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Paying for Coverage: Conflict of Interest Among Company-Sponsored Research Firms

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FLORIDA STATE UNIVERSITY

COLLEGE OF BUSINESS

PAYING FOR COVERAGE:

CONFLICT OF INTEREST AMONG COMPANY-SPONSORED RESEARCH FIRMS

By

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To Riza,
Cubby
and Wondy

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ABSTRACT

The Securities and Exchange Commission has recommended company-sponsored research to address the need for greater analyst following of smaller companies. Anecdotal evidence suggests company-sponsored research is more optimistic than research from traditional brokerage firms (Kalra 2004; Lee and Metaxas 2004; Richardson 2006). Using a sample of companies that are followed by both company-sponsored analysts and traditional analysts, I examine whether the conflict of interest between the company-sponsored research firm and the client company leads to more optimistic recommendations and forecasts.

In the first part of my dissertation, I find that analysts at company-sponsored research firms are more likely to issue favorable recommendations than analysts at traditional brokerage firms. This optimism appears to be a result of company-sponsored analysts upgrading their recommendation more quickly and downgrading their recommendations more slowly than analysts at traditional brokerage firms. Furthermore, recommendations issued by company-sponsored analysts appear to be overly optimistic since portfolios of stock based on their recommendations underperform relative to similar recommendations issued by traditional analysts. Finally, I find that the market does not appear to differentiate between recommendations issued by company-sponsored analysts and recommendations by traditional analysts.

In the second part of my dissertation, I find that forecasts issued by company-sponsored analysts are not significantly different from forecasts issued by traditional analysts. I find neither a significant difference in bias or accuracy between forecasts issued by company-sponsored analysts and forecasts issued by traditional analysts. However, company-sponsored analysts appear to revise their forecasts less often than analysts at traditional brokerage firms. Finally, I find that the market reaction to forecast revisions issued by company-sponsored analyst is not significantly different from zero, but I cannot reject the hypothesis that the market reaction to forecast revisions issued by company-sponsored analysts is the same as the market reaction to forecast revisions issued by traditional analysts.

The results of my dissertation suggest that the relationship between the company-sponsored research firm and the client company influences analysts' recommendations but not forecasts. These findings are consistent with Dechow, Hutton, and Sloan (2000) and Malmendier and Shanthikumar (2007) who suggest that analyst affiliation does not affect near-term EPS forecasts. The different results for company-sponsored recommendations and forecasts may be due to the fact that recommendations are more difficult to objectively evaluate than forecasts, and EPS forecasts tend to be geared toward sophisticated institutional investors who are more likely to recognize the conflict of interest (Malmendier and Shanthikumar 2007a; Mikhail, Walther, and Willis 2007).

I also find that company-sponsored analysts revise their forecasts less often than analysts at traditional brokerage firms. This is consistent with Agrawal and Chen's (2005) theory that commissions from trading volume play an important role in shaping analysts' forecasting behavior. Analysts who are compensated by commission revenue appear to be more willing than company-sponsored analysts who are paid a fixed fee to issue timely revisions that reflect changing expectations about earnings. These findings suggest that company-sponsored research may not be an adequate substitute for research from analysts at traditional brokerage firms.

Keywords: *Company-sponsored research, paid-for research, analysts' recommendations, analysts' forecasts, meet or beat earning, forecast revisions*

CHAPTER 1

INTRODUCTION AND MOTIVATION

Tough economic conditions and staffing reductions at many brokerage firms have led to cutbacks on the number of stocks covered by analysts (Lee and Metaxas 2004).¹ In response to these changes, many small and mid-size companies have begun purchasing analyst services from “company-sponsored” or “issuer-paid” research firms (Gomes, Gorton, and Madureira 2007).² For a fee ranging between \$25,000 to \$40,000 a year³, purchasing companies receive third-party earnings estimates and stock ratings that are distributed on the company-sponsored research firms’ websites, through broker-dealers, and on platforms such as Reuters Estimates, Thomson First Call and Yahoo! Finance (Kalra 2004). While company-sponsored research firms assert that they are simply filling a void left by traditional Wall Street firms by providing coverage to small and mid-size companies (J.M. Dutton and Associates), critics argue that commissioned research is inherently conflicted (Fisch 2007). Several newspaper articles cite sources stating that stock recommendations issued to clients by company-sponsored research firms are optimistically biased due to the economic ties that bond the two parties.⁴ Also, company-sponsored research firms have been less than forthcoming in disclosing their client relationship, suggesting that commissioned research may not be as transparent as some people have claimed.⁵

¹Reuters reports that 666 out of 4,075 companies in its database have lost analyst coverage (Baker 2006).

²The National Investor Relations Institute reported that 10% of all companies surveyed, ranging from micro- to large-cap companies, had commissioned stock research during the preceding two years (Weiss 2003).

³Some company-sponsored research firms accept shares of stock in lieu of cash payments (Lambert 2003).

⁴Richardson (2006) observes that J.M. Dutton and Associates (a provider of company-sponsored research) has a buy type rating on 77.5% of its stocks compared to 46.5% of all companies tracked by Thomson Financial. Benjamin Zacks (president of Zacks Investment Research) is quoted as saying that he has never read a negative comment in a company-sponsored research report (Lambert 2003); Jonathan Boersma, Director of Standards of Practice at Centre for Financial Market Integrity at the CFA Institute states that company-sponsored research is obviously fraught with all kinds of conflicts of interest (Kalra 2004); Phil Feigin the former securities commissioner in Colorado, describes company-sponsored research as “sophisticated advertising” (Antilla 1993).

⁵On July 6 2005, the Securities and Exchange Commission (SEC) fined William P. Bartkowski, the former CEO of BlueFire Research, \$50,000 for failing to disclose that featured companies had paid for their research. He was also fined for failing to report the amount of the past or prospective consideration BlueFire Partners had received for the research reports (SEC Digest 2005).

Favorable information, however, does not necessarily mean that company-sponsored research is biased. The large number of “Buy” ratings issued by company-sponsored research firms may be related to the type of companies that choose to purchase analyst services. Companies employing a company-sponsored analyst may be severely undervalued due to limited dissemination of its information. If the company-sponsored analyst is providing useful information about the company, then he or she may be facilitating a market correction to the company’s value. In fact, there is strong evidence to suggest investors can use information provided by company-sponsored research firms to generate abnormal returns.⁶ While company-sponsored research has been suggested as a means to correct an informational deficiency in the market, I examine whether that research may also mislead investors about a company’s future prospects.

