money centers for personal or operational reasons. Table 2 shows that mean (median) number of money center flights per month is 4.357 (2) and the mean (median) number of road shows per month is 0.521 (0).

We also estimate the determinants regression with the dependent variable as the log of the number of flights to non-money-centers (*LOFLT*), which are flights with an arrival location that is not within the Boston, Chicago, New York, and San Francisco MSAs. If our determinant variables capture motivations to meet with investors, rather than general flight motivations, then their signs and/or significance levels should differ in this regression.

4.2 Determinant Variables

We include a number of proxies for the potential determinants of using money center flights to meet with investors. First, we include proxies for the complexity of the firm's disclosure and investor demands for access. Because of the difficulty in understanding and valuing intangible assets, there is more information asymmetry and more inherent uncertainty for firms with high intangible assets. Hence, we use the ratio of intangible assets to total assets (*INTAN*) to proxy for the complexity of the firm's information (Bushee et al. [2003]). To proxy for investor demands for face-to-face meetings, we use the percentage of institutional investor

holdings *(PIH)*, defined as the total shares owned by institutions divided by the total shares outstanding at the end of the prior calendar quarter.

Next, we identify four empirical measures to proxy for managerial incentives to meet with investors during periods of high uncertainty. First, we proxy for uncertainty about the firm and divergence in investors' opinions using analyst forecast dispersion (*AF_DISPERSION*), calculated as the standard deviation of analyst forecasts scaled by the mean consensus forecast in the month prior to flight month. Second, we measure investor sentiment in the prior month as the change in short interest (*CH_SINT*), defined as the month-to-month change in the ratio of the number of shares sold short divided by the trading volume.[16] Third, we identify situations in which the firm will soon raise capital with an indicator variable (*ISSUE*) equal to one if the issue date for any debt or equity issue is in the subsequent month, and zero otherwise. Fourth, we measure any recent earnings news with an interaction variable (*POST_EA_MONTH*EA_RET*) between the value-weighted market-adjusted return for the three-day window (-1, +1) around the most recent earnings announcement date (*EA_RET*) and an indicator variable for whether the announcement occurs in the month prior to the flight month (*POST_EA_MONTH*).

Finally, we measure the manager's commitment to meet regularly with investors using the 12-month lag in the dependent variable; i.e., the log of the number of money center flights in the same month last year (*PLMCEN*) in the first model and the log of the number of road shows in the same month in the prior year (*PLROADSHOW*) in the second model.

4.3 Control Variables

[16] Note that we view variables like short interest and analyst forecast dispersion as proxies for uncertainty, rather than measures that the money center flights are explicitly taken to correct. For example, managers are unlikely to have meetings with the investors shorting their stock. Instead, they will likely meet with investors that hold substantial long positions to address their concerns in the face of the uncertainty reflected in the short positions.

We control for a number of firm characteristics that are related to a firm's information environment or general motivations for flight activity. We do not predict the signs of the control variables because the effect on the firm's money center flight activity is unclear. Prior work finds that firm size is an important determinant of a firm's disclosure policy and information environment (see, e.g., Lang and Lundholm [1993]). We measure firm size as the log of the market value of equity (*LMVE*) at the end of the prior fiscal quarter. We also include controls for firm growth, profitability, and potential undervaluation, including the book-to-market ratio (*BM*); sales growth (*SALEG*); the change in net income (*CHNI*); and the earnings-price ratio *(EP)*. We expect the participation of analysts to be correlated with a firm's information environment and disclosure policy (Lang and Lundholm [1996]) and we include analyst following as the log of the number of analyst earnings forecasts (*LNANL*) in the month prior to the start of the calendar quarter. We add three proxies to control for firm risk: the leverage ratio (*LEV*), defined as total debt divided by total assets, beta (*BETA*), and the standard deviation of stock returns (*SDEV*). We also control for recent stock market activity with the buy-and-hold market-adjusted stock return (*ANNMAR*) and the average monthly share turnover (*ANNTURN*) for the year prior to 30 days before the beginning of the flight quarter.

Next, we include measures to control for money center flight activity related to public disclosures. We include the log of the number of Form 8-K filings during the month (*LN8K*) and the log of the number of money center (*LNMCP*) and non-money-center (*LNOCP*) conference presentations during the month. Finally, we control for the general level of flight activity for the firm with the log of the total number of flights in the same month (*LTFLT*) and the log of the total number of flights in the same month in the prior year (*PLTFLT*).

Table 2 presents descriptive statistics for the variables. The sample firms tend to be large firms with high institutional ownership (median = 75%) and analyst following (median = 5), suggesting that larger firms are more likely to have their own fleet of corporate jets.

4.4 Regression analysis

Table 3 presents results from regressions that examine the determinants of the number of money center flights and the number of road shows in a month. The dependent variable in column (1) is the log of the number of flights in the month to money centers (*LMCEN*). In column (2), it is the log of the number of road shows in the month (*LROADSHOW*). In column (3), it is the log of the flights in the month to non-money-center cities (*LOFLT*). For all three regressions, *t*-statistics are reported in parentheses and are calculated using standard errors clustered at both the month- and firm-level.

Columns (1) and (2) show that firms with higher intangible assets and institutional ownership have a significantly greater number of money center flights and road shows. These results support our predictions that managers are more likely to fly to meet with investors when the firm's financial information environment is more complex and investor demands for privileged access are high. We also find that firms about to raise capital have a significantly greater number of money center flights and road shows, suggesting that managers fly to meet with investors when there is an upcoming debt and/or stock issue. In the month immediately after an earnings announcement, there are significantly more money center flights and road shows for firms with a recent negative stock price reaction to earnings. These results provide evidence that managers are more likely to fly to money centers to meet with investors in reaction to events (i.e. debt/equity issue and bad news earnings announcement) that create uncertainty about the firm. Finally, the results support our prediction that managers use money center flights to commit to a

higher level of transparency. Columns (1) and (2) show that the number of money center flights and road shows in the same month in the prior year are positively associated with the number and proportion of money center flights this quarter.[17]

In contrast, column (3) shows no significant relation between non-money center flights and intangible assets, percentage of institutional ownership, or upcoming capital issuances. Moreover, the number of non-money center flights is significantly associated with recent earnings announcement returns and prior number of money center flights in the opposite direction of money center flight regressions.

Overall, our determinants analysis suggests that flights to money centers are associated with the complexity of the firm's information, percentage of institutional investors, upcoming debt/equity issues, recent earnings announcement news, and prior flights to money centers. Notably, none of these variables have the same sign and significance in a regression using non-money-center flights, indicating that they do not proxy for general flight motivations, but rather incentives for meeting face-to-face with investors.

5. Market Reactions to Flights

5.1 Research design and variables

We next examine stock market reactions to corporate jet flights using a difference-in-difference research design with a large number of controls. We measure the information content of the flights using abnormal absolute returns and abnormal share turnover in three-day flight windows. Then, we compare the abnormal information content variables between money-center and non-money-center flight windows within our sample of firms using corporate jets. We

[17] Because of the large number of variables in our regression, we check for multicollinearity using variance inflation factors. The largest factor is 3.19 for *PLTFLT*, which is highly correlated with *LTFLT* (Pearson correlation = 0.78) and with *PLMCEN* (Pearson correlation = 0.66).

control for concurrent public disclosures, such as Form 8-K filings and conference presentations, as well as a large set of firm characteristics that could be correlated with abnormal volatility or volume in the firm's stock.

We use the following algorithm to create non-overlapping windows that distinguish between money center flights and other flights (see Appendix for an example).[18] We start at the beginning of the data series for the firm and find the first flight to a money center. Then, we consider that day and the two subsequent trading days as a three-day money center flight window. Starting with the next date, we search for the next money center flight and create a new three-day window using the same procedure. We continue through the data series identifying all of the non-overlapping three-day windows that begin with a money center flight.[19] After identifying all of the money center flight windows, we return to the beginning of the data series and find the first flight to a non-money-center airport. If that day and the two subsequent trading days do not contain any money center flights, we define the three-day window as a non-money-center window. We continue through the data series to identify all of the non-overlapping three-day windows that have only non-money-center flights.

We create an indicator variable (*DMCEN*) that is equal to one if the three-day flight window begins with a money-center flight and equal to zero if the three-day window includes only non-money-center flights. We also create indicator variables for "road show" flights to multiple money centers (*DROADSHOW)* and flights to only one money center (*DMCEN1*) in the three-day window, with each variable equal to zero otherwise. For flight windows with only non-

[18] We do not examine three-day windows around individual flights because, for most firms, corporate jets fly every day and multiple times per day, which would result in overlapping windows.

[19] The three-day money center windows also include some non-money-center flights, but we expect the results to be driven by the money center flights during the period. Also, the windows will not necessarily have money center flights on all three days; however, there will always be one on the first day of the window. Finally, the three-day windows can be contiguous. For example, if the jet flew to money centers on five days in a row, we could create two adjacent three-day windows, one starting on day one and the other on day four.

money-center flights, we create variables to capture whether there are multiple flights (*DMULT_HIOWN)* or a single flight (*DHIOWN1)* to cities where the firm has a high level of firm-specific institutional ownership, with each variable zero otherwise. We define high firm-specific institutional ownership cities as any MSA with at least five institutional owners or 1% ownership in the firm (these cut-offs represent the top quartile of each measure).

We compute the standardized absolute value of size-adjusted returns (*ABN_ASAR*) as the difference between three-day absolute size-adjusted returns and the mean three-day absolute size-adjusted returns in an estimation period, divided by the standard deviation of the mean absolute size-adjusted returns in the estimation period (Subramaniam [1995], Cready and Hurtt [2002]).[20] We measure abnormal share turnover (*ABN_TURN*) as three-day volume divided by shares outstanding, less the average three-day turnover in the estimation period, multiplied by 100. Absolute abnormal returns reflect changes in the expectations of the market as a whole, whereas abnormal turnover reflects changes in the expectations of individual investors (Beaver [1968]). While correlated, the two measures may differ based on the *ex ante* level of consensus among investors and *ex post* differences in interpretations (Kandel and Pearson [1995], Verrecchia [2001]). Because we cannot measure *ex ante* or *ex post* beliefs in this setting, we rely on both measures to assess information content (Holthausen and Verrecchia [1990], Cready and Hurtt [2002]).

