

# Investor Conferences and the Changing Nature of Analyst Research

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## Abstract

Market forces and new regulations have changed the emphasis of brokerage research away from stock recommendations and earnings forecasts and towards special services for select clients such as providing access to firm management. We examine how brokerage market shares are influenced by traditional published research and include a new measure of special service related to analyst-hosted investor conferences. Using a sample of institutional transactions, we find investor conferences have a significant effect on annual market share that is similar in magnitude to analyst coverage, as well as significant increases in market shares in conference stocks in the days following the event. Moreover, institutions pay higher commissions for conference stocks, which is consistent with compensation for premium research service.

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## **1. Introduction**

Over the last decade, regulatory reforms and market forces have led to a transformation in brokerage firm research. Regulation Fair Disclosure in 2000, the Sarbanes Oxley Act in 2002, and the Global Settlement in 2003 have changed the nature of research by limiting analyst interactions with firm management, investment bankers, and clients. Evidence suggests that restricting access to firm management has led to research reports that are less informative (Gintschel and Markov, 2004; Francis, Nanda, and Wang, 2006). Moreover, severing the ties between investment banking and research has resulted in smaller research budgets and reduced coverage (Kadan et al., 2006).

Market forces have also led to a change in the mix of brokerage research services. A relatively small number of large clients currently account for the majority of trading, and research groups are taking steps to cater to these investors. Brokers are becoming more restrictive with the distribution of research reports, and analysts are spending less time on written research and more on client-specific services, such as providing industry expertise over the phone and acting as a liaison between investors and firm management. One increasingly popular research activity is hosting investor conferences, which are invitation-only events that provide select clients with an opportunity to interact with firm management.

In this article, we seek to delimit special research services for select clients, such as investor conferences, from traditional published research which is provided to a large number of clients. We begin by presenting anecdotal evidence that changing market conditions and reforms have led brokers to place greater emphasis on special research services, and that investor conferences in particular are valued highly by institutional

clients. We next analyze the effects of analyst-hosted conferences on broker market shares and commissions and find strong evidence that conferences have an economically important effect on brokerage revenues.

We measure brokerage firm market shares for U.S. equities using a sample of transaction data from Ancerno Ltd., which audits transaction costs for institutional investors and accounts for roughly 8% of total CRSP volume. We merge the transaction data with research data from I/B/E/S and investor conference data from the Bloomberg Corporate Events Database for the period 2004 to 2008. The merged sample contains information on 107 different brokerages, 65 of which host at least one conference. In a given year, our sample includes roughly 350 conferences on average and 8,500 conference presentations.

We find analyst-hosted investor conferences generate significant trading revenue for the brokerage firm. At the broker level, we calculate that hosting one additional conference is associated with an \$11.9 million increase in commission revenues. At the stock level, volume market share is 3.39% higher for brokers that host a conference at which the firm is present. After controlling for average broker market share across all stocks, we find hosting a conference nevertheless boosts market share by 1.87% among conference stocks.

We also investigate the effect of investor conferences on market shares in an event study context. Information conveyed at conferences is likely to be less time sensitive than recommendations in research reports, and companies are specifically precluded from revealing material information to a select group of investors. Despite these limitations, we observe a significant increase in within broker trading during the 5-

day period following conferences, which helps establish a causal relation between conferences and market shares.

Our next analysis investigates the relation between hosting investor conferences and trading commissions. We find commissions on stocks of companies that attend brokerage-hosted conferences are 0.12 cent higher than those on stocks of companies that do not attend these conferences, after controlling for trading activity at both the broker and client level, as well as lagged commissions for a given client-broker pair. For the average-sized fund trading in our sample, this difference corresponds to \$35,000 in extra trading commissions each year. The results confirm that broker-hosted investor conferences are a premium research service valued by institutional investors.

Traditional forms of research also continue to benefit brokerages by increasing market shares and trading commissions. The effects of published reports on market shares are similar in economic magnitude to the effects of broker-hosted conferences. For example, excluding (including) broker fixed effects, the broker market share is 2.27% (1.34%) higher among stocks with analyst coverage. Among covered stocks, an additional recommendation results in 0.73% (0.29%) increase in market share. In an event study context, research reports coincide with increased trading across all brokers, which is consistent with confounding public information events (e.g. Altinkilic and Hansen, 2009). However, recommendations lead to significantly increased market share for the issuing broker for the 5 days following the report. Moreover, we find average commissions per share are 0.11 cents higher among covered stocks, which confirms the value of conventional measures of analyst research for the brokerage firm.

Finally, we find evidence that broker research is valued most highly by investors for firms that are overlooked by other brokers and where opportunities to obtain information from management are limited. Specifically, we document that the effects of traditional and special research services on broker market shares are significantly stronger for firms that are covered by few brokerage analysts and that attend few investor conferences.

Our analysis is closely related to Irvine (2001, 2004), who examines trading in Toronto Stock Exchange-listed companies and finds that brokerage volume is significantly higher in covered stocks and specifically following bold earnings forecasts and positive recommendations. In other work, Jackson (2004) examines Australian companies and finds that forecasts by optimistic and high reputation analysts generate more trades for their firms. In the U.S., Choi et al. (2009) examine quarterly market share data for large stocks (with coverage by at least 10 analysts) between 1996 and 2004 and find that analyst optimism has a smaller effect on market share in more recent data (see also Niehaus and Zhang, 2010). Although anecdotal evidence has long suggested that client services are more important to institutional investors than published research, our study is the first to explore their effects on broker revenues. Daily transaction data also helps us establish a causal relation between trading and different types of brokerage research.

Our work is also the first to examine the direct effect of brokerage research on commissions charged to different brokerage clients. Goldstein et al. (2009) examine commissions in the institutional market using data from 1999-2003 also from Ancerno. They find institutions concentrate their order flow with a relatively small number of

brokers, and commissions generally do not vary with trade characteristics which they interpret as consistent with commissions being used to pay for research. Our study provides direct evidence that research services influence commissions, with increased commissions being charged specifically in covered stocks and for those present at investor conferences.

Brokerage research has been shown to enhance market efficiency (e.g., Brennan, Jegadeesh, and Swaminathan, 1993; Hong, Kubik, and Solomon, 2000; Gleason and Lee, 2003; Womack, 1996), stock liquidity (Roulstone, 2003; Irvine 2003), and improve corporate governance (e.g., Chung and Jo, 1996; Yu, 2008). The continued viability of these public good aspects of analyst research depends on brokerage firms' ability to extract value from research through trading commissions. The significant relation we find between research services and institutional commissions and market shares provides evidence that brokerage research can survive in the new competitive economic environment.

The remainder of the paper is organized as follows. Section 2 discusses the types of research offered by brokerage firms with an emphasis on special services. Section 3 describes the data and methodology. Section 4 presents the empirical evidence regarding the effects of brokerage research on commissions and market share, and Section 5 concludes.

## **2. Brokerage Research Special Services**

Traditional research services include the publication of research reports, stock recommendations, and earnings forecasts. These quantifiable forms of research information have been thoroughly examined in the academic literature (Beyer et al., 2010

provide a recent survey). Academic research has largely overlooked other types of broker research services,<sup>1</sup> yet abundant evidence about their importance exists in the financial media. Special services include hosting conference calls in which analysts discuss their research with select clients and invitation-only investor conferences where both formal company presentations and private meetings with management take place. In this section we present anecdotal evidence regarding the prevalence and significance of special services for top clients, with an emphasis on investor conferences.