The contractual nature between the company-sponsored research firm and the client may encourage “recommendation-shopping”, where companies avoid unfavorable recommendations through the strategic use of analyst dismissals.⁷ If a client is unsatisfied with a company-sponsored analyst’s report, the client may drop the analyst who issued the report⁸, resulting in a loss of revenue for the company-sponsored research firm. However, the incentive to issue biased research may be tempered by the potential damage it would do to the company-sponsored research firm’s reputation. Issuing biased research could impair the firm’s ability to attract quality analysts and reduce the number of distribution channels (Thomson, Bloomberg, Zacks, etc.), which would affect the firm’s capacity to attract and retain customers. In order for a company-sponsored research firm to preserve and expand its business, it should maintain an appearance of independence.

⁶Martin (2005) reports that Taglich Brothers (a company-sponsored research provider) was ranked fifth out of 109 research outlets tracked by *Investors* (a firm that tracks the performance of analysts’ stock picks) with a hypothetical portfolio return of 91% over a three-year period. J.M. Dutton and Associates came in eighth, bringing in a 73.19% aggregate return. By comparison, the best performer of the bulge-bracket set (the group of investment banks considered to be the largest and most profitable in the world), Goldman Sachs, did not even make the Top 20. Another provider of commissioned research, RedChip Research states on its website that it is currently ranked number one by *Investors* among brokerage firms with fewer than 99 companies (RedChip Research 2008).

⁷Detman (2006) states that company-sponsored research firms follow the standard Wall Street practice of having the covered company review for accuracy the factual narrative, but not the conclusion, rating or recommendation, prior to public release.

⁸Martin (2006) reports that the CEO of Medifast, Inc. fired the company-sponsored research firm, Taglich Brothers, after the firm rated the stock as “Underperform”.

My dissertation focuses on three related issues. First, I assess whether the information from company-sponsored analysts is more optimistic than information from analysts at traditional brokerage firms by examining the products (recommendations and forecasts) issued by each type of analyst. Second, I examine whether the optimism is due to undervaluation of the companies' securities or the conflict of interest between the company-sponsored research firm and the client company. Third, I examine how the market reacts to recommendations and forecast revisions issued by company-sponsored analysts. This test provides evidence on whether the market perceives a difference in the credibility of company-sponsored analysts versus traditional analysts.

The results of my dissertation suggest that the relationship between the company-sponsored research firm and the client company affects the recommendations issued by company-sponsored analysts but not forecasts issued by company-sponsored analysts. I find that recommendations issued by company-sponsored analysts are significantly more favorable than recommendations issued by traditional analysts for the same company after controlling for initiations and recommendations issued prior to a drop in coverage. However, I find no significant difference in optimism or accuracy between forecasts issued by company-sponsored analysts and similar forecasts issued by traditional analysts for the same company. These findings are consistent with Malmendier and Shanthikumar's (2007) theory that earnings forecasts are intended for sophisticated institutional investors while recommendations are intended for less sophisticated individual investors. They suggest that analysts with conflicts of interest may upwardly distort recommendations to trigger small-investor purchases and to please management, however sophisticated institutional investors are more likely to detect upward bias, therefore the upside of distorting is more limited for earnings forecasts than for recommendations.

I also find that the market does not appear to differentiate between recommendations issued by company-sponsored analysts and similar recommendations issued by traditional analysts. However, I find that a portfolio of stock, based on recommendations issued by company-sponsored analysts, is biased downward relative to a similar portfolio based on recommendation ratings issued by traditional analysts. This

suggests that investors initially overreact to recommendations from company-sponsored analysts.

Finally, my results suggest that company-sponsored analysts revise their forecasts less often than traditional analysts. After controlling for the forecast error and horizon (the number of days between the earnings forecast and the announcement date), I find that company-sponsored analysts are less likely to revise their forecasts upward or downward. Also, I find that the market reaction to forecast revisions issued by company-sponsored analysts is not significantly different from zero. However, I am unable to reject the null hypothesis that market reaction to forecast revisions issued by company-sponsored analysts is the same as the market reaction to forecast revisions issued by traditional analysts. The results may be due to the limited number of forecast revisions issued by company-sponsored analysts in my sample. These findings are consistent with Agrawal and Chen's (2005) theory that analysts who are compensated by commission revenue are more willing than independent analysts to issue timely revisions that reflect changing expectations about earnings.

This study contributes to accounting and finance literature by examining the information distributed by company-sponsored research firms. Over the past decade, the number of analysts employed by traditional brokerage firms has declined as revenue from trading commissions decreased⁹, and underwriters stopped subsidizing research to secure investment banking contracts (Coffee 2006).¹⁰ At the same time, the cost of generating information increased as Regulation FD eliminated analysts' access to private information (Gomes et al. 2007). These changes have led to a decline in coverage for small and midsize companies that do not have enough trading volume to justify the cost of covering the company.¹¹ This trend is likely to continue as consolidation in the banking industry (i.e. the failure of Lehman Brothers, the mergers of Bear Sterns with

⁹Kirk (2008) states that the reduction in the minimum trade increment (it decreased from 1/8th of a dollar to a penny) ate away at one revenue stream that funded analyst research.

¹⁰Section 501 of the Sarbanes Oxley Act of 2002 requires firms to create barriers between investment banking and research divisions to reduce analyst conflicts of interest.

¹¹Gomes, Gorton and Madureira (2007) estimate that analyst coverage has decreased 17% for small companies and 5% for mid-size companies since October 2000.

J.P. Morgan and Merrill Lynch with Bank of America) reduces the number of firms providing research.

The Advisory Committee on Small Public Companies to the Securities and Exchange Commission (2006) states that a loss in coverage creates several disadvantages for companies, including reduced market capitalization and higher financing costs. To increase the visibility of smaller companies and improve market efficiency, the SEC and other regulators have recommended company-sponsored research as a substitute for traditional research. The results of my dissertation suggest that recommendations issued by company-sponsored analysts are overly optimistic. I also find that company-sponsored analysts revise their forecasts less often than traditional analysts. My findings lend some support to the theory that forecast revisions from company-sponsored analysts have less informational value than similar forecast revisions from traditional analysts. Overall, the findings suggest that company-sponsored research may not be a complete substitute for information from traditional brokerage firms.