We use the same set of control variables as the determinants test, with the following modifications to tailor the variables more closely to the research design for these tests. The controls for Form 8-K filings (*LN8K*), money-center conference presentations (*LNMCP*), and

[20] The estimation period spans two 45-day periods before and after the flight window [(-60,-16) and (+16,+60)]. We also used an estimation period 90-days prior to the flight window (-105,-16) but found that, over the 2007 to 2010 period, volatility and volume steadily trended up, which biased toward finding abnormal volatility and volume. Also, note that our estimation period contains the quarterly earnings announcement, as well as other public disclosure events, which biases against us finding abnormal reactions to the flights.

other conference presentations (*LNOCP*) are based on the number of events within the three-day flight window. To control for the possibility that the market reaction in the three-day window is a delayed (or pre-empted) reaction from earlier flights, we include the log of one plus the number of money center flights in the prior 21 days (*LPMCEN*) and the log of one plus the number of non-money-center flights in the prior 21 days (*LPOFLT*) as control variables in the regression. All other controls are measured the same way as in the determinants tests. After requiring data for the control variables, we have a sample of 60,093 three-day flight windows, of which 23,573 (39.2%) involve at least one money center flight and 36,520 have no money center flights.

5.2 Univariate evidence

Table 4 presents mean and median values of abnormal absolute returns and share turnover in three-day windows starting six days before the flight window (0, +2) and ending eight days after. Panel A reports results for the full sample. There is no evidence of significant positive abnormal absolute returns or turnover for the full sample, which is not surprising because the flight windows cover almost all of the three-day windows during a quarter (as there are flights almost every day) and only 40% of the flight windows involve money center flights.

In Panel B, we compare money center flight windows to non-money-center flight windows. We find significantly positive abnormal absolute returns and share turnover during the money center flight windows. These market reactions are also significantly larger than the reactions during non-money-center flight windows, which are generally negative (i.e., lower returns and turnover than the level in the estimation period). However, the economic magnitudes of the money center flights are fairly small. The mean *ABN_ASAR* of 0.017 represents an absolute size-adjusted return that is 3.4 basis points (1.4%) higher than the mean normal level of

absolute SAR.[21] The mean *ABN_TURN* of 0.015 represents the percentage point increase in share turnover during the flight window, which is a 0.4% increase over the mean turnover in the estimation period (3.5%). Moreover, the medians for both variables are negative and only about 40% of money center flight windows experience increases in return volatility or volume. The small economic magnitudes are not surprising given that some of the money center flights do not involve investor meetings; i.e., we are measuring the "event date" of private meetings with error. Moreover, only a small subset of investors is meeting with managers. Finally, the manager is not likely to be releasing material new public information during these meetings; rather, the information content reflects a small subset of investors updating their private information.[22]

Panel C reports results for money center flight windows only, partitioned on whether the three-day window includes flights to one (*DMCEN1*=1) or multiple (*DROADSHOW*=1) money centers. The mean *ABN_ASAR* and *ABN_TURN* are both significantly positive for the "road show" windows, with the values significantly greater than the values for windows with flights to only one money center. The mean *ABN_ASAR* (*ABN_TURN*) of 0.047 (0.066) represents a 3.7% (1.8%) increase in absolute *SAR* (share turnover) over the estimation period level. Interestingly, the (+3, +5) window also shows significantly greater *ABN_ASAR* and *ABN_TURN* for the road show sample, suggesting either a continuation of the trip or a delayed trading response to whatever was discussed during the meetings. Thus, the univariate evidence suggests that

[21] While our standardized measure of *ABS_SAR* has desirable statistical properties (Cready and Hurtt [2002]), the magnitude is difficult to interpret. Multiplying the *ABS_SAR* by 2% (the mean standard deviation in the estimation period) yields the difference between the mean absolute *SAR* in the event window and the mean in the estimation window, which is 2.5%. Thus, a mean *ABS_SAR* of 0.017 represents an incremental absolute *SAR* of 0.034% (3.4 basis points), which is a 1.4% increase over the estimation period value (0.034% / 2.5%).

[22] To put the magnitude in perspective, Bushee et al. [2011a] reports an increase of absolute *SAR* from 3.2% to 3.5% (a 9% increase) during conference presentation windows, which involve a public presentation and greater investor participation. They also report that, for Form 8-K filings (earnings announcements), the absolute *SAR* increases by 31% (84%). Thus, investor meetings that are not accompanied by releases of new information generally have small economic increases in return volatility.

windows with multiple money center flights involve private meetings with investors and a statistically significant movement in prices and volume.[23]

Panel D presents the results based on three-day flight windows that include flights to one (*DHIOWN1*=1) or multiple (*DMULT_HIOWN*=1) MSAs with a high percentage of firm-specific institutional ownership. The mean *ABN_ASAR* and *ABN_TURN* are both significantly positive for the "road show" flights to other cities with firm-specific institutional ownership, with the values significantly greater than the values for windows with flights to only one top ownership city. This univariate evidence suggests that multiple flights to locations with high firm-specific institutional ownership are also used for private meetings with investors.

5.3 Regression analysis

Table 5 presents results from regressions of three-day abnormal absolute size-adjusted returns and abnormal share turnover on the money center flight variables and control variables. In columns (1) and (3), we include an indicator variable *DMCEN* for whether there was at least one money center flight during the three-day window. In columns (2) and (4), we include two indicator variables *DMCEN1* and *DROADSHOW* to distinguish between one or multiple money center flights during the three-day window. For all regressions, *t*-statistics are in parentheses and are calculated using standard errors clustered at both the firm- and quarter-level.

Among control variables, the coefficient on *LN8K* is positive and significant in all four regressions, reflecting increases in return volatility and trading volume surrounding releases of new information in the Form 8-K filings. Also, concurrent presentations at investor conferences held in money centers (*LNMCP*) are significantly associated with higher return volatility, but not

[23] We also examine signed size-adjusted returns for the different types of flight windows. We did not find any evidence of a significant signed return, either in absolute or relative terms, for the money center flight windows. This evidence suggests that money center flights are not solely used to disseminate good news or correct undervaluations. They also represent flights to manage potential bad news or to maintain a commitment to transparency without any type of news.

higher share turnover.[24] The number of flights to money centers in the previous month (*LPMCEN*) is significantly negatively associated with share turnover, suggesting that prior money center flights have triggered investor trading, reducing the impact of the subsequent flights. More importantly, controlling for concurrent public information events (8-K filings and presentations) and prior flights helps ensure that our variables of interest are capturing the information content of new private meetings with investors.

Consistent with the univariate evidence, the coefficients on *DMCEN* and *DROADSHOW* are positive and significant in both the absolute return and share turnover regressions. The coefficient on the *DROADSHOW* indicator is also significantly greater than the coefficient on the indicator for flights to a single money center (*DMCEN1*), which is only significant in the turnover regression. Overall, these results suggest that, while even one money center flight is enough to generate a significant increase in trading, the largest return and volume reactions accompany road shows that involve flights to multiple money centers in a three-day window, consistent with private meetings that generate significant price and volume reactions.

In Table 6, columns (1) and (4), we report the results of the regressions that add indicator variables for non-money-center flight windows that include one (*DHIOWN1*) or multiple (*DMULT_HIOWN*) flights to cities with high firm-specific institutional ownership during the window. The results show that multiple flights to locales with a high level of firm-specific institutional ownership (*DMULT_HIOWN*) are associated with greater return volatility and share turnover than flights to cities with little or no institutional ownership in the firm. In contrast flight windows with only one flight to a high-ownership city (*DHIOWN1*) do not have

[24] Bushee et al. [2011a] find a significant positive relation for share turnover as well. Our sample has many fewer firms, and fewer small firms, than their sample, which could account for the differences in results.

significantly higher volatility or turnover, suggesting that private meetings are more likely during windows when the managers are meeting with large investors in multiple locations.

One possible explanation for these results is that cities with high firm-specific institutional ownership proxy for other large cities where managers fly for other reasons. We address this possibility in columns (2) and (5) by replacing the high-ownership indicator variables with indicators for multiple (*DMULT_LARGE)* or single *(DLARGE1)* flights to any of the next ten MSAs with the most frequent number of flights.[25] The results show that flights to the next ten largest cities are not significantly associated with either abnormal return volatility or share turnover. In columns (3) and (6), we include all of the indicator variables and find that, even after controlling for flights to the next ten largest cities, multiple flights to cities with high firm-specific institutional ownership are significantly associated with higher return volatility and share turnover. Overall, this test provides evidence that corporate jet flights to cities with a high firm-specific concentration of institutional investors are associated with significant price and volume movements, consistent with the presence of private investor meetings.

While we argue that this evidence is consistent with flights to multiple money centers or multiple high-ownership cities reflecting private meetings with investors and, hence, information content due to updating of private information, there are other possible explanations for these results. First, it is possible that the manager has decided to disclose some news to the market and accompanies the disclosure with a number of flights to meet investors. However, if this is the case, the news disclosure would have to come in a form that is not captured by a Form 8-K filing or a public presentation at a conference. Second, it is possible that, when the firm is experiencing an uptick in return volatility or volume for whatever reason, the managers decide to take the

[25] As shown in Table 1, these MSAs are Washington, Los Angeles, Atlanta, Dallas, Houston, Miami, Philadelphia, Minneapolis-St. Paul, Baltimore, and Phoenix. We found the same results with indicators for the next top five cities.

corporate jet around to meet with investors. For this scenario to be the case, managers would need enough flexibility in their schedules that they could quickly arrange for a number of jet flights (and recall that there is always a money center flight on day one of the window). In any case, our results show that a large number of corporate jet flights to high-ownership areas are significantly associated with greater return volatility and volume even when not accompanied by a public disclosure, potentially providing an information advantage to those investors that are able to meet with managers during these trips.