In the 1990s brokerage analyst research was widely distributed and public appearances by analysts were actively promoted, which was optimal when individual traders were highly active and reports helped publicize investment banking clients. As analysts were implicated in helping create the run-up in stock prices in the late 1990s, by issuing overly optimistic forecasts due to various undisclosed conflicts of interests (Lin and McNichols, 1998; Michaely and Womack, 1999), a host of reforms were implemented: Regulation Fair Disclosure in 2000, the Sarbanes Oxley Act in 2002, and the Global Settlement in 2003.<sup>2</sup> These regulations have resulted in smaller research groups and a change in the mix of clients served and research services provided (Schack, 2007).

Brokerage firms have responded to the new, commission-driven economic environment by placing greater emphasis on special services allocated to top clients based on commission profitability. For example, Goldman Sachs' "asymmetric service

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<sup>1</sup> Investor conferences are the focus of several contemporaneous studies. Bushee, Jung, and Miller (2011a) and Subasi and Uzmanoglu (2011) explore whether firms attending conferences experience long-term benefits in the form of increased analyst and institutional following, and liquidity. Bushee, Jung, and Miller (2011b) and Markov, Muslu, and Subasi (2011) explore whether by attending these conferences investors can gain an informational advantage.

<sup>2</sup> The 2005 "Joint Report by NASD and the NYSE on the Operation and Effectiveness of the Research Analyst Conflict of Interest Rules," provides details on these regulations and clarifying NYSE/NASD reforms. <http://www.finra.org/web/groups/industry/@ip/@issues/@rar/documents/industry/p015803.pdf>

initiative” tiers clients into four groups based on revenue-generating potential, with roughly 50% of analyst compensation based on feedback from important trading customers.<sup>3</sup> Groysberg (2010) reports that Sanford Bernstein has five tiers of clients: analysts strive to make at least two phone calls per month to top tier clients compared to no calls for the bottom tier. Analysts also arrange meetings between management and select investors, with the size of the group inversely related to client significance. Morgan Stanley has stated they spend approximately two thirds of their time and resources marketing research to roughly 200 of their thousands of institutional clients.<sup>4</sup> At Credit Suisse, the number of “high touch” clients in 2009 was roughly 80.<sup>5</sup>

Hedge funds have replaced individual investors as a primary emphasis of brokerage research. For example, in 2006 a pharmaceutical industry analyst at Lehman Brothers estimated that 75% of his time was spent with hedge funds versus 5% in 1996.<sup>6</sup> A testimony to the increased significance of hedge funds as research users is that since 2003, Alpha Magazine, a sister magazine to Institutional Investor Magazine, has retabulated hedge fund votes to determine which analysts deliver the most value to hedge funds. The publication reports that hedge fund managers prefer analysts who organize conferences and meetings with management, respond to questions in a timely manner, and offer unique information such as surveys and propriety analysis. “Hedge funds hate written product, and would rather spend two hours on the phone with the analyst.”<sup>7</sup>

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<sup>3</sup> “Goldman Settles Probe Over Research ‘Huddles’” *Wall Street Journal*, June 10, 2011.

<sup>4</sup> Barclays Capital v. Theflyonthewall.com (case 10-1372-cv).

<sup>5</sup> “Credit Suisse Group: Managing Equity Research as a Business,” HBS Case 9-410-073.

<sup>6</sup> “Hedge fund managers prize Wall Street research analysts with fast delivery and doable advice. Here are their favorites.” Alpha Magazine, 30 November, 2006.

<sup>7</sup> “How Hedge Funds Rate Wall Street Analysts,” Alpha Magazine, Nov 21, 2005.



References to investor conferences in particular are common in analyst rankings. For example, in 2004 several analysts were voted ‘All-Star’ by Institutional Investor Magazine partially because of hosting conferences: “Robert Koort, for his July electronic conferences where clients got to meet ‘actual operating personnel on the cutting edge of the industry, not just the usual CEOs,’” and “Jeffrey Sprague, for his annual industrial manufacturing conference, ‘which draws 100 companies and 1,500 people each March’, and ‘is the best in the business’”; and “Stephen Kim for his February conference, ‘which focused on industry initiatives to improve construction efficiency.’”<sup>8</sup>

Competition from information aggregators provides an additional incentive for brokers to emphasize special research services over published research. Firms such as Theflyonthewall.com collect broker research and distribute report summaries to their own subscribers, often before the recommendations are fully disseminated to brokerage clients. Brokerage firms have responded by attempting to restrict distribution, with full immediate access to all reports available only to top clients. For example, Merrill Lynch has taken extensive steps to prevent transmission of reports to non-clients and the media, including reviewing employees’ cell phones for possible leaks to third parties, and creating unique signature URLs for individual clients so that report usage can be monitored. Barclays and Morgan Stanley have adopted similar measures to protect their research.<sup>9</sup> Whereas hard, quantitative forms of research such as recommendations and

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<sup>8</sup> "The Best Analysts of the Year." Institutional Investor Magazine, October 2004.

<sup>9</sup> This information is from the 2010 brief for the suit that Barclays Capital, Merrill Lynch, and Morgan Stanley brought against Theflyonthewall.com (case 10-1372-cv). In June 2011, the U.S. Court of Appeals for the Second Circuit ruled that Theflyonthewall.com can report on stock recommendations as soon as it learns of them, as long as it does not violate copyright law (i.e. it can publish short summaries rather than full reports). Judge Robert D. Sack wrote in the opinion: “The adoption of new technology that injures or destroys present business models is commonplace.”

<http://www.scribd.com/doc/58301138/U-S-Court-of-Appeals-for-the-Second-Circuit-ruling-in-Banks-v-The-Fly-on-the-Wall>

earnings forecasts are easy to replicate, softer forms of research such as information gathered at investor conferences is context specific and harder to transfer.<sup>10</sup>

The shift in research services away from the broad distribution of published research and the emergence of hedge funds as a primary group of users suggests analysts should be viewed in a new light. Perhaps analysts' primary role is to facilitate information production by the most sophisticated investors by providing them with management access, timely responses to their questions, and unique information sources rather than to produce and distribute information in the form of research reports, recommendations, and earnings forecasts to a broad client base.

We view hosting conferences as a proxy for the overall level of special client services. Investor conferences are a costly activity and not all brokerages have the resources required to support them. Thus, special services likely vary across brokers as a function of broker's resources and strategic focus on institutional clients. Special research services may also vary significantly across stocks for a given broker. For example, an analyst's ability to provide special services regarding a firm likely depends on the analyst's relationship with the firm executives. Relationships between an analyst and firm executives are built gradually over time and allow the analyst to provide special services regarding the firm over a prolonged period. As a result, attendance at broker-hosted investor conference can be viewed as a signal of the analyst's ability to offer special research services for that firm.

### **3. Sample and Descriptive Statistics**

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<sup>10</sup> See Petersen (2004) for a discussion of the differences between "hard" and "soft" information, in which the latter is characterized as being collected in person and where the decision maker is the same as the information collector.

Our sample consists of data on brokerage-hosted investor conferences, brokerage research reports, and institutional transactions. We obtain data on broker-hosted investor conferences for the period January 2004 to December 2008 from the Bloomberg Corporate Events Database. The database includes information on the conference name, date, and hosting organization, as well as the presenting company name and ticker for 80,575 presentations by 6,260 companies at 2,891 conferences hosted by various organizations (e.g., brokerage firms, industry associations, stock exchanges, and investor relations firms). We eliminate conferences that are not hosted by I/B/E/S-listed equity research providers which employ at least 5 analysts in a given year. We then match companies attending investor conferences by name or ticker with the CRSP and COMPUSTAT databases.