This study also supports findings that suggest analysts with conflicts of interest are more likely to issue overly optimistic recommendations but not forecasts. Similar to prior studies, which have examined analysts with investment banking ties (Lin and McNichols 1998; Kolasinski and Kothari 2004; Cowen, Groysberg, and Healy 2006), I find that company-sponsored analysts issue more optimistic recommendations than traditional analysts; however, I find no difference between forecasts issued by company-sponsored analysts and those issued by traditional analysts. These findings are consistent with Malmendier and Shanthikumar's (2007) theory that forecasts are intended for sophisticated institutional investors who can detect distortions.

Finally, my dissertation identifies a new area for researchers studying analyst conflicts of interest. Research in this area has focused on firms providing investment banking services (firms biasing their recommendations and forecasts to obtain underwriting contracts from companies issuing securities). Given the current regulations which require separation of investment banking and analyst services, I believe my sample provides another setting to test the hypothesis that firms with economic ties have an incentive to issue biased recommendations for such companies (the Conflict of Interest Hypothesis). Currently, investment banking firms have barriers such as separation of

departments or competing profit structures that impede conflicts of interest. However, these barriers do not exist at company-sponsored research firms. My results are consistent with the theory that affiliated analysts are more likely to issue optimistic recommendations to client-companies than unaffiliated analysts.

The rest of the paper is organized as follows. Chapter 2 provides background on company-sponsored research and reviews the literature. Chapter 3 develops the hypotheses. Chapter 4 describes the research design, including the data sources, methodology, and hypothesis tests. Chapter 5 presents the empirical results and analysis. Chapter 6 offers concluding remarks, along with limitations and suggestions for future research.

CHAPTER 2

BACKGROUND

2.1 The growth of company-sponsored research

Company-sponsored research originated more than twenty years ago. Initially, company-sponsored research firms were similar to public relations firms issuing “informational reports” to generate interest in the client. For a fee, an in-house analyst would write a bullish report to be included in a trade magazine or funneled to retail customers through stockbrokers (Antilla 1993). While some investors may not have recognized the difference between a report issued by a company-sponsored research firm and a report issued by a traditional brokerage firm, the majority of company-sponsored firms issued obviously biased research. However, in recent years, company-sponsored research has started to gain more legitimacy (Cowan 2003). Major providers of financial data like Thomson and Bloomberg now include in their earnings estimates and stock ratings information from several company-sponsored research firms.¹² Institutional investors have also started to utilize company-sponsored research to obtain information on smaller companies (Cowan 2003). Like traditional brokerage firms, some company-sponsored research firms have even started offering other financial services, including investment banking and asset management.

The growth of company-sponsored research is largely due to regulatory and economic pressures in the financial industry. Regulatory changes that reduced the minimum trade size¹³ (Kirk 2008), eliminated selective disclosures (Regulation FD) and created barriers between research and investment banking (NASD 2711; NYSE Rule 472; Section 501 of the Sarbanes-Oxley), along with a decline in economic conditions following the stock market bubble in the late 1990's, led many brokerage firms to decrease the size of their research departments. Analyst coverage shifted away from small and mid-size companies toward larger corporations where analyst services could be

¹²Richardson (2006) reports that Thomson and Bloomberg each have about a half-dozen company-sponsored research firms contributing earnings estimates and ratings. Reuters does not include company-sponsored research in its earnings or ratings, however it does distribute full reports to subscribers.

¹³The minimum trade size decreased from 1/8th of a dollar in 1997 to a penny in the year 2000.

supported by brokerage commissions.¹⁴ To fill the void left by traditional brokerage firms, regulatory agencies have started endorsing company-sponsored research.¹⁵

Despite the prevalence of company-sponsored research, many individuals still question whether commissioned research is trustworthy. Several company-sponsored research firms have been investigated by the SEC for failing to disclose that they were paid by their client (SEC Told 'No Crisis in Disclosure,' But Non-Disclosures Almost Daily Now *FinancialWire* 2004).¹⁶ Also, attempts to reduce conflicts of interest (or the appearance of a conflict of interest) have largely failed. The Financial Independent Research Standards Task (FIRST) Consortium, an organization founded in May 2003 to address concerns about the reliability of company-sponsored research, was ignored by the major providers and has not released any new standards since 2006. The CFA Institute's Center for Financial Market Integrity and the National Investor Relations Institute have issued guidelines for company-sponsored research firms regarding independence, compensation and disclosure. However, the extent to which analysts adhere to these standards, which are not binding, remains unclear (Fisch 2007).

2.2 Forces influencing reporting decisions at company-sponsored research firms

Whether payments for services cause analysts at company-sponsored research firms to issue overly optimistic recommendations depends on which incentives dominate. One factor that is likely to influence a company-sponsored research firm's decision is the need to generate future business. Fisch (2007) states that the need to generate business clearly gives company-sponsored research firms an incentive to provide optimistic reports rather than to be critical of covered companies or their management. Since managers are unlikely to continue paying a firm that is writing negative comments about their companies, one would expect that company-sponsored research firms try to avoid

¹⁴Gomes, Gorton and Madureira estimate that analyst coverage has decreased 17% for small companies and 5% for mid-size companies since October 2000.

¹⁵In addition to the SEC, the French regulator *Autorité des marchés financiers* (AMF) and the Shareholders Research Alliance (SRA) support commissioned research as a way of stimulating coverage for small and mid-cap companies (Baker 2006).

¹⁶SEC Regulation 17(b) requires firms to disclose any compensation paid to them by an issuer. Company-sponsored research firms have attempted to circumvent this regulation by having the client issue the press release describing the analyst coverage.

issuing negative reports. Company-sponsored research firms concerned about maintaining their business with current and future clients are more likely to issue optimistic recommendations.

Offsetting a firm's tendency to issue optimistic recommendations is the firm's need to maintain its reputation. Analysts are professional gatekeepers who the market trusts to filter, verify and assess complicated financial information (Coffee 2006). If the market perceives a firm to be untrustworthy, it is likely to discount or ignore the firm's information. This is likely to impair the firm's ability to attract quality analysts and cause a decline in distribution channels (Thomson, Bloomberg, Zacks, etc.), resulting in a loss of customers to other more reputable providers of research. To the extent that a firm is concerned about its reputation, and its reputation depends, at least in part, on the accuracy of its recommendations, reputational considerations would increase the firm's incentives to report truthfully (Lin and McNichols 1998).