6. Changes in flights and changes in institutional ownership

We next examine whether the number of flights to an MSA are associated with changes in ownership by institutional investors located in the MSA. If jet flights are used to build or maintain a commitment to transparency, and thus cultivate the firm's investor base, we expect that flights to a given MSA will be positively associated with institutional ownership based in that MSA. For each firm-quarter, we compute the percentage of shares outstanding held by institutions located in each MSA, yielding a sample of 316,259 firm-MSA-quarter observations.

We examine the relation between flights and institutional ownership over two periods. First, we measure changes in local institutional ownership over the calendar quarter in which flights occur (*CLOCIH*). These regressions allow us to test whether there is a concurrent relation between changes in flights and changes in ownership at the MSA level. Second, we measure future changes in local ownership using the calendar quarter subsequent to the quarter in which the flights occur (*FCLOCIH*), allowing us to test whether there is a lagged relationship between changes in flights and changes in ownership.

We calculate several measures of flight activity to the MSA. The first measure (*NFLIGHT*) is the number of flights to airports within the MSA during the quarter. In addition, we create the variable *NFLIGHT_MCEN*, which is the interaction between *NFLIGHT* and an indicator variable for whether the MSA is a money center (New York, Boston, Chicago, or San Francisco). This variable captures whether the relation between flights and ownership differs based on whether the MSA is located within a money center. The next two measures capture the initiation and cessation of flights to the MSA. *INITIATE* is an indicator variable coded as 1 for the first quarter in which a firm's planes fly to the MSA, and 0 otherwise. *CEASE* is an indicator variable coded as 1 for the last quarter in which the firm's planes make their last flight to the MSA, and 0 otherwise. For *INITIATE* (*CEASE*) to be coded as 1, we require that the firm's planes made no flights to the MSA during the first (last) quarter of the sample period.

Table 7 presents results for these tests. For each regression, we include fixed effects for the MSA-firm combination to capture time-invariant heterogeneity in the firm's institutional ownership at the MSA level. We also include quarter fixed effects and the same control variables that are used in Tables 5, and 6. We cluster standard errors at the MSA-firm level.

Columns (1) and (2) examine the relation between *NFLIGHT* and change in institutional ownership at the MSA-level for the concurrent and subsequent quarters. In both regressions, the coefficient on *NFLIGHT* is positive and significant, implying that flights to the MSA are associated with increases in ownership by institutions in the MSA during the current and subsequent quarters. In terms of economic significance, an increase of one flight to the MSA over the quarter is associated with a 0.6 percentage point increase in shares outstanding held by institutional investors located in the MSA.

We next add *NFLIGHT_MCEN* into the regressions reported in columns (3) and (4). For the current quarter, the coefficient on *NFLIGHT* remains positive and statistically significant. Although the coefficient on *NFLIGHT_MCEN* is over twice the magnitude of *NFLIGHT*, its standard error is large and, therefore, not statistically different from zero. For the relation with the subsequent quarter, although both coefficients are positive, neither is statistically significant.

Columns (5) and (6) replace *NFLIGHT* with *INITIATE* and *CEASE*. For the current quarter, the coefficient on *INITIATE* is positive and significant and the coefficient on *CEASE* is negative but not significant. For the subsequent quarter, *INITIATE* is positive and significant and *CEASE* is negative and significant. In terms of economic significance, the initiation of flights to the MSA is associated with a 2.6 percentage point increase in local institutional ownership while the cessation of flights to the MSA is associated with a 2.4 percentage point decrease in local ownership during the subsequent quarter.[26] Overall, the evidence is consistent with managers using jet flights for private meetings with local investors, leading to significant changes in local ownership when the frequency of such flights is changed.

7. Conclusion

We provide large sample evidence that managers use corporate jets to facilitate private, face-to-face meetings with investors. We find that the number of flights to money centers in a quarter is significantly associated with a number of proxies for incentives to privately communicate face-to-face with investors, including the complexity of the firm's information, investor demands for access, uncertainty about the firm, and a commitment to provide

[26] One possibility is that changes in ownership at the MSA rebound in quarters subsequent to the initiation or cessation of flights to the MSA. To address this possibility, we recoded *INITIATE* and *CEASE* such that they retain the value of one in quarters after the initiation and cessation of flights to the MSA. Results for these tests are qualitatively and quantitatively similar to those presented in Table 7.

transparency. These determinants do not explain flights to other locations with the same sign and significance, indicating that they do not explain flight activity in general.

We also find significant positive abnormal absolute size-adjusted returns and abnormal share turnover during three-day windows for money center flights that are also significantly greater than during windows with flights to other cities. The magnitude of the information content is greatest for "road shows", during which the jet flies to multiple money centers. Furthermore, we find that flights to non-money-center cities that have a high local firm-specific institutional ownership are associated with greater information content than flights to cities with little or no institutional ownership in the firm. Finally, flights to metro areas are associated with increases in local institutional ownership. Overall, these results suggests that corporate jets are used for private meetings with investors, which allow market participants to update their beliefs about the firm, leading to significant movements in price, volume, and ownership.

One limitation of this study is that the economic magnitudes of the results are small. These low magnitudes are likely due to the fact that we measure the event date of private meetings with noise (i.e., not all money center flights are for private meetings) and that only a small subset of the market meets with managers. However, the statistical significance and consistency of the results suggests that these meetings are an important information event for both the firm and the participating investors.

References

ANDERSON, P. *Nonverbal Communication: Forms and Functions*. Long Grove, IL: Waveland Press. 2008.

ANDREWS, A.; S. LINN; AND H. YI. "Corporate Governance and Perks: Evidence from the New SEC Disclosure Rules." Working paper, Wayne State University, 2009.

BAILEY, W.; H. LI; C.X. MAO; AND R. ZHONG. "Regulation Fair Disclosure and Earnings Information: Market, Analyst, and Corporate Responses." *The Journal of Finance* 58 (2003): 2487–2515.

BEAVER, W. "The Information Content of Annual Earnings Announcements." *Journal of Accounting Research* 6 (1968): 67–92.

BUSHEE, B.; M. JUNG; AND G. MILLER. "Conference Presentations and Disclosure Milieu." *Journal of Accounting Research* 49 (2011a.): 1163–1192.

BUSHEE, B.; M. JUNG; AND G. MILLER. "Do Investors Benefit from Selective Access to Management?" Working paper, University of Pennsylvania, 2011b.

BUSHEE, B.; D. MATSUMOTO; AND G. MILLER. "Open Versus Closed Conference Calls: The Determinants and Effects of Broadening Access to Disclosure." *Journal of Accounting and Economics* 34 (2003): 149–180.

BUSHEE, B.; D. MATSUMOTO; AND G. MILLER. "Managerial and Investor Responses to Disclosure Regulation: The Case of Reg FD and Conference Calls." *The Accounting Review* 79 (2004): 617-43.

BUSHEE, B., AND G. MILLER. "Investor Relations, Firm Visibility, and Investor Following." *The Accounting Review* (2012): forthcoming.

BUSHEE, B., AND C. NOE. "Corporate Disclosure Practices, Institutional Investors, and Stock Return Volatility." *Journal of Accounting Research* 38 (2000): 171–202.

COOLEY GODWARD. "SEC Regulation FD: New Rules for Communicating with Analysts and Investors." (2000) Available at http://www.cooley.com/files/ALERT_SEC_Reg_FD.pdf

CREADY, W., AND D. HURT. "Assessing Investor Response to Information Events Using Return and Volume Metrics." *The Accounting Review* 77 (2002): 891–909.

DUARTE, J.; X. HAN; J. HARFORD; AND L. YOUNG. "Information Asymmetry, Information Dissemination and the Effect of Regulation FD on the Cost of Capital." *Journal of Financial Economics* 87 (2008): 24–44.

EDGERTON, J. "Agency Problems in Public Firms: Evidence from Corporate Jets in Leveraged Buyouts." *Journal of Finance* (2011): forthcoming.

ELESWARAPU, V.; R. THOMPSON; AND K. VENKATARAMAN. "The Impact of Regulation Fair Disclosure: Trading Costs and Information Asymmetry." *Journal of Financial and Quantitative Analysis* 39 (2004): 209–225.

ELLIOT, W.; F. HODGE; AND L. SEDOR. "Using Online Video to Announce a Restatement: Influences on Investment Decisions and the Mediating Role of Trust." *The Accounting Review* (2012): forthcoming.

FRANCIS, J.; J. HANNA; AND D. PHILBRICK. "Management Communications with Securities Analysts." *Journal of Accounting and Economics* 24 (1997): 363–394.

FRANCIS, J.; D. NANDA; AND X. WANG. "Re-examining the Effects of Regulation Fair Disclosure Using Foreign Listed Firms to Control for Concurrent Shocks." *Journal of Accounting and Economics* 41 (2006): 271–292.

GRINSTEIN, Y.; D. WEINBAUM; AND N. YEHUDA. "Perks and Excess: Evidence from the New Compensation Disclosure Rules." Working paper, Cornell University, 2011.

HEALY, P; A. HUTTON; AND K. PALEPU. "Stock Performance and Intermediation Changes Surrounding Sustained Increases in Disclosure." *Contemporary Accounting Research* 16 (1999): 485–520.

HEFLIN, F.; K.R. SUBRAMANYAM; AND Y. ZHANG. "Regulation FD and the Financial Information Environment: Early Evidence." *The Accounting Review* 78 (2003): 1–37.

HOLTHAUSEN, R., AND R. VERRECCHIA. "The Effect of Informedness and Consensus on Price and Volume Behavior." *The Accounting Review* 65 (1990): 191–208.

KANDEL, E., AND N. PEARSON. "Differential Interpretation of Public Signals and Trade in Speculative Markets." *The Journal of Political Economy* 103 (1995): 831–872.

KE, B.; K. PETRONI; AND Y. YU. "The Effect of Regulation FD on Transient Institutional Investors' Trading Behavior." *Journal of Accounting Research* 46 (2008): 853–884.