We measure brokerage firm market shares using institutional transaction data from the Ancerno Corporation (formerly Abel Noser), a consulting firm that helps institutional investors track and evaluate their transaction costs.<sup>11</sup> Each observation in the dataset corresponds to an executed trade. For each trade, the dataset reports the date of the trade, the stock traded, the volume traded, the execution price of the trade, the commission paid to the broker, a client identifier code, a manager identifier code, and a broker identifier code. The client identifier code corresponds to the institutional investor that is subscribing to the Ancerno services. Clients include both pension plan sponsors (e.g., CalPERS and the YMCA Retirement Fund), as well as money managers (e.g., Fidelity and Vanguard). The money manager code corresponds to the money management firm that is ultimately making the investment decisions. (e.g. the external

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<sup>11</sup> Other studies that have used Ancerno data include Green and Jame (2010), Goldstein et al. (2008), Chemmanur, He, and Hu (2009), Hu (2009), and Puckett and Yan (2010).

money management company hired by the plan sponsor). Clients and managers are identified by codes rather than names.

The broker identifier code corresponds to the specific broker who executed the trade. Ancerno provides a key which permits linking broker codes to broker names (e.g. Broker Code 5 = “Goldman Sachs”).<sup>12</sup> This allows us to merge the Ancerno dataset with Bloomberg and I/B/E/S by broker name. The 107 research brokers in the resulting merged sample account for 61% of Ancerno dollar volume, 55% of share volume, and 64% of total commissions. These brokers also account for 58% of the number of research providers in I/B/E/S, 80% of the analysts and 81% of the recommendations. Our final sample includes 42,405 conference presentations and 1,778 conferences.

Table 1 presents descriptive statistics separately for the full set of 107 research producing brokers in our sample and the subset of 65 brokers which host investor conferences. In an average year our sample contains 92 brokers, 55 of which have hosted at least one conference. The average hosting broker organizes 6.4 conferences per year, although there is substantial cross-sectional variation with the top 5% of brokers hosting more than 20 conferences per year. On average, roughly 25 companies present at a given conference.

Brokers that host conferences are considerably larger than non-hosting brokers. For example, the average broker that hosts conferences (average broker) employs 80 (63) analysts, covers 480 (374) companies, issues 776 (586) recommendations, is a lead underwriter for 14 (9) different companies, and generates commission revenues (within our Ancerno sample) of over \$17 (\$10) million. We control for broker characteristics in

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<sup>12</sup> Ancerno is unable to identify the broker in roughly 20% of the transactions. These observations are excluded from our analysis.

our analysis, yet the fact that investor conferences are a widespread research activity undertaken by the largest brokerages confirms their potential economic importance.

## 4. Empirical Analyses

### 4.1 Broker research and aggregate market share

Our primary hypothesis is that broker-hosted conferences are a premium research service valued by institutional investors. If institutional investors reward brokers who provide this service with a greater allocation of transaction order flow (e.g. Irvine, 2001; and Goldstein et al., 2009), we would expect a positive relationship between hosting conferences and aggregate market share. To test this prediction, we examine whether brokers who host more conferences in year  $t$  have greater aggregate market shares in year  $t$ . More specifically, we run the following panel regression:

$$MS_{j,t} = \alpha + \beta_1 \text{NmConf}_{j,t} + \beta_2 \text{NmRecs}_{j,t} + \beta_3 \text{NmAnalyst}_{j,t} + \beta_4 \text{NmIPOs}_{j,t} + \varepsilon_{j,t}, \quad (1)$$

where  $MS_{j,t}$  is market share defined as share volume for broker  $j$  in year  $t$  divided by total Ancerno volume that year.<sup>13</sup>

Our primary variable of interest is  $\text{NmConf}_{j,t}$  which is the total number of conferences hosted by broker  $j$  in year  $t$ . Similarly,  $\text{NmRecs}_{j,t}$  and  $\text{NmAnalyst}_{j,t}$  are the total number of recommendations issued and analysts employed by broker  $j$  in year  $t$ . We include the number of recommendations and analysts to control for published research and broker size. Moreover, comparing the coefficients on conferences and recommendations can provide insight into the relative importance of special services directed towards select clients vs. the more widely disseminated published research.

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<sup>13</sup> Taking the natural log of market share, or calculating market share based on dollar volume instead of share volume, leads to very similar results.

Lastly,  $NmIPOs_{j,t}$  is the number of IPOs and SEOs for which broker  $j$  was the lead underwriter in year  $t$ . Investment banking activities are included to control for the fact that lead underwriters tend to be the dominant market maker for companies in the months following an IPO or SEO (e.g. Ellis, Michaely, and O'Hara 2000; 2002; and Huang and Zhang, 2011). In order to facilitate comparison of the coefficients, the independent variables are standardized to have a mean of zero and a variance of one. Standard errors are clustered by broker.

Before estimating the multivariate regression in Equation (1), we first estimate univariate regressions of aggregate market share on total number of conferences hosted, total number of recommendations issued, and total number of analysts employed in a year (specifications 1-3 in Table 2). Table 2 shows that a one standard deviation increase in the total number of broker-hosted conferences is associated with a 1.94% increase in aggregate market share, and that this variable alone explains nearly 50% of the variation in aggregate market share across brokers.

In specifications 2 and 3, we find that a one standard deviation increase in total recommendations and analysts employed is associated with 1.70% and 1.63% increase in aggregate market share, respectively. The effects of research are economically large relative to the mean and standard deviation of aggregate market share, which are 1.09% and 2.62% (from Table 1). Interestingly, the explanatory power (as measured by  $R^2$ ) of total recommendations and total analysts is considerably less than the explanatory of broker-hosted conferences, which points to the importance of special services in explaining markets shares. In specification 4, we estimate the multivariate regression outlined above. We find that the coefficient on the number of broker-hosted conferences

remains significantly positive after controlling for total number of recommendations, the total number of analysts, and investment banking activity.

Market share has been used extensively in prior literature as a proxy for brokerage revenue (e.g. Irvine 2001; 2004; and Jackson, 2005), yet it assumes that all brokers charge the same commission per share which is contradicted by the evidence in Table 1. For example, a broker at the 5th percentile of commission per share charges an average of 2.02 cents while a broker at the 95th percentile charges 4.60 cents. In specification 5 we replace market share with commission share, defined as commissions for broker  $j$  in year  $t$  divided by aggregate commissions in that year (in percent multiplied by 100). Consistent with the market share results, we find that the number of broker-hosted conferences is positively associated with aggregate broker commission share, with a slightly larger slope coefficient, 0.67 and a t-statistic of 2.37. The results suggest conference-hosting brokers are able to charge higher commissions, which we examine more formally in Section 4.4.

In order to further gauge the economic magnitude of our results, we estimate the effect of hosting investor conferences on mean commission revenue. The total commission revenue in a year within our Ancerno sample is \$945 million. Puckett and Yan (2010) estimate that Ancerno clients account for roughly 10% of total institutional trading volume, which suggests that actual commission revenue in a year is approximately \$9.45 billion.<sup>14</sup> Thus, a 0.67% increase in mean commission share (from Specification 5) corresponds to a \$63.3 million increase in commission revenue. The

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<sup>14</sup> The 10% estimate includes all institutional trading recorded in Ancerno. However, our sample excludes roughly 20% of the transactions where Ancerno is unable to identify the execution broker for the trade, which makes our revenue estimates conservative.

standard deviation of conferences is 5.32, so hosting one additional conference is associated with an \$11.9 (63.3/5.32) million increase in commission revenue.