CHAPTER 3

HYPOTHESIS DEVELOPMENT

To assess whether commissioned research is biased, I examine the products issued by company-sponsored analysts. The two products used most by investors are recommendations and earnings forecasts. Recommendations are opinions of financial analysts regarding the future performance of the company's stock, and earnings forecasts are predictions concerning the future earnings of the corporation. If the relationship between the company-sponsored research firm and the client affects the analyst's output, I expect recommendations and forecasts issued by company-sponsored analysts to be significantly different from recommendations and forecasts issued by traditional analysts.

3.1 Recommendations issued by company-sponsored research firms

The hypotheses tested focus on four related topics. First, I examine whether company-sponsored recommendations are more optimistic than recommendations from traditional analysts and whether the bias is non-strategic (a characteristic of the companies that purchase analyst research) or strategic (due to the conflict of interest between the company-sponsored research firm and the client). Second, I investigate if the bias is due to company-sponsored analysts' preference to issue good news and a reluctance to issue bad news. Third, I test whether the market perceives a difference in the credibility of company-sponsored analysts' recommendations versus traditional analysts' recommendations. Finally, I compare the investment performance associated with recommendations issued by company-sponsored analysts to the investment performance associated with recommendations issued by traditional analysts. This provides evidence on whether the conflict of interest between the company-sponsored research firm and the client company causes the analyst to issue misleading recommendations.

3.1.1 Non-strategic versus strategic bias scenarios

Anecdotal evidence suggests that company-sponsored research is more optimistic than research from traditional brokerage firms (Kalra 2004; Lee and Metaxas 2004; Richardson 2006). There are two explanations for expecting company-sponsored recommendations to be more favorable than recommendations from traditional brokerage firms. The *non-strategic bias* scenario proposes that recommendations are correlated with some factor in the company's decision to purchase commissioned research, but analysts report their information non-strategically (Lin and McNichols 1998).

Companies may purchase commissioned research as a way of signaling to the market the future prospects of the company (signaling theory). The managers of a company may be more informed about growth and profitability than other market participants, thus creating information asymmetry. When a company is severely undervalued, the benefits of hiring an analyst increase. Hiring a company-sponsored analyst may be one way of demonstrating the company's value to capital markets.¹⁷ Therefore, recommendations tend to appear optimistically biased. Consequently, more optimistic recommendations are observed for company-sponsored research firms than traditional firms because of the type of companies that hire analysts rather than the analysts themselves.

The *strategic bias* scenario proposes that company-sponsored analysts issue more favorable recommendations to generate future business from the client company (Lin and McNichols 1998). Under this scenario, the incentives to generate future revenue (quasi-rents) from the client company force the analyst to issue biased recommendations. By contrast, analysts at traditional brokerage firms who are not paid for their services have less incentive to bias their reports because the analyst will not be rewarded (or punished) for issuing a positive (or negative) report.

If companies purchasing commissioned research are undervalued, company-sponsored analysts will appear to be more optimistic than traditional analysts when analyzing recommendations for separate companies. However, undervaluation should

¹⁷This is consistent with comments by John M. Dutton, CEO of J.M. Dutton & Associates who states "If you think about it, there are 6,000 small-cap companies all fighting for the attention of the investors. Only good people are going to pay the \$33,000 for coverage when they don't have control over it."

not be a factor when company-sponsored analysts' recommendations are compared to traditional analysts' recommendations issued for the same company. Both types of analysts should recognize a company that is undervalued and issue the same recommendation.¹⁸ Any difference between company-sponsored analysts' recommendations and traditional analysts' recommendations should be due to a strategic bias as a result of the relationship between the company-sponsored research firm and the client company.¹⁹ This leads to my first hypothesis, stated in alternative form:

Hypothesis 1: Recommendations issued by company-sponsored analysts are more optimistic than recommendations issued by traditional analysts for the same company.

3.1.2 Speed of upgrades and downgrades by company-sponsored analysts

Strategic bias in company-sponsored recommendations may be demonstrated by the analyst's preference to issue good news and reluctance to issue bad news. O'Brien, McNichols, and Lin (2005) suggest that analysts prefer not to issue unfavorable news about client-companies. Using a sample of affiliated firms (firms with investment banking ties) and nonaffiliated firms (firms with no investment banking ties), the researchers found that affiliated firms were slower to downgrade from "Buy" to "Hold" recommendations and quicker to upgrade from "Hold" recommendations. I use a similar model to test whether the relationship between the client and the company-sponsored research firm creates a conflict of interest that influences the speed of upgrades and downgrades by company-sponsored analysts. Using a sample of companies with both company-sponsored analyst and traditional analyst coverage, I examine the length of time between the initiation of coverage by the company-sponsored analyst²⁰ until the first upgrade (downgrade) by either analyst. If the relationship between the client and the

¹⁸Because Reg FD prohibits selective disclosure by corporate officials, both traditional analysts and company-sponsored analysts should be using the same information to develop their recommendations and arrive at the same conclusions.

¹⁹There are two limitations to this approach. First, not all companies are followed by both a company-sponsored and traditional analyst, which limits the sample size. Second, an analyst may use other firms' analyst reports as inputs in determining their own recommendation. This may have a disciplining effect, which minimizes the difference between company-sponsored and traditional recommendations.

²⁰Company-sponsored research firms typically require companies to sign a one-year contract at the commencement of coverage.

company-sponsored research firm influences the analyst's decision to upgrade or downgrade, one would expect that analysts at company-sponsored research firms would be quicker to upgrade and slower to downgrade than analysts at traditional brokerage firms.²¹ This leads to my second hypothesis, stated in alternative form:

Hypothesis 2A: Analysts at company-sponsored research firms upgrade their recommendations more quickly than analysts at traditional brokerage firms.

Hypothesis 2B: Analysts at company-sponsored research firms downgrade their recommendations more slowly than analysts at traditional brokerage firms.