KROSS, W, AND I. SUK. "Does Regulation FD Work? Evidence from Analysts' Reliance on Public Disclosure." *Journal of Accounting and Economics* 53 (2011): 225–248.

LANDSMAN, W., AND E. MAYDEW. "Has the Information Content of Quarterly Earnings Announcements Declined in the Past Three Decades?" *Journal of Accounting Research* 40 (2002): 797–808.

LANG, M., AND R. LUNDHOLM. "Cross-sectional Determinants of Analyst Ratings of Corporate Disclosures." *Journal of Accounting Research* 31 (1993): 246–271.

LANG, M., AND R. LUNDHOLM. "Corporate Disclosure Policy and Analyst Behavior." *The Accounting Review* 71 (1996): 467–492.

LEUZ, C., AND R. VERRECCHIA. "The Economics Consequences of Increased Disclosure." *Journal of Accounting Research* 38 (2000): 91–124

MAREMONT, M., AND T. MCGINTY. "For the Highest Fliers, New Scrutiny." *Wall Street Journal*. May 21, 2011.

MATSUMOTO, D. "Management's Incentives to Avoid Negative Earnings Surprises." *The Accounting Review* 77 (2002): 483–514.

MAYEW, W., AND M. VENKATACHALAM. "The Power of Voice: Managerial Affective States and Future Performance." *Journal of Finance* 67 (2012): 1–44.

MEHRABIAN, A. *Silent Messages*. Belmont, CA: Wadsworth Publishing Company. 1971.

RAJAN, R., AND J. WULF. "Are Perks Purely Managerial Excess?" *Journal of Financial Economics* 79 (2006): 1–33.

SEC v. Siebel Systems, et al., 2005. United States District Court for the Southern District of New York, Memorandum Decision and Order, August 31.

SOLOMON, D., AND E. SOLTES. "What Are We Meeting for? The Consequences of Private Meetings with Investors." Unpublished working paper, Harvard University, 2011.

SOLTES, E. "Private Interaction between Firm Management and Sell-side Analysts." Unpublished working paper, Harvard University, 2012.

SUBASI, M. "Investor Conferences and Institutional Trading in Takeover Targets." Unpublished working paper, University of Texas at Dallas, 2012.

SUBRAMANIAM, C. "Detecting Information Content of Corporate Announcements Using Variance Increases: A Methodological Study." *Journal of Accounting, Auditing, and Finance* Fall (1995): 415–430.

TASKER, S. "Bridging the Information Gap: Quarterly Conference Call as a Medium for Voluntary Disclosure." *Review of Accounting Studies* 3 (1998): 137–167.

VERRECCHIA, R. "Essays on Disclosure." *Journal of Accounting and Economics* 32 (2001): 97–180.

WANG, I.Y. "Private Earnings Guidance and Its Implications for Disclosure Regulation." *The Accounting Review* 82 (2007): 1299–1333.

YERMACK, D. "Flights of Fancy: Corporate Jets, CEO Perquisites, and Inferior Shareholder Returns." *Journal of Financial Economics* 80 (2006): 211–242

YERMACK, D. "Tailspotting: How Disclosure, Stock Prices and Volatility Change when CEOs Fly to Their Vacation Homes." Working paper, New York University, 2012.

APPENDIX
Example of Flight Window Definitions

Summary of all flights for 3M Company for the last two months of 2007:

DATE	NFLT	NMCEN	MCEN MSA	Window Type	Window Day
20071031	1	0		OTHER	0
20071101	1	0		OTHER	+1
20071102	1	0		OTHER	+2
20071104	4	1	(CHI)	MCEN	0
20071106	1	0		MCEN	+1
20071107	1	0		MCEN	+2
20071108	0	0			
20071109	0	0			
20071112	13	5	(NYC, SFO, CHI(3))	MCEN	0
20071113	3	2	(NYC, CHI)	MCEN	+1
20071114	0	0		MCEN	+2
20071115	0	0			
20071116	0	0			
20071119	3	0		OTHER	0
20071120	0	0		OTHER	+1
20071121	0	0		OTHER	+2
20071123	1	1	(CHI)	MCEN	0
20071126	6	2	(BOS, CHI)	MCEN	+1
20071127	2	0		MCEN	+2
20071128	4	1	(BOS)	MCEN	0
20071129	1	0		MCEN	+1
20071130	1	0		MCEN	+2
20071203	3	2	(NYC(2))	MCEN	0
20071204	4	0		MCEN	+1
20071205	2	0		MCEN	+2
20071206	1	0		OTHER	0
20071207	0	0		OTHER	+1
20071210	4	0		OTHER	+2
20071211	4	1	(NYC)	MCEN	0
20071212	2	1	(NYC)	MCEN	+1
20071213	1	1	(NYC)	MCEN	+2
20071214	4	0			
20071217	5	1	(BOS)	MCEN	0
20071218	4	0		MCEN	+1
20071219	1	0		MCEN	+2
20071220	5	1	(BOS)	MCEN	0
20071221	0	0		MCEN	+1
20071224	2	2	(CHI(2))	MCEN	+2
20071227	0	0			
20071228	0	0			

This appendix summarizes all of the flights for the 3M Company between October 31, 2007 and December 31, 2007 by trading day (non-trading flights are summed with the flights on the next trading day). To form flight windows, we start by identifying the first date with a money center flight and then define that date and the next two as a money center window (MCEN). Once all money center windows are defined, we repeat the process for other (non-money-center) windows (OTHER). If a three-day OTHER window cannot be formed without overlapping with a money center window, we ignore the date (see 20071214). The most common destinations for OTHER flights are Park Rapids, MN (16); Austin, TX (9), Milwaukee, WI (3), and Anchorage, AK (3).

TABLE 1
Flight and Investor Locales

Panel A: Number of flights to top-20 destination MSAs

Rank	Location	Number of Flights	Number of Firms HQ in MSA
1	New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	32,068	22
2	Chicago-Joliet-Naperville, IL-IN-WI MSA	17,382	12
3	Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	16,221	5
4	Los Angeles-Long Beach-Santa Ana, CA MSA	11,197	8
5	Atlanta-Sandy Springs-Marietta, GA MSA	9,784	13
6	Dallas-Fort Worth-Arlington, TX MSA	9,404	12
7	Houston-Sugar Land-Baytown, TX MSA	8,057	16
8	Miami-Fort Lauderdale-Pompano Beach, FL MSA	7,675	3
9	Boston-Cambridge-Quincy, MA-NH MSA	7,504	6
10	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	6,390	8
11	Minneapolis-St. Paul-Bloomington, MN-WI MSA	5,098	9
12	Baltimore-Towson, MD MSA	4,595	2
13	Phoenix-Mesa-Glendale, AZ MSA	4,588	2
14	San Francisco-Oakland-Fremont, CA MSA	4,458	11
15	Denver-Aurora-Broomfield, CO MSA	4,456	8
16	St. Louis, MO-IL MSA	3,774	7
17	Pittsburgh, PA MSA	3,705	5
18	Detroit-Warren-Livonia, MI MSA	3,573	4
19	Orlando-Kissimmee-Sanford, FL MSA	3,535	1
20	Columbus, OH MSA	3,179	5

TABLE 1 (continued)
Flight and Investor Locales

Panel B: Geographic location of institutional investors

Rank	Location	NII	MNIH	MPIH
1	New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	795	59.748	0.128
2	Boston-Cambridge-Quincy, MA-NH MSA	202	26.003	0.108
3	Chicago-Joliet-Naperville, IL-IN-WI MSA	170	20.424	0.039
4	San Francisco-Oakland-Fremont, CA MSA	164	12.489	0.023
5	Los Angeles-Long Beach-Santa Ana, CA MSA	141	12.569	0.055
6	Bridgeport-Stamford-Norwalk, CT MSA	124	8.621	0.010
7	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	109	12.954	0.012
8	Dallas-Fort Worth-Arlington, TX MSA	67	6.636	0.008
9	Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	61	7.112	0.004
10	Minneapolis-St. Paul-Bloomington, MN-WI MSA	48	5.823	0.005
11	Houston-Sugar Land-Baytown, TX MSA	47	4.661	0.002
12	Atlanta-Sandy Springs-Marietta, GA MSA	36	5.133	0.012
13	Baltimore-Towson, MD MSA	33	4.633	0.022
14	San Diego-Carlsbad-San Marcos, CA MSA	32	3.795	0.005
15	Seattle-Tacoma-Bellevue, WA MSA	32	3.227	0.004
16	Cincinnati-Middletown, OH-KY-IN MSA	31	5.451	0.002
17	Milwaukee-Waukesha-West Allis, WI MSA	31	5.127	0.006
18	Denver-Aurora-Broomfield, CO MSA	29	5.793	0.014
19	St. Louis, MO-IL MSA	29	4.326	0.002
20	Detroit-Warren-Livonia, MI MSA	25	3.954	0.002

Table 1 presents the top destinations of corporate jet flights and the geographic locations of firms' headquarters (HQ) and institutional investors. We base flight destinations and investor locations on Metropolitan Statistical Areas (MSAs). Panel A lists the top 20 destinations for flights in our sample firms and the number of firms headquartered in each MSA. Panel B presents the geographic locations of institutional investors that own shares in our sample firms. NII is the number of unique institutional investors with positive shareholdings in at least one of our sample firms. MNIH is the mean number of institutions in the MSA that hold shares in our sample firms. MPIH is the mean percentage shares outstanding held by institutions located in the MSA.