## 4.2 Broker research and firm-specific market share

The results from the previous section suggest that hosting conferences is a valued service resulting in increased aggregate market share for the hosting broker, but offer limited insights about the relation between special services and market share at the stock level. For example, clients who value research services regarding a particular firm may reward the brokerage by allocating to it their transaction volume in other stocks (Groysberg, 2010; Groysberg et al., 2011).<sup>15</sup> Thus, a relation between special services and broker market share at the aggregate level may not necessarily translate to the firm level. An investigation of firm-level market shares will provide more detailed information about how special research services map into brokerage revenues.

We estimate the following panel regression:

$$MS_{j,k,t} = \alpha + \beta_1 \text{Conf}_{j,k,t} + \beta_2 \text{Cover}_{j,k,t} + \beta_3 \text{NmRecs}_{j,k,t} + \beta_4 \text{NmIPOs}_{j,k,t} + \varepsilon_{j,k,t}, \quad (3)$$

where  $MS_{j,k,t}$  equals the market share of broker  $j$ , in firm  $k$ , in year  $t$ .  $\text{Conf}_{j,k,t}$  is a dummy variable equal to 1 if firm  $k$  attended a conference hosted by broker  $j$  in year  $t$ .  $\text{Cover}_{j,k,t}$  is a dummy variable equal to 1 if broker  $j$  covered firm  $k$  in year  $t$  (i.e. issued a report), and  $\text{NmRecs}_{j,k,t}$  is the total number of recommendations issued by broker  $j$  in firm  $k$  in year  $t$ . Finally,  $\text{NmIPOs}_{j,k,t}$  is the number of IPOs and SEOs for which broker  $j$  was the lead underwriter for stock  $k$  in year  $t$ . Standard errors are clustered by broker. We limit our analysis to the subset of hosting brokers. In addition, we exclude any stocks that

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<sup>15</sup> For example, Goldstein, Irvine, and Puckett (2010) find institutions trade more aggressively and pay higher commissions per share in listed stocks to compensate brokers for allocations in upcoming IPOs.



were traded by fewer than 10 brokers in a given year. The sample includes 65 hosting brokers and roughly the 2,500 largest stocks in a given year.

Panel A of Table 3 reports the results from the estimation of Equation (3) which is similar to the methodology in Irvine (2001). Panels B and C augment Equation (3) by including broker and broker-firm fixed effects. In a univariate setting, we estimate an intercept of 1.34 and a slope coefficient of 4.70, meaning that a broker's firm-specific market share is 1.34% on average for firms that do not attend its conferences vs. 6.04% for conference attendees, an economically large difference in market share. The effect of covering a stock on firm-specific market share is smaller at 4.09% (and lies within one standard error of Irvine's 2001 estimate for the Canadian market). There is also a highly significant relation between the total number of recommendations on a stock and firm-specific market share. In a multivariate setting, all measures of research services continue to be positively and significantly related to broker firm-specific market share and firm-specific commission share. In specification (5), the slope coefficient on the conference variable is 3.61, with a t statistic of 9.39.

Including broker fixed-effects reduces the slope coefficients on all three measures of research services. For example, the coefficient on total recommendations in specification (5) in Panel B is 0.36, vs. 0.72 in Panel A. The slope coefficient on the conference variable now ranges from 1.87 to 2.47 (from 3.39 to 4.70 in Panel A), amounts that are still statistically and economically significant. After including broker-firm fixed effects, we still find a positive and statistically significant relationship between conferences, coverage, and recommendations and firm-specific market share in the univariate setting, but the estimated effects of all three measures of research services are

further reduced. For example, the largest slope coefficient observed now is 0.65% (on the conference variable in specification (5), while the coverage variable is no longer significant in specifications (4) and (5).

Including fixed broker effects and fixed broker-firm effects alleviates the valid concern that omitted relevant broker and broker-firm characteristics confound our findings, but at the same time these controls understate the economic effect of hosting investor conferences on market share. In particular, by focusing only on (annual) time series variation in conferences at the firm level, we ignore the fact that conference attendance may signal an ability on the part of the hosting analyst to offer access to firm management that persists for more than one year. Thus, the estimates provide a lower limit on the effect of hosting conferences on broker's firm specific market share.

In order to better gauge the economic magnitude of the results, we estimate the effect of hosting investor conferences on mean firm-specific commission revenue using the estimates from specification (5) in Panel A. As mentioned previously, our sample comprises roughly 10% of institutional trading volume. Thus, the mean firm-specific commission revenue after extrapolating to non-Ancerno clients is \$4.2 million. As a result, the documented 3.61% difference in firm-specific commission share corresponds to roughly a \$150,000 increase in firm-specific commission revenues. The average conference is attended by approximately 25 firms, which suggests hosting a conference increases commission revenues by roughly \$3.75 million (25 X \$150,000). This estimation likely understates the effect of a conference on brokerage revenues since it assumes that investors reward conference hosts by trading only in conference stocks.

#### **4.3 Cross-sectional determinants of the effect of broker research on market share**

We next examine factors that may explain the impact of conferences and published research on broker market share. We conjecture that the benefits of hosting a firm's conference presentations and arranging meetings with clients, as well as publishing research reports for the firm, are greater when clients have limited opportunities to obtain information about the firm. We use the number of broker-hosted conferences attended by a given firm to measure opportunities to obtain soft information, and the number of brokers following the firm to measure opportunities to obtain hard information. Also, we expect that larger brokers benefit more from hosting conferences and publishing research due to their larger client base.

To examine these predictions, we introduce three interaction terms (in brackets) into the panel regression:

$$\begin{aligned}
MS_{j,k,t} = & \alpha + \beta_1 \text{Conf}_{j,k,t} + \beta_2 \text{Cover}_{j,k,t} + \beta_3 \text{NmRecs}_{j,k,t} + \beta_4 \text{NmIPOs}_{j,k,t} \\
& + \text{Conf}_{j,k,t} \left[ \beta_5 \text{NmConf}_{k,t} + \beta_6 \text{NmAnalyst}_{k,t} + \beta_7 \text{BrokerSize}_{j,t} \right] \\
& + \text{Cover}_{j,k,t} \left[ \beta_8 \text{NmConf}_{k,t} + \beta_9 \text{NmAnalyst}_{k,t} + \beta_{10} \text{BrokerSize}_{j,t} \right] \\
& + \beta_{11} \text{NmConf}_{k,t} + \beta_{12} \text{NmAnalyst}_{k,t} + \beta_{13} \text{BrokerSize}_{j,t} + \varepsilon_{j,k,t}.
\end{aligned} \tag{4}$$

where  $\text{NmConf}_{k,t}$  is the number of conferences attended by firm  $k$  in year  $t$  and  $\text{NmAnalyst}_{k,t}$  is the number of analysts that cover firm  $k$  in year  $t$  (i.e. these variables are measured at firm level rather than at the broker level as in Equation 1).  $\text{BrokSize}_{j,t}$  is the aggregate market share of broker  $j$  in year  $t$ . In order to more easily interpret the coefficients,  $\text{NmConf}_{k,t}$ ,  $\text{NmAnalyst}_{k,t}$ , and  $\text{BrokerSize}_{j,t}$  are converted to quintile rankings based on their annual distributions. The results are presented in Table 4.