3.1.3 The market's response to recommendations from company-sponsored research firms

Stickel (1995), Womack (1996) and Barber, Lehavy, McNichols, and Trueman (2001) suggest that recommendations communicate valuable information to the market. All three studies find that the size-adjusted returns around the recommendation date are significantly positive for upgrades and significantly negative for downgrades. This implies that if recommendations issued by company-sponsored analysts communicate valuable information to the market, there should be significantly positive (negative) abnormal returns for favorable (unfavorable) recommendations on the date the recommendation is announced. However, the market's reaction to company-sponsored analysts' recommendations may be tempered by the firm's potential conflict of interest (the *conflict of interest effect*).

The potential conflict of interest between the analyst and the client suggests that company-sponsored recommendations may be biased or merely perceived as biased. If company-sponsored analysts tend to be more optimistic than traditional analysts, the market may perceive positive company-sponsored recommendations to be a less accurate representation of the client company's future prospects. This implies that the market reaction to favorable recommendations issued by traditional analysts should be significantly greater than the market reaction to favorable recommendations issued by

²¹There is a possibility that the relationship between the company-sponsored research firm and the client company allows the analyst to be more responsive to information than analysts at traditional brokerage firms, however this theory would suggest that analysts at company-sponsored research firms are faster to upgrade and faster to downgrade than traditional brokerage firms.

company-sponsored analysts. Alternatively, unfavorable recommendations from company-sponsored analysts may signal a gloomier picture of the client company's future prospects. This is consistent with the findings by Lin and McNichols (1998), who observe that the market reaction to "Hold" or "Sell" recommendations issued by affiliated firms (firms with investment banking ties) is significantly more negative than the market reaction to "Hold" or "Sell" recommendations issued by unaffiliated firms (firms with no investment banking ties). This implies that the market reaction to unfavorable recommendations issued by company-sponsored analysts should be significantly more negative than the market reaction to unfavorable recommendations issued by traditional analysts. This leads to my third hypothesis, stated in alternative form:

Hypothesis 3A: The announcement returns associated with favorable recommendations are less positive for company-sponsored analysts than traditional analysts.

Hypothesis 3B: The announcement returns associated with unfavorable recommendations are more negative for company-sponsored analysts than traditional analysts.

3.1.4 Long-term abnormal returns associated with company-sponsored recommendations

The basic premise for critics of company-sponsored research is that the conflict of interest between the company-sponsored research firm and the client company will cause analysts to issue misleading information. Prior studies find that favorable recommendations issued by analysts with investment banking ties are biased downward (lower long-term abnormal returns) relative to favorable recommendations issued by independent analysts (Cliff 2004; Barber, Lehavy, and Trueman 2007). In this section of my dissertation, I examine whether investors are better served from the advice of analysts at traditional brokerage firms compared to analysts at company-sponsored research firms.

Prior literature suggests that recommendations are a predictor of the future performance of a stock. Barber et al. (2001) finds that a portfolio of stocks with the most (least) favorable consensus of analyst recommendations provides an average annual abnormal gross return of 4.13 (-4.91) percent, after controlling for market risk, size, book-to-market and price momentum effect. Assuming recommendations issued by company-sponsored analysts are more optimistic than recommendations from traditional analysts, the future stock performance associated with company-sponsored analysts

recommendations should be lower than the future stock performance associated with similar recommendations issued by traditional analysts. Therefore a naïve investor who invests in a portfolio of stocks based on company-sponsored analysts' favorable (unfavorable) recommendations should experience a less positive (more negative) return than a naïve investor who invests in a portfolio of stocks based on similar recommendations issued by traditional analysts.²² This leads to my fourth hypothesis, stated in alternative form:

Hypothesis 4: The performance of portfolios comprised of stocks recommended by company-sponsored analysts is biased downward relative to the performance of portfolios comprised of stocks recommended by traditional analysts.

3.2 Forecasts issued by company-sponsored research firms

Schipper (1991) states that analysts use earnings forecasts, among other numerous pieces of information, to develop their recommendations. Therefore, if company-sponsored analysts' recommendations are optimistic, company-sponsored analysts' forecasts should be optimistic as well. However, prior research has failed to find a connection between recommendations and forecasts. Both Bradshaw (2004) and Barniv, Hope, Myring, and Thomas (2008) find that analysts' recommendations are negatively related to valuation models based on earnings forecasts from the same analyst.²³ Also, several studies do not find forecasts to be less accurate or more optimistic for firms with investment banking ties (i.e. firms with more optimistic recommendations).²⁴ This leads to the question of whether forecasts issued by company-sponsored analysts are systematically different from forecasts issued by traditional analysts.

In this section of my dissertation, I develop hypotheses related to forecasts issued by company-sponsored analysts. First, I examine whether forecasts issued by company-

²²Note that the research question is whether company-sponsored analysts' recommendations have lower value than recommendations issued by traditional analysts, not whether a profitable trading strategy can be developed based on the recommendations. There are various explanations (such as transaction costs) for the occurrence of long-term abnormal returns associated with analyst recommendations.

²³Barniv, Hope, Myring and Thomas (2008) find that recommendations issued after Reg FD are not related (positively or negatively) with valuation models based on earnings forecasts.

²⁴Dugar and Nathan (1995) find that analysts' forecasts are more optimistic for companies that are investment banking clients of the brokerage firm, however more recent studies have found no relationship or a negative relationship between investment banking and forecasts (Lin and McNichols 1998; Kolasinski and Kothari 2004; Agrawal and Chen 2005 and Cowen, Groysberg and Healy 2006).

sponsored analysts are more or less optimistic than forecasts issued by traditional analysts and whether companies are as likely to meet or beat company-sponsored forecasts. I then investigate whether company-sponsored analysts are likely as traditional analysts to revise their forecasts to minimize the forecast error. Finally, I observe the association between abnormal returns and earnings forecast revisions to identify whether company-sponsored forecasts influence expected earnings.

3.2.1 Bias in company-sponsored forecasts

Lin and McNichols (1998) state that forecasts of future earnings and earnings growth are important factors in analysts' models of equity value. An analyst bases his investment recommendation on the difference between his estimate of the firm's equity value and its current market value, and therefore reflects his view of the firm's future prospects. If an analyst's recommendations are optimistic, then the forecasts used as inputs in determining the recommendation are likely to be optimistic as well. Therefore if company-sponsored recommendations are more optimistic than recommendations from traditional analysts, forecasts of future earnings should also be more optimistic than forecasts from traditional analysts. This is consistent with Dugar and Nathan (1995) who find that analysts for companies that are investment banking clients of brokerage firms have more optimistic forecasts than analysts of independent firms.