TABLE 2
Descriptive Statistics

Variable	Mean	Std Dev	Median	Minimum	Maximum
MCEN	4.357	6.308	2.000	0.000	38.000
LMCEN	1.212	0.937	1.099	0.000	3.664
ROADSHOW	0.521	0.925	0.000	0.000	4.000
LROADSHOW	0.292	0.461	0.000	0.000	1.609
OFLT	23.052	23.594	16.000	1.000	130.000
LOFLT	2.793	0.910	2.833	0.000	5.733
INTAN	0.179	0.185	0.112	0.000	0.710
PIH	0.715	0.182	0.745	0.054	1.000
AF_DISPERSION	0.047	0.267	0.028	-1.267	1.381
CH_SINT	0.000	0.010	0.000	-0.038	0.038
ISSUE	0.072	0.275	0.000	0.000	2.000
POST_EA_MONTH	0.349	0.477	0.000	0.000	1.000
EA_RET	0.001	0.058	0.001	-0.193	0.182
MVE	19372	36303	5196	86	191681
LMVE	8.613	1.680	8.556	4.459	12.164
BM	0.651	0.484	0.539	-0.104	3.165
SALEG	0.020	0.229	0.023	-0.635	0.921
CHNI	0.000	0.029	0.000	-0.129	0.144
EP	-0.001	0.084	0.016	-0.641	0.081
LEV	0.249	0.171	0.234	0.000	0.734
BETA	1.179	0.595	1.079	0.087	3.187
SDEV	0.032	0.017	0.028	0.009	0.085
NANL	6.899	6.283	5.000	0.000	27.000
LNANL	1.717	0.893	1.792	0.000	3.332
ANNMAR	0.047	0.374	0.006	-0.620	1.785
ANNTURN	0.273	0.178	0.227	0.018	1.097
N8K	3.050	2.377	2.000	0.000	12.000
LN8K	0.911	0.749	1.099	0.000	2.485
NMCP	0.295	0.624	0.000	0.000	3.000
LNMCP	0.133	0.312	0.000	0.000	1.242
NOCP	0.161	0.440	0.000	0.000	2.000
LNOCP	0.076	0.239	0.000	0.000	1.099

TABLE 2 (continued)
Descriptive Statistics

Table 2 presents descriptive statistics for the variables used in our analysis of the determinants of flights. MCEN is the number of flights to money centers during the month. We define money centers as locations in the Boston, Chicago, New York, and San Francisco MSAs. ROADSHOW is the number of road shows during the month. We define a road show as a three-day window where there are flights to two or more money centers. OFLT is the number of flights during the month to non-money-centers (i.e. other flights). INTAN is the ratio of the firm's intangible assets to total assets at the end of the prior fiscal quarter. PIH is the percentage of shares outstanding held by institutional investors at the end of the prior calendar quarter. AF_DISPERSION is the standard deviation of analyst EPS forecast scaled by the mean analyst EPS forecast in the prior month. CH_SINT is the month-to-month change in the ratio of shares sold short to trading volume measured in the prior month. ISSUE is an indicator coded as 1 if there is either a debt or equity issuance in the subsequent month and 0 otherwise. POST_EA_MONTH is an indicator variable equal to 1 if the firm announces earnings in the prior month. EA_RET is the value-weighted market-adjusted return for the three-day window (-1, +1) centered around the earnings announcement date. MVE is the firm's market value of equity at the end of the prior fiscal quarter. BM is the ratio of the firm's book value to market value of assets at the end of the prior fiscal quarter. SALEG is the quarter-on-quarter sales growth at the end of the prior fiscal quarter. CHNI is the quarter-on-quarter change in net income divided by total assets at the end of the prior fiscal quarter. EP is basic earnings per share (excluding extraordinary items) scaled by price at the end of the prior fiscal quarter. LEV is the firm's leverage ratio, calculated as the firm's total debt to total assets at the end of the prior fiscal quarter. BETA is beta of the firm's equity. SDEV is the standard deviation of the firm's stock returns. NANL is the number of sell-side analysts that cover the firm based on analyst EPS forecasts in the prior month. ANNMAR is the buy-and-hold market adjusted return and ANNTURN is the average monthly share turnover for the year prior to 30 days before the start of the flight month. N8K is the number of 8-Ks issued during the flight month. NMCP is the number of money center conference presentations and NOCP is the number of other conference presentations during the flight month. Variables with the prefix L represent the log of the variable.

TABLE 3

Regressions of Flights to Money Centers and Non-Money-Center Cities on Determinant and Control Variables

	LMCEN	LROADSHOW	LOFLT
INTERCEPT	-0.786***	-0.532***	-0.237***
	(-5.06)	(-5.42)	(-2.78)
INTAN	0.287***	0.123**	-0.08
	(2.92)	(1.97)	(-1.23)
PIH	0.08**	0.071**	-0.067
	(2.31)	(3.03)	(-1.52)
AF_DISPERSION	0.009	0.003	0.003
	(0.37)	(0.21)	(0.54)
CH_SINT	0.354	-0.132	-0.224
	(0.84)	(-0.51)	(-1.2)
ISSUE	0.036*	0.037**	-0.002
	(1.80)	(2.54)	-0.19
POST_EA_MONTH	0.047**	0.03**	-0.007
	(2.42)	(2.53)	(-0.64)
EA_RET	0.065	0.041	0.032
	(0.51)	(0.47)	(0.49)
POST_EA_MONTH*EA_RET	-0.416**	-0.214*	0.151*
	(-2.02)	(-1.65)	(2.12)
PLMCEN	0.556***		-0.159***
	(-8.07)		(-5.92)
PLROADSHOW		0.327***	
		10.19	
LMVE	0.029**	0.018**	0.003
	(1.98)	(2.25)	(0.31)
BM	0.001	-0.002	0.012
	(0.03)	(-0.10)	(0.67)
SALEG	-0.063	-0.045*	0.016
	(-1.19)	(-1.70)	(1.02)
CHNI	-0.032	0.23	0.126
	(-0.10)	(1.23)	(1.21)
EP	0.147	0.017	-0.077
	(1.05)	(0.25)	(-1.52)
LEV	0.051	-0.035	0.065
	(0.50)	(-0.56)	(1.12)
BETA	0.009	-0.01	-0.021
	(0.28)	(-0.47)	(-1.30)
SDEV	0.510	0.85	-0.165
	(0.46)	(1.24)	(-0.32)
LNANL	-0.012	-0.005	0.001
	(-0.69)	(-0.46)	(0.11)
ANNMAR	-0.011	-0.008	0.02
	(-0.40)	(-0.49)	(1.49)
ANNTURN	0.076	-0.028	-0.013
	(0.89)	(-0.57)	(-0.33)
LN8K	0.004	-0.003	-0.004
	(0.35)	(-0.4)	(-0.96)
LNMCP	0.122***	0.065***	-0.018*
	(5.18)	(3.62)	(-1.95)
LNOCP	-0.054*	-0.046*	0.003
	(-1.84)	(-1.91)	(0.27)
LTFLT	0.56***	0.204***	1.01***
	(19.38)	(11.73)	(112.60)
PLTFLT	-0.255***	-0.036**	-0.095***
	(-8.07)	(-2.30)	(6.04)
N	9510	9510	9510
Adj R^2	0.6521	0.3526	0.9562

*,**,*** Significantly different from zero at the 0.10, 0.05, and 0.01 level, using two-tailed tests

TABLE 3 (continued)

Regressions of Flights to Money Centers and Non-Money-Center Cities on Determinant and Control Variables

Table 3 presents tests of the determinants of flights to money and non-money-center cities. The first column presents results from a regression in which the dependent variable (LMCEN) is the log of one plus the number of flights in the month to money centers. We define money centers as locations in the Boston, Chicago, New York, and San Francisco MSAs. The second column presents results from a regression in which the dependent variable (LROADSHOW) is the number of road shows in the month. We define a road show as a three-day window where there are flights to two or more money centers. The third column presents results for a regression in which the dependent variable (LOFLT) is the log of one plus the number of flights in the quarter to non-money-center cities. In all regressions, standard errors are clustered at the firm- and quarter-level. INTAN is the ratio of the firm's intangible assets to total assets at the end of the prior fiscal quarter. PIH is the percentage of shares outstanding held by institutional investors at the end of the prior calendar quarter. AF_DISPERSION is the standard deviation of analyst EPS forecast scaled by the mean analyst EPS forecast in the prior month. CH_SINT is the month-to-month change in the ratio of shares sold short to trading volume measured in the prior month. ISSUE is an indicator coded as 1 if there is either a debt or equity issuance in the subsequent month and 0 otherwise. POST_EA_MONTH is an indicator variable equal to 1 if the firm announces earnings in the prior month. EA_RET is the value-weighted market-adjusted return for the three-day window (-1,+1) centered around the earnings announcement date. PLMCEN is the log of ones plus the number of money center flights in the same month in the prior year. PLROADSHOW is the log of one plus the number of road shows in the same month in the prior year. LMVE is the log of the firm's market value of equity at the end of the prior fiscal quarter. BM is the ratio of the firm's book value to market value of assets at the end of the prior fiscal quarter. SALEG is the quarter-on-quarter sales growth at the end of the prior fiscal quarter. CHNI is the quarter-on-quarter change in net income divided by total assets at the end of the prior fiscal quarter. EP is basic earnings per share (excluding extraordinary items) scaled by price at the end of the prior fiscal quarter. LEV is the firm's leverage ratio, calculated as the firm's total debt to total assets at the end of the prior fiscal quarter. BETA is beta of the firm's equity. SDEV is the standard deviation of the firm's stock returns. LNANL is the log of one plus the number of sell-side analysts that cover the firm based on analyst EPS forecasts in the prior month. ANNMAR is the buy-and-hold market adjusted return and ANNTURN is the average monthly share turnover for the year prior to 30 days before the start of the flight month. LN8K is the log of one plus the number of 8-Ks issued during the flight month. LNMCP is the log of one plus the number of money center conference presentations and LNOCP is the log of one plus the number of other conference presentations during the flight month. Variables with the prefix L represent the log of the variable. LTFLT is the log of one plus the number of total flights in the same month. PLTFLT is the log of one plus the number of total flights in the same month in the prior year.