Our predictions are borne out in the data. For example, the coefficients on broker size ( $\beta_7$  and  $\beta_{10}$ ) indicate that the market share benefits of hosting conference and

publishing research are greater for larger brokers. The results also suggest that the benefits of hosting conferences and publishing research are greater for firms with weaker information environments. For example, a one quintile increase in the total number of conferences attended by the firm (brokers covering the firm) reduces the market share effect of hosting the firm at a broker conference by 1.32% (0.71%). The difference between the two slope coefficients ( $\beta_5$  and  $\beta_6$ ) is negative and statistically significant with a t-statistic of 2.06. This suggests that the market share benefits of hosting a firm at a broker conference are more strongly related to the number of conferences the firm attends than the number of brokers which cover the firm.

Similarly, the benefits of analyst coverage on market share are decreasing in the number of conferences attended by the firm and the number of brokers which cover the firm, as indicated by slope coefficients of -0.45 and -1.00. The difference between  $\beta_9$  and  $\beta_{10}$  is statistically significant with a t-statistic of 2.08. Analogous to the results for conferences, the coverage results suggest that the benefits of covering a firm are more strongly related to the number of brokers already covering the firm than conference attendance. These findings are consistent with the view that broker-hosted conferences and more traditional published research provide different types of information about the firm.

#### **4.4 Broker research and market share in event time**

Many studies document increased trading around recommendations (e.g. Green, 2006; Irvine, Lipson, and Puckett, 2007; Christophe, Ferri, and Hsieh, 2009). On the other hand, Altinkilic and Hansen (2009) suggest much of this increased trading activity may be related to confounding public information releases. Our event-time analysis

allows us to examine the extent to which analyst recommendations specifically benefit the recommending brokerage firm. An event-time analysis also allows us to establish a causal relation between conferences and market share. In other words, a positive event period response helps confirm that investor conferences lead to higher market shares rather than brokers with higher market shares being more likely to host conferences. One benefit of our daily transaction data is that we are able to examine the effects of investor conferences and analyst recommendations on firm-specific market share in the days surrounding the event.

Investor conferences and published reports differ in important ways, however, which leads to different priors regarding the effects of research on daily market share. In general, analysts issue recommendations when they possess material nonpublic information. Such information is likely to be relatively short-lived, in which case clients are likely to trade relatively quickly. Investor conferences, on the other hand, are planned in advance and attended by roughly 25 firms on average. It is unlikely that the analyst host will arrive at a conference with material nonpublic information regarding each firm in attendance. While firm executives are more likely to possess material nonpublic information, Regulation FD specifically prevents managers in attendance from disclosing it. Thus, most of the information that clients obtain at these conferences is likely to be nonmaterial and soft in nature, in which case they would have less incentive to trade quickly.

Figure 1 plots mean firm-level market shares of the hosting or recommending broker over a 20-day event window. In particular, we examine variation in  $MS_{j,k,t}$  over the event window  $[-10, 10]$  where  $MS_{j,k,t}$  is broker  $j$ 's market share in stock  $k$  on event

day  $t$ , with day 0 being the day when broker  $j$  hosts a conference or issues a recommendation for firm  $k$ . The figure also shows the 95% confidence interval calculated from the time-series standard deviation of the mean market share from the period [20,60].<sup>16</sup> In Figure 1a, market share is computed by averaging the event day market share across 33,904 firm-conference observations, after excluding firms traded by fewer than 10 brokers in a given year. Figure 1b plots the average market share and confidence intervals around recommendations, both constructed as in Figure 1a. The sample includes 68,396 recommendations issued by brokers hosting conferences.

Figure 1a reveals elevated market share around conferences. The average market share on days 0 and 1 are 3.45% and 3.47%, both of which are higher than the 95% confidence interval upper bound of 3.14%. Furthermore, market share continues to be elevated through day 6. In unreported results, we find a virtually identical event time pattern in commission share.

We similarly observe an increase in market share around recommendations. The average market share on days 0 and 1 are 4.18% and 3.56%, respectively, which are higher than the 95% confidence interval upper bound of 2.92%. Market share drops to 2.95% on day 5, the last day of unusually large market share. While the findings suggest that the immediate effect of hosting a conference on market share is not as large as issuing a recommendation, the results from Table 3 suggest that over longer horizons the effects become comparable in magnitude.

The documented increase in market share around conference days is an important piece of evidence in support of our hypothesis that hosting conferences is a research

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<sup>16</sup> This approach is identical to methodology employed by Irvine, Lipson, and Puckett (2007). Results are very similar when we use the pre-event window of [-20, -60] to construct a confidence interval.

service valued by broker clients. The findings in Table 3 show that hosting a conference presentation by a particular firm increases a broker’s firm-specific market share in the year of the conference after including broker-firm fixed effects, and we conclude hosting conferences is valued and rewarded by brokerage clients. An alternative explanation is that a broker with a larger market share in a stock is more likely to invite the management to a conference, perhaps because there is greater familiarity with the firm at the brokerage that year. The fact that market share is abnormally large on days 0 through 5 relative to days [20, 60] helps rule out this explanation. The evidence suggests that causality runs from research to market share rather than the other way around.

#### 4.4 Broker research and commissions per share

We show that institutional investors compensate brokerage firms that provide special and traditional research services by directing their trades to them. In this section, we investigate whether institutional investors also compensate brokerages for research services by paying higher commissions. Goldstein et al. (2009) argue that commissions act as compensation to the broker for various premium services, rather than “a continuous execution cost negotiated on a trade-by-trade basis.” They provide supporting evidence in that there is relatively little variation in commissions across stocks or over time for a given broker-client pair. However, they do not offer direct evidence on the relation between research and commissions, which is what we explore below. Specifically, we examine whether investor conferences and published research lead to higher commissions by estimating the following panel regression:

$$\begin{aligned}
 \text{Com}_{j,k,m,t} = & \alpha + \beta_1 \text{Year}_t + \beta_2 \text{Modal\_Com}_{j,m,t-1} + \beta_3 \text{Firm\_Com}_{k,t} \\
 & + \beta_4 \text{Broker\_Vol}_{j,t} + \beta_5 \text{Manager\_Vol}_{m,t} \\
 & + \beta_6 \text{Conf}_{j,k,t} + \beta_7 \text{Cover}_{j,k,t} + \beta_7 \text{NmRecs}_{j,k,t} + \beta_8 \text{NmIPO}_{j,k,t} + \varepsilon_{j,k,m,t}
 \end{aligned} \tag{5}$$

where  $\text{Com}_{j,k,m,t}$  is the average commission per share on trades made by manager  $m$ , executed by broker  $j$ , in firm  $k$ , in year  $t$ .  $\text{Year}_t$  is the number of years since the start of the sample (i.e. 2004 =0, 2005 =1, etc.), and is included to capture any time trend in average commission per share.  $\text{Modal\_Com}_{j,m,t-1}$  is the modal commission per share for a manager-broker pair in the preceding year, which should capture most of the variation across manager-broker commissions if per share transaction costs reflect compensation for service over a longer period rather than on a transaction-by-transaction basis.  $\text{Firm\_Com}_{k,t}$  is the average firm commission per share for a stock in a given year and is included to control for firm-specific factors that may be related to the marginal cost of trade execution. Following Goldstein et al. (2009) we also include  $\text{Broker\_Vol}_{j,t}$ , a quintile ranking of broker size measured using total broker trading volume, and  $\text{Manager\_Vol}_{m,t}$ , a quintile ranking of manager size measured using total manager trading volume.