Conversely, managers may not want such forecasts to be excessively high since markets tend to reward (punish) managers for meeting or beating (missing) analyst EPS forecasts (Kolasinski and Kothari 2004).²⁵ Analysts with conflicts of interest may be compelled to issue less optimistic forecasts to accommodate managers' goals of meeting or beating earnings. This is consistent with a recent study by Cowen et al. (2006) who find that firms funding research through underwriting and trading activities made less optimistic forecasts than those at brokerage houses with no underwriting activity.

²⁵Kasznik and McNichols find that companies meeting or beating earnings targets have an incremental market-adjusted return of approximately eight percent. Penalties for missing earnings targets include a large drop in price (Skinner and Sloan 2002), higher cost of debt (Jiang 2008), greater information asymmetry (Brown, Hillegeist and Lo 2006) and increased probability of CEO turnover (Puffer and Weintrop 1991).

To determine whether forecasts issued by company-sponsored analysts are systematically different from forecasts issued by traditional analysts, I compare quarterly forecasts issued for the same company. If the conflict of interest between the company-sponsored research firm and the client company influences the analyst's forecast, I expect forecasts issued by company-sponsored analysts to be significantly different from forecasts issued by analysts at traditional brokerage firms. This leads to my fifth hypothesis, stated in alternative form:

Hypothesis 5: Forecasts issued by company-sponsored analysts are significantly different from forecasts issued by traditional analysts.

3.2.2 Probability of meeting or beating company-sponsored forecasts

The relevance of the bias in forecasts issued by company-sponsored analysts depends on whether it influences the likelihood that the company meets or beats the earnings number. If company-sponsored analysts issue more optimistic forecasts than traditional analysts to attract interest in the stock and persuade investors to invest in a company that has stagnant or little growth in earnings, companies should have a lower likelihood of meeting or beating forecasts issued by company-sponsored analysts. If company-sponsored analysts issue less optimistic forecasts to increase the likelihood that a company is rewarded (not punished) for meeting or beating (missing) the earnings target, companies should have a greater likelihood of meeting or beating forecasts issued by company-sponsored analysts. This leads to my sixth hypothesis, stated in alternative form:

Hypothesis 6: The likelihood of a company meeting or beating a forecast issued by a company-sponsored analyst is significantly different from the likelihood of a company meeting or beating a forecast issued by a traditional analyst.

3.2.3 Forecast revisions issued by company-sponsored research firms

As business conditions or analysts' assumptions change, the accuracy of a forecast declines and a revision is required to correct the forecast for these changes. Agrawal and Chen (2005) suggest that revisions are beneficial to investors since an analyst's ultimate accuracy is related to forecasting frequency (Stickel 1992; Clement and

Tse 2003). However, the likelihood of a revision may depend on how the analyst is compensated and its relationship with the company.

3.2.3.1 Likelihood of a forecast revision by a company-sponsored analyst

The likelihood of an analyst issuing a forecast revision may depend on whether an analyst earns commission revenue. Prior research suggests that forecast revisions increase share trading volume (Ajinkya, Atiase, and Gift 1991). If forecast revisions are costly activities, analysts who are compensated with commission revenue based on trading volume should be more willing than independent analysts to issue timely revisions that reflect changing expectations about earnings. This is consistent with the findings by Agrawal and Chen (2005) who find that the frequency of forecast revisions is positively related to the importance of the brokerage (i.e. trading) business. Since company-sponsored research firms generally earn a fixed fee from their client companies and are not compensated for additional effort, analysts may be less likely to revise their forecasts than analysts at traditional brokerage firms who are compensated for their effort. This leads to my seventh hypothesis, stated in alternative form:

Hypothesis 7: Analysts at company-sponsored research firms are less likely to revise their forecasts than analysts at traditional brokerage firms.

3.2.3.2 Direction of forecast revisions issued by company-sponsored analysts

The conflict of interest between the company-sponsored research firm and the client company may influence the likelihood of a company-sponsored analyst issuing a positive or negative revision compared to analysts at traditional brokerage firms. The likelihood of a positive or negative forecast revision could depend on the signal the company-sponsored analyst wants to convey to the market. A positive forecast revision could be interpreted as a positive signal leading to trades from both new investors and current stockholders, provided that investors ascribe at least some value to the informational content from the forecast. Conversely, a negative revision could be interpreted as a negative signal which generates trades from a narrower set of investors,

as generally only existing stockholders will trade in response to the forecast.²⁶ If company-sponsored research firms want to avoid sending a negative signal about a client company, company-sponsored analysts may be more willing to revise their forecast upward and less willing to revise their forecasts downward than analysts at traditional brokerage firms. On the other hand, analysts at company-sponsored research firms may want to adjust their estimates downward to help companies avoid earnings disappointments. This would suggest that analysts at company-sponsored research firms are less likely to revise their forecast upward and more likely to revise their forecast downward than analysts at traditional brokerage firms. This leads to my eighth hypothesis, stated in alternative form:

Hypothesis 8A: The likelihood of a company-sponsored analyst revising his forecast upward is significantly different from the likelihood of a traditional analyst revising his forecast upward.

Hypothesis 8B: The likelihood of a company-sponsored analyst revising his forecast downward is significantly different from the likelihood of a traditional analyst revising his forecast downward.

3.2.4 Company-sponsored forecasts as a proxy for earnings expectation

Analysts' forecasts are considered the proxy of choice for earnings expectations (Schipper 1991). While the market's expectation for earnings cannot be observed, the stock market response to unexpected earnings appears to be stronger when the expectation is based on analysts' forecasts than when the expectation is based on time series models (Brown, Hagerman, Griffin, and Zmijewski 1987a). Schipper (1991) suggests that this is because analysts influence investors with their forecasts and recommendations. This is consistent with prior studies showing a change in stock prices surrounding forecast revisions by analysts apart from earnings news, dividends, or other corporate announcements. However, the capacity of a forecast to influence market expectations may depend on the analyst issuing the forecast. The market's reaction to revisions issued by company-sponsored analysts may be tempered by the analysts' potential conflict of interest (the *conflict of interest effect*) or the informational content in

²⁶Dechow, Hutton and Sloan (2001) state that there are numerous regulations in the United States that increase the cost of selling shares short.

the revision (the *informational effect*). These two effects are defined in the next two subsections.