TABLE 4

Mean and Median Stock Market Reactions around the Three-Day Flight Window

Panel A: Full Sample

		Mean Change	Median Change	N
ABN_ASAR	(-6,-4)	-0.007**	-0.252***	60,092
	(-3,-1)	-0.004	-0.250***	60,092
	(0,+2)	0.002	-0.243***	60,093
	(+3,+5)	-0.011***	-0.251***	60,093
	(+6,+8)	-0.011***	-0.257***	60,092
ABN_TURN	(-6,-4)	-0.045***	-0.178***	60,092
	(-3,-1)	-0.038***	-0.179***	60,093
	(0,+2)	-0.029***	-0.171***	60,093
	(+3,+5)	-0.048***	-0.184***	60,093
	(+6,+8)	-0.045***	-0.181***	60,092

Panel B: Money Center vs. Other

		Mean Change			Median Change			N	
		DMCEN = 1	DMCEN = 0		DMCEN = 1	DMCEN = 0		DMCEN=1	DMCEN=0
ABN_ASAR	(-6,-4)	-0.002	-0.010**		-0.249***	-0.254***		23,572	36,520
	(-3,-1)	0.007	-0.011**	††	-0.239***	-0.256***	††	23,572	36,520
	(0,+2)	0.017***	-0.008	†††	-0.231***	-0.251***	†††	23,573	36,520
	(+3,+5)	-0.003	-0.016***	†	-0.246***	-0.254***	†	23,573	36,520
	(+6,+8)	-0.018***	-0.006	†	-0.262***	-0.253***		23,572	36,520
ABN_TURN	(-6,-4)	-0.022**	-0.060***	†††	-0.164***	-0.188***	†††	23,572	36,520
	(-3,-1)	-0.002	-0.062***	†††	-0.160***	-0.192***	†††	23,573	36,520
	(0,+2)	0.015*	-0.058***	†††	-0.146***	-0.187***	†††	23,573	36,520
	(+3,+5)	-0.019**	-0.067***	†††	-0.165***	-0.196***	†††	23,573	36,520
	(+6,+8)	-0.044***	-0.045***		-0.172***	-0.187***	††	23,572	36,520

*, **, *** Significantly different from zero at the 0.10, 0.05, and 0.01 level, using two-tailed tests.

†, ††, ††† DMCEN=1 sample significantly greater than DMCEN=0 sample at the 0.10, 0.05, and 0.01 level, using two-tailed tests.

TABLE 4 (continued)
Mean and Median Stock Market Reactions around the Three-Day Flight Window

Panel C: By Number of Flights to Money Centers

		Mean Change			Median Change			N	
		DROADSHOW=1	DMCEN1 = 1		DROADSHOW=1	DMCEN1 = 1		DROADSHOW=1	DMCEN1=1
ABN_ASAR	(-6,-4)	0.006	-0.004		-0.244***	-0.250***		6222	17,350
	(-3,-1)	-0.007	0.012	†	-0.251***	-0.236***	†	6222	17,350
	(0,+2)	0.047***	0.007	†††	-0.219***	-0.235***	††	6222	17,351
	(+3,+5)	0.021**	-0.012	††	-0.221***	-0.257***	†††	6222	17,351
	(+6,+8)	-0.023**	-0.015**		-0.275***	-0.257***		6222	17,350
ABN_TURN	(-6,-4)	0.000	-0.030**		-0.144***	-0.171***	†††	6222	17,350
	(-3,-1)	0.035**	-0.015	††	-0.135***	-0.169***	†††	6222	17,351
	(0,+2)	0.066***	-0.003	†††	-0.121***	-0.156***	†††	6222	17,351
	(+3,+5)	0.036**	-0.039***	†††	-0.130***	-0.181***	†††	6222	17,351
	(+6,+8)	-0.035**	-0.048***		-0.160***	-0.176***	†	6222	17,350

Panel D: By Number of Flights to Other High Firm-Specific Institutional Ownership Cities

		Mean Change			Median Change			N	
		DMULT_HIOWN=1	DHIOWN1=1		DMULT_HIOWN=1	DHIOWN1=1		DMULT_HIOWN=1	DHIOWN1=1
ABN_ASAR	(-6,-4)	-0.003	-0.006		-0.249***	-0.256***		4033	9907
	(-3,-1)	-0.025**	0.001	†	-0.263***	-0.237***	††	4033	9907
	(0,+2)	0.035**	0.000	††	-0.202***	-0.239***	†	4033	9907
	(+3,+5)	-0.003	-0.017*		-0.237***	-0.243***		4033	9907
	(+6,+8)	0.008	0.004		-0.239***	-0.253***		4033	9907
ABN_TURN	(-6,-4)	-0.037**	-0.065***		-0.151***	-0.193***	†††	4033	9907
	(-3,-1)	-0.023	-0.070***	†	-0.150***	-0.200***	†††	4033	9907
	(0,+2)	0.028*	-0.061***	†††	-0.129***	-0.199***	†††	4033	9907
	(+3,+5)	0.009	-0.071***	†††	-0.146***	-0.210***	†††	4033	9907
	(+6,+8)	0.020	-0.047***	†††	-0.124***	-0.201***	†††	4033	9907

*, **, *** Significantly different from zero at the 0.10, 0.05, and 0.01 level, using two-tailed tests.

†, ††, ††† DROADSHOW=1 (DMULT_HIOWN=1) sample significantly greater than DMCEN1=1 (DHIOWN1=1) sample at the 0.10, 0.05, and 0.01 level, using two-tailed tests, in Panel C (Panel D).

This table presents univariate tests of stock market reactions to flights. We measure market reactions using abnormal absolute value size-adjusted returns (ABN_ASAR) and abnormal share turnover (ABN_TURN). ABN_ASAR is measured as the difference between the three day absolute size-adjusted returns and the mean three day absolute size-adjusted returns over a 90-day estimation period divided by the standard deviation of the mean absolute size-adjusted returns over the estimation period. ABN_TURN is measured as the three-day volume divided by shares outstanding less the average three-day turnover in the 90-day estimation period, multiplied by 100. Panel A compares mean and median changes in ABN_ASAR and ABN_TURN over three-day windows around the flight windows (0, +2). Panel B compares mean and median in ABN_ASAR and ABN_TURN for money center (DMCEN = 1) and non-money-center (DMCEN = 0) flights. Panel C compares mean and median in ABN_ASAR and ABN_TURN for flights to one (DMCEN1 =1) and multiple (DROADSHOW = 1) money centers in the three-day window. Panel D compares mean and median in ABN_ASAR and ABN_TURN for flights to one (DHIOWN1 = 1) and multiple (DMULTI_HIOWN = 1) cities where the firm has a high level of firm-specific institutional ownership. We define high firm-specific institutional ownership cities as any MSA with at least five institutional owners or 1% ownership in the firm.

TABLE 5

Regressions of Stock Market Reactions during the Flight Three-Day Window on Flights to Money Centers and Control Variables

	ABN_ASAR	ABN_ASAR	ABN_TURN	ABN_TURN
DMCEN	0.016**		0.061***	
	(1.739)		(3.086)	
DMCEN1		0.008		0.047**
		(0.750)		(2.498)
DROADSHOW		0.044***††		0.105***†††
		(3.621)		(4.444)
LN8K	0.357***	0.357***	0.758***	0.758***
	(18.375)	(18.367)	(17.455)	(17.473)
LNMCP	0.129**	0.128**	0.105	0.104
	(2.498)	(2.479)	(0.963)	0.954
LNOCP	-0.035	-0.035	0.062	0.061
	(-0.787)	(-0.798)	(0.705)	(0.697)
LPMCEN	-0.004	-0.006	-0.028**	-0.030**
	(-0.851)	(-1.145)	(-2.081)	(-2.293)
LPOFLT	-0.009**	-0.010**	-0.008	-0.009
	(-1.826)	(-1.959)	(-0.810)	(-0.936)
PIH	-0.013	-0.011	0.037	0.041
	(-0.572)	(-0.459)	(0.404)	(0.446)
LNANL	-0.029**	-0.029**	0.000	0.000
	(-2.108)	(-2.113)	(0.004)	(0.001)
LMVE	0.003	0.003	-0.011	-0.011
	(0.650)	(0.678)	(-1.122)	(-1.105)
EP	0.142	0.140	0.844	0.842
	(0.722)	(0.717)	(1.339)	(1.334)
BM	-0.026***	-0.026***	-0.068***	-0.067***
	(-3.878)	(-3.787)	(-2.950)	(-2.944)
LEV	-0.039**	-0.038**	-0.096**	-0.094**
	(-2.429)	(-2.333)	(-2.294)	(-2.246)
INTAN	0.026	0.025	0.001	0.000
	(1.266)	(1.250)	(0.023)	(0.010)
ANNMAR	-0.030***	-0.030***	0.016	0.016
	(-3.798)	(-3.824)	(0.495)	(0.498)
ANNTURN	-0.025	-0.025	-0.583***	-0.583***
	(-0.713)	(-0.714)	(-3.750)	(-3.749)
CHNI	0.073	0.071	-0.169	-0.172
	(0.520)	(0.508)	(-0.277)	(-0.282)
SALEG	0.000	0.000	0.037	0.038
	(-0.017)	(-0.001)	(0.532)	(0.540)
BETA	-0.013*	-0.013	-0.002	-0.002
	(-1.684)	(-1.645)	(-0.067)	(-0.052)
SDEV	0.230	0.232	1.087	1.090
	(0.505)	(0.508)	(0.681)	(0.683)
POST_EA_MONTH	0.149***	0.149***	0.477***	0.477***
	(8.021)	(8.009)	(9.465)	9.467
AF_DISPERSION	-0.018	-0.018*	0.045	0.045
	(-1.621)	(-1.647)	(0.888)	(0.895)
EA_RET	-0.204***	-0.203***	-0.285	-0.284
	(-2.671)	(-2.664)	(-1.254)	(-1.250)
CH_SINT	-0.755	-0.755	1.290	1.290
	(-0.860)	(-0.860)	(0.664)	(0.664)
ISSUE	-0.016	-0.017	0.112*	0.111*
	(-1.027)	(-1.073)	(1.824)	(1.811)
N	60,093	60,093	60,093	60,093
Adj R^2	0.031	0.031	0.063	0.063

*,**,*** Significantly different from zero at the 0.10, 0.05, and 0.01 level, using two-tailed tests

†, ††, ††† DROADSHOW significantly greater than DMCEN1 at the 0.10, 0.05, and 0.01 level, using two-tailed tests.