Our primary variable of interest is  $\text{Conf}_{j,k,t}$ , which is a dummy variable equal to 1 if firm  $k$  attended a conference hosted by broker  $j$  in year  $t$ . We also include  $\text{Cover}_{j,k,t}$ , which is 1 if broker  $j$  covered firm  $k$  in year  $t$ ,  $\text{NmRecs}_{j,k,t}$  is the total number of recommendations issued by broker  $j$  in firm  $k$  in year  $t$ , and  $\text{NmIPO}_{j,k,t}$  the is the number of IPOs and SEOs for which broker  $j$  was the lead underwriter for stock  $k$  in year  $t$ .

The regression is value-weighted within broker-manager-stock observations. This gives larger weight to managers who trade more with the broker and more accurately measures the revenue effects for a given broker, since managers who trade small amounts contribute less to total brokerage revenue. Moreover, it is unlikely that small clients are



invited to broker-hosted conferences so we would be less likely to observe a significant relation between conference and commissions for smaller clients.<sup>17</sup> Standard errors are clustered by broker.

Specification 1 in Table 5 provides descriptive statistics on average commissions per share. The average commission per share was 3.96 cents in 2004; since then commissions have been dropping by roughly 0.35 cents per year on average. In specification 2, we add the prior broker-manager modal commission. Consistent with Goldstein et al. (2009), prior modal commission is highly significant and can explain the majority of variation in average commission per share, which implies there is relatively little variation in commission per share for a given broker-manager pair. While this makes it challenging to find a relation between firm characteristics and commissions, we observe the coefficient on conference is positive and highly significant. The average commission per share across years in our sample is 3.26 cents, therefore an increase of 0.16 cents reflects a 5% increase in commission per share. For the average-sized fund trading in our sample, this difference in commissions per share corresponds to \$35,000 in extra trading commissions per year. In specification 5, we see that conferences continue to have a significant effect on commissions per share after controlling for coverage and investment banking. The coefficient on coverage is also highly significant and is similar in magnitude to the coefficient on conferences, although commissions show no significant relation with the number of stock recommendations issued. Taken together, the results establish that special research services are valued by institutional investors through both higher trade allocations and larger commissions per share.

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<sup>17</sup> In unreported results, the effect of conferences on commission per share when equal weighting across managers remains statistically significant but the magnitude is reduced by roughly half.

## 5. Conclusions

Drawing on rich anecdotal evidence, our study introduces the distinction between traditional published research and special broker services provided to select clients such as hosting investor conferences in which top clients are afforded access to firm management. We show that hosting investor conferences is a prevalent research service demanded and rewarded by institutional clients. In particular, in the period from 2004 to 2008, 65 brokerages in our sample hosted 1,778 conferences that were attended by 4,442 companies.

We find institutional clients reward research producing brokerages both by directing their trades to them and paying higher commissions per share. Investor conferences have a significant effect on annual market share that is similar in magnitude to analyst coverage. We also find significant increases in broker market shares among conference stocks in the days following the event, which confirms a causal effect of special services on broker market shares. Moreover, institutions pay higher commissions for conference stocks, which is consistent with compensation for premium research service. The effects of investor conferences and traditional published research on broker market share are stronger for firms that are covered by few brokerage analysts and that attend few investor conferences, which suggests broker research is valued most highly by investors for firms that are overlooked by other brokers and where opportunities to obtain information from management are limited.

Taken together, our findings suggest that brokerages are successfully adapting to market forces and regulatory reforms by increasing the provision of premium research services for select clients. Offering investing clients asymmetric levels of research service

is controversial, and activities such as analysts pre-releasing recommendations to select investors (Irvine, Lipson, and Puckett, 2007; Christophe, Ferri, and Hsieh, 2010), or providing them with short-term trading recommendations that may conflict with their published recommendations (Moyer, 2011), face scrutiny from regulators. Analyst-hosted conferences provide a less contentious method for offering premium services to top investing clients.

We conjecture, but leave for future research to explore, the existence of additional benefits from hosting investor conferences. For instance, interactions with executives and sophisticated investors may provide hosting analysts with valuable information that leads to more profitable recommendations and more accurate earnings forecasts, in which case hosting conferences could have a direct positive effect on traditional research services. Investor conferences may also benefit brokerage firms' investment banking activities. Previous work suggests issuers reward underwriters that publish high quality research (e.g. Krigman, Shaw, and Womack, 2001; Cliff and Dennis, 2005). If issuers also value the opportunity to directly influence investors' views of its stock at conferences, they may reward underwriters whose affiliated analysts host conferences. Exploring whether special services and traditional published research facilitate underwriting activities would be interesting in light of recent reforms curtailing investment bankers' interactions with research analysts.

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**Table 1: Descriptive statistics for research producing brokers**

This table reports the time-series average of annual cross-sectional summary statistics from 2004-2008. Panel A includes average statistics for all 107 research brokers in the merged I/B/E/S and Ancerno sample. Panel B reports summary statistics for the subset of 65 brokers that hosted at least one conference during a given year. For a given broker-year, Market Share (Commission Share) is defined as broker trading volume (commissions) scaled by total trading volume (commissions) across all brokers in the sample in that year. Conferences is the number of broker hosted investor conferences, Company Presentations is the total number of conference presentations, and Number of Companies is the number of unique companies who presented at broker-hosted conferences in a given year. Number of Analysts is the number of analysts employed by the broker, Recommendations is the total number of recommendations issued by a broker, and Companies Followed is the total number of stocks that the brokerage firm covers. New Issues Underwritten is the total number of IPOs and SEOs for which the brokerage firm was the lead underwriter. Volume (Share Volume) is the total dollar volume (share volume) that institutional investors in the Ancerno database traded through the broker in a given year. Commission per Share is the commission revenue of a given broker scaled by its share volume. Commission is the total annual commission revenue for a broker.

Panel A: Annual summary statistics for all brokers

	Mean	Std Dev	5th	25th	Median	75 <sup>th</sup>	95 <sup>th</sup>
Market Share (%)	1.09	2.78	0.00	0.01	0.11	0.60	8.40
Commission Share (%)	1.09	2.62	0.00	0.01	0.13	0.77	7.82
Number of Analysts	63	107	5	11	22	63	337
Recommendations	586	1026	29	94	206	548	2979
Companies Followed	374	584	21	68	152	393	2007
New Issues Underwritten	9	21	0	0	1	4	71
Volume (\$Billions)	10,407	27,403	1	80	919	5,524	84,163
Share Volume (Millions)	325	828	0.04	3	32	179	2,516
Comm. per Share (¢)	3.68	0.79	2.02	3.37	3.85	4.12	4.60
Commission (\$1000s)	10,314	25,390	2	123	1,098	6,869	74,590