3.2.4.1 The conflict of interest effect

The potential conflict of interest between the analyst and the client suggests that forecasts issued by company-sponsored analysts may be perceived as more optimistic or more pessimistic than analysts at traditional brokerage firms. Correcting for the perceived bias may cause the market to react differently to forecasts issued by company-sponsored analysts compared to forecasts issued by traditional analysts. If forecasts issued by company-sponsored analysts are perceived to be more optimistic than forecasts issued by traditional analysts, the market reaction should be significantly less positive (more negative) than forecasts issued by traditional analysts. If forecasts issued by company-sponsored analysts are perceived to be more pessimistic than forecasts issued by traditional analysts, the market reaction should be significantly more positive (less negative) than forecasts issued by traditional analysts. This leads to part A of my ninth hypothesis, stated in alternative form:

Hypothesis 9A: The announcement returns associated with revisions issued by company-sponsored analysts are significantly different (positively or negatively biased) from the announcement returns associated with revisions issued by traditional analysts.

3.2.4.1 The informational effect

Agrawal and Chen (2005) suggest that an analyst who is compensated for generating commission revenue is more willing to spend time and effort making timely forecast revisions that reflect updated expectations about earnings. This implies that forecasts issued by analysts who are compensated for their effort should be bolder (i.e. deviate from the consensus) and have greater informational value than forecasts issued by analysts who are not compensated for their effort. Since company-sponsored analysts do not earn any compensation for changes in their forecasts, their revisions may not be as informative as revisions issued by traditional analysts. This suggests that the market should react less to revisions issued by company-sponsored analysts compared to

revisions issued by traditional analysts. This leads to part B of my ninth hypothesis, stated in alternative form:

Hypothesis 9B: The announcement returns associated with positive (negative) revisions issued by company-sponsored analysts are significantly less positive (less negative) than announcement returns associated with positive (negative) revisions issued by traditional analysts.

CHAPTER 4

METHODOLOGY

4.1 Recommendations issued by company-sponsored research firms

4.1.1 Company-sponsored analysts' recommendations versus traditional analysts' recommendations

My first hypothesis examines whether recommendations issued by company-sponsored analysts are more optimistic than recommendations issued by traditional analysts. To determine whether company-sponsored recommendations are optimistically biased, recommendations issued by company-sponsored analysts are compared to recommendations issued by traditional analysts for the same company. Since analyst recommendations are categorical data, I use an ordinal logistic regression model to test the hypothesis. An ordinal logistic regression tests the probability of observing a score that is less than or equal to a certain value. The model used to test Hypothesis 1 is as follows:

$$\ln\left(\frac{\text{prob}(REC)}{(1 - \text{prob}(REC))}\right) = \alpha_j + \beta_1 CS + \beta_2 INITIATE + \beta_3 DROP + \beta_4 CS * INITIATE + \beta_5 CS * DROP + \varepsilon \quad (1)$$

Where:

$\ln\left(\frac{\text{prob}(REC)}{(1 - \text{prob}(REC))}\right)$ = The probability of observing a recommendation that is less than or equal to *REC*.

REC = The analyst recommendation coded from one to five with a 1="Strong Sell" and 5="Strong Buy".²⁷

CS = A categorical variable that takes the value of one if the recommendation was issued by a company-sponsored analyst.

INITIATE = A categorical variable that takes the value of one if there is no prior recommendation for the company.

²⁷ First Call maintains a standard coding of stock recommendations, each with an assigned numeric value (1 represents "Strong Buy", 2 "Buy", 3 "Hold", 4 "Sell", and 5 "Strong Sell"). I reverse the ordering so that larger numbers indicate more optimistic recommendations.

DROP = A categorical variable that takes the value of one if this was the final recommendation prior to a drop in coverage.

CS measures the likelihood that company-sponsored analysts issue recommendations that are lower than traditional analysts' recommendations. The variables *INITIATE* and *DROP* are included to control for any skew in the recommendations caused by initiations or drops in coverage.²⁸ If company-sponsored analysts are more optimistic than traditional analysts, the variable *CS* is expected to be significantly positive, consistent with hypothesis one.

4.1.2 Hazard model for determining the speed of upgrades and downgrades for company-sponsored analysts

One explanation for the optimism in recommendations issued by company-sponsored analysts is that they are faster to respond to positive information and slower to respond to negative information (Hypothesis 2A and Hypothesis 2B). To test this hypothesis, I examine the likelihood of a company-sponsored analyst upgrading, or downgrading, the initial recommendation within the first two years following the initiation of coverage relative to a traditional analyst. For this test, I use two hazard models (an upgrade model and a downgrade model) to observe the duration of time between the initiation of coverage and the initial upgrade, or downgrade, of the recommendation. Both models use the same design, which is as follows:

$$\ln h_{ij}(t) = \alpha_j(t) + \beta_1 REC_{ij}(t) + \beta_2 CS_{ij}(t) \times REC_{ij}(t) + \varepsilon \quad (2)$$

Where:

$h_{ij}(t)$ = The hazard, or instantaneous risk of a(n) downgrade (upgrade), at time t for analyst i and company j , conditional on survival to t .

$\alpha_j(t)$ = The baseline hazard or overall company effect on the hazard model.

²⁸ McNichols and O'Brien (1997) suggest that the distribution of recommendations for newly added stocks is shifted significantly toward more favorable ratings while the distribution of recommendations immediately prior to analysts dropping the stock is shifted toward less favorable ratings.

$CS_{ij}(t) =$ A categorical variable that takes a value of one if the analyst is employed by a company-sponsored research firm.

$REC_{ij}(t) =$ The recommendation at time t given by analyst i of company j .

Variables in both models consist of a categorical variable which takes the value of one if the analyst is from a firm that provides company-sponsored research and zero otherwise, an initial recommendation variable coded 5 (Strong Buy) to 1 (Strong Sell) from the First Call database, and an interaction term since the time to downgrade (upgrade) may depend on the type of recommendation. Observations with an initial recommendation of Strong Sell (Strong Buy) are excluded from the downgrade (upgrade) model because no downgrade (upgrade) is possible. Similar to O'Brien et al. (2005), the observation window is right censored by fixing the end at two years after the company-sponsored analyst's initial recommendation. Since informational events may differ across companies, data is limited to companies with at least one company-sponsored analyst and one traditional analyst. If analysts at company-sponsored research firms are less likely to downgrade their recommendation of client-companies, the coefficient for the CS variable is expected to be negative when measuring the likelihood of a downgrade within the two years following the initiation of coverage (H2A). If analysts at company-sponsored research firms are more likely to upgrade their recommendation of client-companies, the coefficient for the CS variable is expected to be positive when measuring the likelihood of an upgrade within the two years following the initiation of coverage (H2B).