TABLE 5 (continued)

Regressions of Stock Market Reactions during the Flight Three-Day Window on Flights to Money Centers and Control Variables

This table presents regressions that test of the relation between money center flights and abnormal absolute returns and abnormal trading volume. The unit of observation is the three-day flight window (see Appendix). For the first two columns the dependent variable is ABN_ASAR, which is measured as the difference between the three day absolute size-adjusted returns and the mean three day absolute size-adjusted returns over a 90-day estimation period divided by the stand deviation of the mean absolute size-adjusted returns over the estimation period. For the last two columns the dependent variable is ABN_TURN, which is measured as the three-day volume divided by shares outstanding less the average three-day turnover in the 90-day estimation period, multiplied by 100. Standard errors are clustered at both the firm- and calendar quarter-level. DMCEN is an indicator variable coded as 1 if the three-day window started with a money center flight, and 0 otherwise. DMCEN1 is an indicator variable coded as 1 if there is only one center flight in the three-day window, and 0 otherwise. DROADSHOW is an indicator variable coded as 1 if there are multiple money center flight in the three-day windows, and 0 otherwise. LN8K is the log of one plus the number of 8-Ks issued during the three-day window. LNMCP is the log of one plus the number of money center conference presentations during the three-day window. LNOCP is the log of one plus the number of other conference presentations during the flight quarter. LPMCEN is the log of one plus the number of money center flights in the prior month (21 trading days). LPOFLT is the log of one plus the number of non-money-center flights in the prior month (21 trading days). PIH is the percentage of shares outstanding held by institutional investors at the end of the most recent quarter. LNANL is log of the number of sell-side analysts that cover the firm. LMVE is the log of the firm's market value of equity. EP is basic earnings per share (excluding extraordinary items) scaled by price at the end of the prior fiscal quarter. BM is the ratio of the firm's book value of assets to its market value of assets at the end of the prior fiscal quarter. LEV is the ratio of the firm's total debt to total assets at the end of the prior fiscal quarter. INTAN is the ratio of the firm's intangible assets to its total assets at the end of the prior fiscal quarter. ANNMAR is the buy-and-hold market adjusted return for the prior year to 30 day before the start of the three-day window. ANNTURN is the average monthly share turnover for the year prior to 30 days before the start of the three-day window. CHNI is the quarter-on-quarter change in net income divided by total assets at the end of the prior fiscal quarter. SALEG is the firm's quarter-on-quarter sales growth measured at the end of the prior fiscal quarter. BETA is beta of the firm's equity. SDEV is the standard deviation of the firm's stock returns. AF_DISPERSION is the standard deviation of analyst EPS forecast scaled by the mean analyst EPS forecast in the prior month. POST_EA_MONTH is an indicator variable equal to 1 if the firm announces earnings in the prior month. EA_RET is the value-weighted market-adjusted return for the three-day window (-1, +1) centered around the earnings announcement date. CH_SINT is the month-to-month change in the ratio of shares sold short to trading volume. ISSUE is an indicator coded as 1 if there is either a debt or equity issuance in the subsequent month, and 0 otherwise.

TABLE 6

Regressions of Stock Market Reactions during the Three-Day Flight Window on Non-Money-Center Flights to Regions with Large Institutional Ownership

	ABN_ASAR	ABN_ASAR	ABN_ASAR	ABN_TURN	ABN_TURN	ABN_TURN
DMCEN1	0.023	0.007	0.024	0.073***	0.056***	0.077***
	(1.525)	(0.594)	(1.449)	(3.277)	(2.887)	(3.231)
DROADSHOW	0.062***	0.045***	0.064***	0.134***	0.115***	0.139***
	(3.674)	(3.301)	(3.740)	(4.420)	(4.168)	(4.285)
DHIOWN1	0.021		0.023	0.017		0.022
	1.580		(1.482)	(0.735)		(0.867)
DMULT_HIOWN	0.056***		0.057***†	0.079**		0.085**††
	(3.440)		(3.255)	(2.242)		(2.373)
DLARGE1		-0.009	0.004		-0.004	0.013
		(-0.731)	(0.299)		(-0.207)	(0.638)
DMULT_LARGE		0.002	0.016		0.050	0.068
		(0.040)	(0.409)		(0.896)	(1.154)
LN8K	0.357***	0.357***	0.357***	0.781***	0.782***	0.782***
	(17.434)	(17.480)	(17.433)	(18.077)	(18.092)	(18.099)
LNMCP	0.150***	0.151**	0.150***	0.167	0.168	0.168
	(2.578)	(2.572)	(2.589)	(1.429)	(1.441)	(1.444)
LNOCP	-0.040	-0.040	-0.041	0.027	0.026	0.025
	(-0.760)	(-0.750)	(-0.775)	(0.296)	(0.293)	(0.282)
LPMCEN	-0.005	-0.004	-0.005	-0.033**	-0.031**	-0.033**
	(-0.835)	(-0.606)	(-0.834)	(-2.158)	(-2.070)	(-2.167)
LPOFLT	-0.011**	-0.010*	-0.012**	-0.010	-0.008	-0.011
	(-2.033)	(-1.799)	(-1.991)	(-1.013)	(-0.854)	(-1.087)
PIH	0.001	0.000	0.001	0.033	0.029	0.031
	(0.055)	(-0.003)	(0.032)	(0.320)	(0.280)	(0.301)
LNANL	-0.033**	-0.032**	-0.033**	-0.011	-0.010	-0.011
	(-2.256)	(-2.211)	(-2.248)	(-0.298)	(-0.272)	(-0.291)
LMVE	0.002	0.003	0.002	-0.010	-0.009	-0.010
	(0.332)	(0.576)	(0.325)	(-0.941)	(-0.802)	(-0.947)
EP	0.058	0.060	0.058	0.838	0.841	0.839
	(0.308)	(0.317)	(0.310)	(1.248)	(1.251)	(1.247)
BM	-0.027***	-0.028***	-0.027***	-0.065***	-0.067***	-0.065***
	(-3.865)	(-4.385)	(-4.066)	(-2.787)	(-2.824)	(-2.780)
LEV	-0.030	-0.033*	-0.031	-0.113**	-0.119***	-0.115***
	(-1.551)	(-1.722)	(-1.601)	(-2.544)	(-2.651)	(-2.609)
INTAN	0.012	0.012	0.012	0.001	0.000	0.001
	(0.596)	(0.569)	(0.594)	(0.015)	(-0.003)	(0.015)
ANNMAR	-0.031***	-0.032***	-0.031***	0.022	0.021	0.022
	(-3.933)	(-3.977)	(-3.924)	(0.620)	(0.582)	(0.618)
ANNTURN	-0.016	-0.017	-0.015	-0.575***	-0.576***	-0.574***
	(-0.520)	(-0.576)	(-0.519)	(-3.378)	(-3.398)	(-3.364)
CHNI	0.088	0.089	0.087	-0.201	-0.202	-0.204
	(0.588)	(0.577)	(0.575)	(-0.303)	(-0.306)	(-0.308)
SALEG	0.009	0.008	0.009	0.047	0.046	0.047
	(0.325)	(0.299)	(0.327)	(0.593)	(0.582)	(0.595)
BETA	-0.017**	-0.018**	-0.016**	-0.018	-0.019	-0.018
	(-2.130)	(-2.229)	(-2.144)	(-0.415)	(-0.435)	(-0.403)
SDEV	0.377	0.382	0.370	1.679	1.666	1.653
	(0.626)	(0.634)	(0.617)	(0.834)	(0.825)	(0.823)
POST_EA_MONTH	0.139***	0.139***	0.139***	0.473***	0.474***	0.473***
	(7.260)	(7.294)	(7.266)	(9.190)	(9.189)	(9.184)
AF_DISPERSION	-0.017	-0.018	-0.017	0.051	0.050	0.051
	(-1.447)	(-1.492)	(-1.453)	(0.965)	(0.948)	(0.959)
EA_RET	-0.183**	-0.186**	-0.183**	-0.260	-0.264	-0.259
	(-2.256)	(-2.278)	(-2.258)	(-1.089)	(-1.100)	(-1.087)
CH_SINT	-0.695	-0.707	-0.694	1.505	1.491	1.509
	(-0.712)	(-0.728)	(-0.710)	(0.717)	(0.712)	(0.718)
ISSUE	-0.021	-0.019	-0.021	0.129*	0.132**	0.120*
	(-1.350)	(-1.216)	(-1.331)	(1.929)	(1.980)	(1.935)
N	60,093	60,093	60,093	60,093	60,093	60,093
Adj R^2	0.031	0.030	0.031	0.064	0.063	0.064

*,**,*** Significantly different from zero at the 0.10, 0.05, and 0.01 level, using two-tailed tests.

$^{\dagger, \dagger\dagger, \dagger\dagger\dagger}$ DMULT_HIOWN significantly greater than DHIOWN1 at the 0.10, 0.05, and 0.01 level, using two-tailed tests.