Panel B: Annual summary statistics for conference hosting brokers

	Mean	Std Dev	5th	25th	Median	75 <sup>th</sup>	95 <sup>th</sup>
Conferences	6.4	6.4	1.0	1.9	3.7	8.5	21.0
Company Presentations	154.6	168.2	1.8	23.5	80.9	226.6	541.4
Number of Companies	141.5	150.5	1.8	22.0	77.9	215.8	483.4
Market Share (%)	1.76	3.43	0.01	0.10	0.35	1.19	10.73
Commission Share (%)	1.76	3.23	0.01	0.13	0.46	1.51	10.62
Number of Analysts	80	129	8	17	31	67	383
Recommendations	766	1236	74	158	266	648	3685
Companies Followed	489	699	55	115	188	480	2189
New Issues Underwritten	14	26	0	0	2	11	78
Volume (\$Billions)	17,081	34,105	65.	831	3,249	10,660	108,495
Share Volume (Millions)	534	1028	3	31	109	363	3,197
Comm. per Share (¢)	3.71	0.62	2.51	3.50	3.85	4.08	4.37
Commission (\$Millions)	17,377	31,766	114	1,164	4,537	14,244	105,329



**Table 2: Brokerage Market Share and Aggregate Measures of Research**

This table presents the results of regressions of aggregate brokerage market share on aggregate measures of brokerage research services. In specification 4 of Panel A, we run the following regression:

$$MS_{j,t} = \alpha + \beta_1 \text{NmConf}_{j,t} + \beta_2 \text{NmRecs}_{j,t} + \beta_3 \text{NmAnalyst}_{j,t} + \beta_4 \text{NmIPOs}_{j,t} + \varepsilon_{j,t}$$

where  $MS_{j,t}$  is the percentage volume market share of broker  $j$  in year  $t$ .  $\text{NmConf}_{j,t}$  is the total number of conferences hosted,  $\text{NmRecs}_{j,t}$  is the total number of recommendations issued, and  $\text{NmAnalyst}_{j,t}$  is the total number of analysts employed by broker  $j$  in year  $t$ .  $\text{NmIPOs}_{j,t}$  is the number of IPOs and SEOs for which broker  $j$  was the lead underwriter in year  $t$ . Specification (5) replaces market share with commission share. Standard errors are clustered by broker (107 broker clusters for 462 broker-year observations), and t-statistics are reported below each estimate.

<b>Panel A: Aggregate Market Share</b>					
	Market Share	Market Share	Market Share	Market Share	Commission Share
	(1)	(2)	(3)	(4)	(5)
Number of Conferences	1.94 (4.34)			0.62 (2.01)	0.67 (2.37)
Number of Recommendations		1.70 (2.42)		1.07 (1.32)	1.01 (1.27)
Number of Analysts			1.63 (2.25)	-1.69 (-1.57)	-1.67 (-1.62)
Number of IPOs and SEOs				2.10 (3.16)	1.98 (3.27)
R-squared	48.99%	37.89%	34.75%	60.31%	61.17%

**Table 3: Brokerage Market Share and Firm-Specific Measures of Research**

This table presents the results of regressions of brokerage market share on firm-specific measures of brokerage services. In specification 4 of Panel A, we run the following panel regressions:

$$MS_{j,k,t} = \alpha + \beta_1 \text{Conf}_{j,k,t} + \beta_2 \text{Cover}_{j,k,t} + \beta_3 \text{NmRecs}_{j,k,t} + \beta_4 \text{NmIPOs}_{j,k,t} + \varepsilon_{j,k,t}$$

where  $MS_{j,k,t}$  equals the market share of broker  $j$  in firm  $k$  in year  $t$ .  $\text{Conf}_{j,k,t}$  is a dummy variable equal to 1 if firm  $k$  attended a conference hosted by broker  $j$  in year  $t$ .  $\text{Cover}_{j,k,t}$  is a dummy variable equal to 1 if broker  $j$  covered firm  $k$  in year  $t$ .  $\text{NmRecs}_{j,k,t}$  is the total number of recommendations issued by broker  $j$  in firm  $k$  in year  $t$ , and  $\text{NmIPOs}_{j,k,t}$  is the number of IPOs and SEOs for which broker  $j$  was the lead underwriter for stock  $k$  in year  $t$ . Panel B is identical to Panel A except that we now add a unique intercept for each broker ( $\alpha_j$ ). Similarly, in Panel C we add a unique intercept for each broker-firm pair ( $\alpha_{j,k}$ ). Specification (5) replaces market share with commission share, Standard errors are clustered by broker (65 broker clusters and 675,108 broker-firm-year observations), and t-statistics are reported below each estimate.

<b>Panel A: Firm-Specific Market Share</b>					
	Market Share	Market Share	Market Share	Market Share	Commission Share
	(1)	(2)	(3)	(4)	(5)
Intercept	1.34 (4.84)	1.21 (4.86)	1.27 (4.86)	1.12 (4.74)	1.09 (5.15)
Conference	4.70 (8.52)			3.39 (8.84)	3.61 (9.39)
Coverage		4.09 (7.72)		2.27 (6.00)	2.40 (6.78)
Number of Recommendations			2.40 (9.19)	0.73 (6.89)	0.72 (7.23)
Number of IPOs and SEOs				10.37 (7.81)	9.04 (7.06)
R-squared	4.69%	6.28%	5.65%	9.59%	9.05%
<b>Panel B: Firm-Specific Market Share with Broker Fixed Effects</b>					
	(1)	(2)	(3)	(4)	(5)
Conference	2.47 (7.82)			1.87 (7.30)	2.28 (7.23)
Coverage		2.13 (10.94)		1.34 (7.12)	1.54 (7.58)
Number of Recommendations			1.22 (11.41)	0.29 (3.67)	0.36 (5.43)
Number of IPOs and SEOs				8.22 (8.09)	7.23 (7.10)
Within R-squared	1.72%	2.24%	1.93%	3.97%	4.10%

**Table 3: Brokerage Market Share and Firm-Specific Measures of Research (continued)**

<b>Panel C: Firm-Specific Market Share with Broker-Firm Fixed Effects</b>					
	Market Share	Market Share	Market Share	Market Share	Commission Share
	(1)	(2)	(3)	(4)	(5)
Conference	0.51 (4.27)			0.48 (4.19)	0.65 (4.48)
Coverage		0.46 (7.35)		0.16 (1.33)	0.09 (0.90)
Number of Recommendations			0.29 (5.97)	0.19 (2.17)	0.23 (3.15)
Number of IPOs and SEOs				5.53 (7.36)	4.17 (6.59)
Within R-squared	0.06%	0.10%	0.11%	0.54%	0.35%

**Table 4: Cross Sectional Determinants of the Impact of Firm-Specific Research on Market Share**

This table presents the results of regressions of brokerage market share on firm-specific measures of brokerage services interacted with firm and broker characteristics as follows:

$$\begin{aligned}
 MS_{j,k,t} = & \alpha + \beta_1 \text{Conf}_{j,k,t} + \beta_2 \text{Cover}_{j,k,t} + \beta_3 \text{NmRecs}_{j,k,t} + \beta_4 \text{NmIPOS}_{j,k,t} \\
 & + \text{Conf}_{j,k,t} \left[ \beta_5 \text{NmConf}_{k,t} + \beta_6 \text{NmAnalyst}_{k,t} + \beta_7 \text{BrokerSize}_{j,t} \right] \\
 & + \text{Cover}_{j,k,t} \left[ \beta_8 \text{NmConf}_{k,t} + \beta_9 \text{NmAnalyst}_{k,t} + \beta_{10} \text{BrokerSize}_{j,t} \right] \\
 & + \beta_{11} \text{NmConf}_{k,t} + \beta_{12} \text{NmAnalyst}_{k,t} + \beta_{13} \text{BrokerSize}_{j,t} + \varepsilon_{j,k,t}.
 \end{aligned}$$

where  $MS_{j,k,t}$  is the volume market share of broker  $j$  in firm  $k$  in year  $t$ .  $\text{Conf}_{j,k,t}$  is a dummy variable equal to 1 if firm  $k$  attended a conference hosted by broker  $j$  in year  $t$ , and  $\text{Cover}_{j,k,t}$  is 1 if broker  $j$  covered firm  $k$  in year  $t$ .  $\text{NmRecs}_{j,k,t}$  is the total number of recommendations issued, and  $\text{NmIPOS}_{j,k,t}$  is the number of IPOs and SEOs underwritten, by broker  $j$  in stock  $k$  in year  $t$ .  $\text{NmConf}_{k,t}$  is the total number of conferences attended, and  $\text{NmAnalyst}_{k,t}$  is the total number of analysts covering, stock  $k$  in year  $t$ .  $\text{BrokerSize}_{j,t}$  is the aggregate market share of broker  $j$  in year  $t$ .  $\text{NmConf}_{k,t}$ ,  $\text{NmAnalyst}_{k,t}$ , and  $\text{BrokerSize}_{j,t}$  are converted to quintile rankings, and to conserve space the coefficients on these controls are not reported. Specifications (4-6) are identical to (1-3) except that they now add a unique intercept for each broker ( $\alpha_j$ ). Specification (3) and (6) report the results for commission market share. Standard errors are clustered by broker (65 broker clusters and 675,108 broker-firm-year observations) and  $t$ -statistics are reported below each estimate.

	Market Share	Market Share	Comm. Share	Market Share	Market Share	Comm. Share
	(1)	(2)	(3)	(4)	(5)	(6)
Conference	9.71 (4.24)	8.87 (4.13)	11.28 (4.03)	11.41 (4.40)	10.10 (4.23)	12.23 (3.93)
Coverage	1.45 (5.11)	4.36 (4.36)	6.14 (4.72)	1.38 (7.32)	5.71 (5.83)	7.12 (5.41)
Number of Recommendations	0.73 (10.13)	0.72 (10.44)	0.71 (11.41)	0.29 (3.59)	0.29 (3.28)	0.36 (4.89)
Number of IPOs and SEOs	9.37 (7.34)	9.10 (7.36)	7.90 (6.62)	8.14 (8.15)	8.05 (8.15)	7.07 (7.17)
Conference $\times$ Num. of Conf.	-1.50 (-4.21)	-1.32 (-3.75)	-1.55 (-3.91)	-1.57 (-4.01)	-1.43 (-3.77)	-1.62 (-3.75)
Conference $\times$ Num of Analysts	-0.92 (-3.05)	-0.71 (-2.73)	-0.93 (-2.76)	-1.11 (-3.64)	-0.86 (-3.28)	-1.05 (-3.08)
Conference $\times$ Broker Size	0.74 (2.96)	0.54 (2.74)	0.42 (2.00)	0.28 (1.55)	0.22 (1.24)	0.16 (0.68)
Coverage $\times$ Num. of Conf.		-0.45 (-5.58)	-0.49 (-5.87)		-0.32 (-4.86)	-0.38 (-5.33)
Coverage $\times$ Num. of Analysts		-1.00 (-3.97)	-1.26 (-4.11)		-1.08 (-4.27)	-1.30 (-4.12)
Coverage $\times$ Broker Size		0.85 (3.60)	0.70 (3.27)		0.31 (3.17)	0.27 (2.73)
Broker Fixed Effects	NO	NO	NO	YES	YES	YES
R-squared	19.49%	20.01%	16.97%	4.37%	4.58%	4.64%

**Table 5: Determinants of Commissions per Share**

This table presents the results of commission per share on various broker, manager, and stock characteristics. Specification 5 of this table reports the results from the following panel regression:

$$\begin{aligned} \text{Com}_{j,k,m,t} = & \alpha + \beta_1 \text{Year}_t + \beta_2 \text{Modal\_Com}_{j,m,t-1} + \beta_3 \text{Firm\_Com}_{k,t} \\ & + \beta_4 \text{Broker\_Vol}_{j,t} + \beta_5 \text{Manager\_Vol}_{m,t} \\ & + \beta_6 \text{Conf}_{j,k,t} + \beta_7 \text{Cover}_{j,k,t} + \beta_7 \text{NmRecs}_{j,k,t} + \beta_8 \text{NmIPO}_{j,k,t} + \varepsilon_{j,k,m,t} \end{aligned}$$

where  $\text{Com}_{j,k,m,t}$  is the average commission per share made on trades made by manager  $m$ , through broker  $j$ , in firm  $k$ , in year  $t$ .  $\text{Year}_t$  is the number of years since the start of the sample and captures the time trend in commissions.  $\text{Modal\_Com}_{j,m,t-1}$  is the modal commission for a manager-broker pair in the preceding year.  $\text{Firm\_Com}_{k,t}$  is the average firm commission in stock  $k$  in year  $t$ .  $\text{Broker\_Vol}_{j,t}$  ( $\text{Manager\_Vol}_{m,t}$ ) is a quintile ranking of broker (manager) size measured using total broker (manager) trading volume.  $\text{Conf}_{j,k,t}$  is a dummy variable equal to 1 if firm  $k$  attended a conference hosted by broker  $j$  in year  $t$ .  $\text{Cover}_{j,k,t}$  is a dummy variable equal to 1 if broker  $j$  covered firm  $k$  in year  $t$ .  $\text{NmRecs}_{j,k,t}$  is the total number of recommendations issued by broker  $j$  in firm  $k$  in year  $t$ , and  $\text{NmIPOs}_{j,k,t}$  is the number of IPOs and SEOs for which broker  $j$  was the lead underwriter for stock  $k$  in year  $t$ . The regression is value-weighted within broker-manager-stock observations. Standard errors are clustered by broker (65 broker clusters and 1,647,278 broker-manager-firm-year observations) and t-statistics are reported below each estimate.

	Commissions per Share				
	(1)	(2)	(3)	(4)	(5)
Intercept	3.96 (37.01)	1.19 (15.03)	0.49 (2.01)	0.51 (2.76)	0.54 (2.90)
Year	-0.35 (-9.85)	-0.07 (-5.43)	0.04 (2.61)	0.04 (2.45)	0.04 (2.29)
Modal Commission		0.70 (33.21)	0.63 (29.03)	0.63 (29.06)	0.63 (29.07)
Firm Commission			0.41 (13.11)	0.40 (13.21)	0.40 (13.32)
Broker Volume			-0.05 (-2.29)	-0.05 (-2.54)	-0.06 (-2.73)
Manager Volume			-0.06 (-2.96)	-0.06 (-2.99)	-0.06 (-3.02)
Conference				0.16 (7.18)	0.12 (6.56)
Coverage					0.11 (4.17)
Number of Recommendations					0.02 (1.43)
Number of IPOs and SEOs					-0.14 (-2.63)
R-squared	10.18%	55.45%	56.56%	56.62%	56.71%

**Figure 1: Market Share around Broker Hosted Conferences and Recommendations**

Figure 1 plots brokerage market share in an event study framework. The top figure plots the market share of hosting brokers around investor conferences. The bottom figure plots the market share of issuing brokers around recommendations. Market share is computed as the total trading volume in stock  $k$  on event day  $t$  scaled by aggregate trading volume in stock  $k$  on event day  $t$ . Event market share is then averaged across all broker-stock-event day observations. For reference, we also report the 5th and 95th percentile market share confidence intervals based on the time-series mean and standard deviation of the post-event window of [20,60].