TABLE 6 (continued)

Regressions of Stock Market Reactions during the Three-Day Flight Window on Non-Money-Center Flights to Regions with Large Institutional Ownership

This table presents regressions that test of the relation between money center flights and abnormal absolute returns and abnormal trading volume and between non-money-center flights to locations with ownership concentrations and absolute returns and abnormal trading volume. The unit of observation is the three-day flight window (see Appendix). For the first three columns the dependent variable is ABN_ASAR, which is measured as the difference between the three day absolute size-adjusted returns and the mean three day absolute size-adjusted returns over a 90-day estimation period divided by the stand deviation of the mean absolute size-adjusted returns over the estimation period. For the last three columns the dependent variable is ABN_TURN, which is measured as the three-day volume divided by shares outstanding less the average three-day turnover in the 90-day estimation period, multiplied by 100. DMCEN1 is an indicator variable coded as 1 if there is only one flight to a money center in the three-day window, and 0 otherwise. DROADSHOW is an indicator variable coded as 1 if there are flights to multiple money centers in the three-day window, and 0 otherwise. DHIOWN1 is an indicator variable coded as 1 if there is a flight to one city with high firm-specific institutional ownership during a non-money center flight window, and 0 otherwise. DMULT_HIOWN is an indicator variable coded as 1 if there are flights to multiple cities with high firm-specific institutional ownership in a non-money center flight window, and 0 otherwise. DLARGE1 is an indicator variable coded as 1 if there is one flight to any of the next ten MSAs with the most frequent number of flights, and 0 otherwise. DMULT_LARGE is an indicator variable coded as 1 if there are flights to multiple cities in the next ten MSAs with the most frequent number of flights. LN8K is the log of the number of 8-Ks issued during the three-day window. LNMCP is the log of one plus the number of money center conference presentations during the three-day window. LNOCP is the log of one plus the number of other conference presentations during the flight quarter. LPMCEN is the log of one plus the number of money center flights in the prior month (21 trading days). LPOFLT is the log of one plus the number of non-money-center flights in the prior month (21 trading days). Standard errors are clustered at both the firm- and calendar quarter-level. PIH is the percentage of shares outstanding held by institutional investors at the end of the most recent quarter. LNANL is log of one plus the number of sell-side analysts that cover the firm. LMVE is the log of the firm's market value of equity at the end of the prior fiscal quarter. EP is basic earnings per share (excluding extraordinary items) scaled by price at the end of the prior fiscal quarter. BM is the ratio of the firm's book value of assets to its market value of assets at the end of the prior fiscal quarter. LEV is the ratio of the firm's total debt to total assets at the end of the prior fiscal quarter. INTAN is the ratio of the firm's intangible assets to its total assets at the end of the prior fiscal quarter. ANNMAR is the buy-and-hold market adjusted return for the prior year to 30 day before the start of the three-day window. ANNTURN is the average monthly share turnover for the year prior to 30 days before the start of the three-day window. CHNI is the quarter-on-quarter change in net income divided by total assets at the end of the prior fiscal quarter. SALEG is the firm's quarter-on-quarter sales growth measured at the end of the prior fiscal quarter. BETA is beta of the firm's equity. SDEV is the standard deviation of the firm's stock returns. AF_DISPERSION is the standard deviation of analyst EPS forecast scaled by the mean analyst EPS forecast in the prior month. POST_EA_MONTH is an indicator variable equal to 1 if the firm announces earnings in the prior month. EA_RET is the value-weighted market-adjusted return for the three-day window (-1, +1) centered around the earnings announcement date. CH_SINT is the month-to-month change in the ratio of shares sold short to trading volume. ISSUE is an indicator coded as 1 if there is either a debt or equity issuance in the subsequent month and 0 otherwise.

TABLE 7

Regressions of Changes in Institutional Ownership at the MSA-Level on Flights to the MSA

	CLOCIH	FCLOCIH	CLOCIH	FCLOCIH	CLOCIH	FCLOCIH
NFLIGHT	0.006**	0.006***	0.004**	0.002		
	(2.508)	(2.620)	(2.136)	(1.629)		
NFLIGHT_MCEN			0.008	0.012		
			(1.179)	(1.649)		
INITIATE					0.026**	0.028**
					(2.346)	(2.702)
CEASE					-0.013	-0.024**
					(-1.160)	(-2.186)
ISSUE	0.002	0.004	0.002	0.004	0.002	0.004
	(0.485)	(0.748)	(0.491)	(0.757)	(0.519)	(0.782)
LN8K	0.002	0.001	0.002	0.001	0.002	0.001
	(0.484)	(0.224)	(0.495)	(0.241)	(0.463)	(0.205)
LNMCP	-0.004	-0.007	-0.004	-0.007	-0.004	-0.006
	(-0.600)	(-1.050)	(-0.604)	(-1.057)	(-0.584)	(-1.031)
LNOCP	-0.012	0.008	-0.012	0.008	-0.012	0.008
	(-1.454)	(0.899)	(-1.463)	(0.900)	(-1.448)	(0.889)
EP	0.055	0.161***	0.055	0.161***	0.055	0.161***
	(0.913)	(2.708)	(0.909)	(2.701)	(0.906)	(2.696)
BM	0.042	0.051	0.043	0.051	0.042	0.051
	(1.231)	(1.425)	(1.229)	(1.422)	(1.233)	(1.426)
LEV	0.021	0.001	0.022	0.001	0.021	0.001
	(0.280)	(0.012)	(0.284)	(0.020)	(0.276)	(0.007)
INTAN	0.075	0.105	0.075	0.105	0.075	0.105
	(0.936)	(1.253)	(0.938)	(1.255)	(0.932)	(1.248)
CHNI	-0.143	-0.171	-0.143	-0.171	-0.142	-0.170
	(-1.168)	(-1.440)	(-1.165)	(-1.435)	(-1.160)	(-1.430)
SALEG	-0.006	-0.007	-0.006	-0.007	-0.007	-0.007
	(-0.520)	(-0.538)	(-0.519)	(-0.535)	(-0.539)	(-0.560)
LMVE	0.072***	0.071**	0.072***	0.071**	0.073***	0.071**
	(2.952)	(2.541)	(2.951)	(2.540)	(2.970)	(2.555)
LNANL	0.0027	0.004	0.003	0.004	0.003	0.003
	(0.721)	(0.865)	(0.721)	(0.865)	(0.706)	(0.851)
BETA	0.042***	0.037***	0.041***	0.036***	0.042***	0.037***
	(3.447)	(3.013)	(3.436)	(2.997)	(3.469)	(3.035)
SDEV	-1.529*	-1.022	-1.527*	-1.020	-1.538*	-1.033
	(-1.901)	(-1.394)	(-1.900)	(-1.391)	(-1.911)	(-1.408)
ANNMAR	0.009	0.009	0.009	0.009	0.008	0.009
	(0.697)	(0.703)	(0.700)	(0.708)	(0.683)	(0.691)
ANNTURN	0.188**	0.134	0.188**	0.133	0.188**	0.134
	(2.156)	(1.571)	(2.149)	(1.560)	(2.149)	(1.566)
CH_SINT	0.751***	1.226***	0.751***	1.227***	0.752***	1.229***
	(3.311)	(4.856)	(3.312)	(4.859)	(3.315)	(4.861)
POST_EA_MONTH	-0.020	-0.004	-0.020	-0.003	-0.020	-0.003
	(-1.426)	(-0.209)	(-1.423)	(-0.205)	(-1.423)	(-0.206)
EA_RET	-0.107**	-0.022	-0.107**	-0.022	-0.107**	-0.022
	(-2.572)	(-0.519)	(-2.574)	(-0.523)	(-2.575)	(-0.522)
AF_DISPERSION	0.009	-0.00005	0.009	-0.0002	0.008	-0.0003
	(0.669)	(-0.003)	(0.664)	(-0.010)	(0.648)	(-0.019)
Observations	316,259	307,583	316,259	307,583	316,259	307,583
Number of firm*MSAs	32,206	30,586	32,206	30,586	32,206	30,586
Adjusted R-squared	0.002	0.002	0.002	0.002	0.001	0.002
Quarter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm*MSA fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

*,**,*** Significantly different from zero at the 0.10, 0.05, and 0.01 level, using two-tailed tests

TABLE 7 (continued)

Regressions of Changes in Institutional Ownership at the MSA-Level on Flights to the MSA

This table presents regressions that test the relation between flights and institutional ownership. The regressions are estimated at the quarterly firm MSA level. The dependent variable is the changes in percentage of shares outstanding held by institutional investors located in the MSA. For columns labeled CLOCIH, changes in institutional ownership are measured contemporaneously with the flights to the MSA during the quarter. For columns labeled FCLOCIH, changes in institutional ownership are measured as of the end of the subsequent quarter. The regressions include firm-MSA fixed effects and quarterly fixed effects. Standard errors are clustered at the firm-MSA level. NFLIGHT is the number of flights during the quarter to the MSA. NFLIGHT_MCEN is the interaction between the number of flights during the quarter to the MSA and an indicator for whether the MSA is located in a money center (New York, Boston, Chicago, or San Francisco). INITIATE is an indicator variable for quarters in which the firm flew to the MSA for the first time during the sample period, and zero otherwise. CEASE is an indicator variable for quarters in which the firm flew for the last time to the MSA during the sample period, and zero otherwise. ISSUE is an indicator coded as 1 if there is either a debt or equity issuance in the subsequent quarter, and 0 otherwise. LN8K is the log of the number of 8-Ks issued during the three-day window. LNMCP is the log of one plus the number of money center conference presentations during the three-day window. LNOCP is the log of one plus the number of other conference presentations during the flight quarter. EP is basic earnings per share (excluding extraordinary items) scaled by price at the end of the prior fiscal quarter. BM is the ratio of the firm's book value of assets to its market value of assets at the end of the prior fiscal quarter. LEV is the ratio of the firm's total debt to total assets at the end of the prior fiscal quarter. INTAN is the ratio of the firm's intangible assets to its total assets at the end of the prior fiscal quarter. CHNI is the quarter-on-quarter change in net income divided by total assets at the end of the prior fiscal quarter. SALEG is the firm's quarter-on-quarter sales growth measured at the end of the prior fiscal quarter. LMVE is the log of the firm's market value of equity at the end of the prior fiscal quarter. LNANL is log of one plus the number of sell-side analysts that cover the firm. BETA is beta of the firm's equity. SDEV is the standard deviation of the firm's stock returns. ANNMAR is the buy-and-hold market adjusted return for the prior year to 30 day before the start of the three-day window. ANNTURN is the average monthly share turnover for the year prior to 30 days before the start of the three-day window. CH_SINT is the month-to-month change in the ratio of shares sold short to trading volume. AF_DISPERSION is the standard deviation of analyst EPS forecast scaled by the mean analyst EPS forecast in the prior month. POST_EA_MONTH is an indicator variable equal to 1 if the firm announces earnings in the prior month. EA_RET is the value-weighted market-adjusted return for the three-day window (-1, +1) centered around the earnings announcement date.