4.1.3 Announcement returns for company-sponsored recommendations

My third hypothesis compares the market's reaction to company-sponsored analysts' recommendations to the market's reaction to traditional analysts' recommendations. To measure the market's reaction, abnormal returns (the buy-and-hold return less the size adjusted value-weighted return over the period) are calculated over trading days 0 to +1 (where zero is the recommendation announcement date). The abnormal returns associated with each recommendation category ("Strong Buy", "Buy",

“Hold” and “Sell”²⁹) for company-sponsored analysts are then compared to the abnormal returns from the same recommendation category for traditional analysts. The conflict of interest effect suggests that the announcement returns associated with favorable (unfavorable) recommendations issued by company-sponsored analysts are less positive (more negative) than favorable (unfavorable) recommendations issued by traditional analysts (H3). Therefore the mean (median) abnormal return associated with company-sponsored analysts’ recommendations is expected to be significantly less than the mean (median) abnormal return associated with traditional analysts’ recommendations ($RET_{CS} - RET_{TRAD} < 0$).

4.1.4 Long-term performance for company-sponsored recommendations

My fourth hypothesis examines whether stock portfolios based on recommendations issued by company-sponsored analysts underperform relative to stock portfolios based on recommendations issued by traditional analysts. To address this question, I compare the performance of portfolios determined in “real-time” based on the recommendations of each type of analyst, similar to the performance evaluation of mutual funds. Therefore, the focus of the analysis is on the return earned over the life of the recommendation rather than the market reaction to the recommendation announcement. If recommendations issued by company-sponsored analysts are overly optimistic, I expect the abnormal returns for stock portfolios based on company-sponsored analysts’ recommendations to be significantly lower than the abnormal returns for stock portfolios based on traditional analysts’ recommendations.

To test hypothesis four, I construct calendar-time portfolios for recommendations issued by company-sponsored analysts and traditional analysts using the method developed by Barber et al. (2001). All companies are compiled into portfolios based on recommendation rating (“Strong Buy”, “Buy”, “Hold” and “Sell”³⁰), using all outstanding recommendations issued prior to that day (for each trading day between

²⁹“Strong Sell” recommendations are grouped with “Sell” recommendations because of the limited number in sample. None of the conclusions are affected by this design.

³⁰As mention previously, “Strong Sell” recommendations are grouped with “Sell” recommendations.

January 1, 2000 and December 31, 2007).³¹ Once the composition of each portfolio is determined, the value-weighted return for date τ is calculated. The return $R_{p\tau}$ for each portfolio p is given by:

$$R_{p\tau} = \sum_{i=1}^{n_{p\tau-1}} x_{i\tau-1} R_{i\tau} \quad (3)$$

Where:

$x_{i\tau-1}$ = The market value of equity for company i at the close of trading on date $\tau - 1$ divided by the aggregate market capitalization of all companies in portfolio p at the close of trading on that date.

$R_{i\tau}$ = The return on the common stock of company i on date τ .

$n_{p\tau-1}$ = The number of companies in portfolio p at the close of trading on date $\tau - 1$.

For each month in the sample period, the daily returns for each portfolio p are compounded over the n trading days of the month to yield a monthly return, R_{pt} :

$$R_{pt} = \prod_{\tau=1}^n (1 + R_{p\tau}) - 1. \quad (4)$$

Abnormal returns are identified as the intercept from a regression of the monthly returns R_{pt} on the Carhart (1997) four-factor model³²:

$$R_{pt} - R_{ft} = \alpha_t + \beta_t (R_{mt} - R_{ft}) + s_t SMB_t + h_t HML_t + u_t UMD_t + \varepsilon \quad (5)$$

Where:

R_{mt} = The value-weighted return on all NYSE, AMEX, and NASDAQ stocks.

R_{ft} = The one-month Treasury bill rate.

SMB_t = The difference between the small-firms return and the big-firms return for the month.

³¹Since it is difficult to determine the time period spanned by the analyst recommendation, I define a recommendation to be outstanding if it was issued within the previous three months, and there is no more recent recommendation issued by the same brokerage firm for that company.

³²The construction of these portfolios is discussed in detail in Fama and French (1993) and Carhart (1997).

$HML_t =$ The difference between the high book-to-market equity return for the month and the low book-to-market equity return for the month.

$UMD_t =$ The difference between the daily returns of a value-weighted portfolio of high price momentum stocks and one of low price momentum stocks.

To test hypothesis four, I use the following model:

$$\begin{aligned}
 R_{pt} - R_{ft} = & \alpha_{CS} + \alpha_{TRAD} + \beta_t (R_{mt} - R_{ft}) \times CS + \beta_t (R_{mt} - R_{ft}) \times TRAD \\
 & + s_t SMB_t \times CS + s_t SMB_t \times TRAD + h_t HML_t \times CS \\
 & + h_t HML_t \times TRAD + u_t UMD_t \times CS + u_t UMD_t \times TRAD + \varepsilon
 \end{aligned} \tag{6}$$

In the model, CS takes a value of one if the portfolio of stocks is based on company-sponsored analysts' recommendations and zero otherwise. $TRAD$ takes a value of one if the portfolio of stocks is based on recommendations from traditional analysts and zero otherwise. This allows the weights on the four risk factors to vary depending on the type of analyst portfolio. To compare the performance of the company-sponsored and traditional analysts' portfolios, I test the constraint that the intercepts (i.e. the abnormal returns) in the model are equal ($\alpha_{CS} = \alpha_{TRAD}$). Since the life of the recommendation is unknown, I use four alternative time periods (three months, six months, nine months and one year). If a portfolio of stocks based on company-sponsored recommendations underperforms relative to a portfolio of stocks based on traditional analysts' recommendations of the same rating (i.e. "Strong Buy", "Buy", "Hold", "Sell"), I expect the intercept from the company-sponsored portfolio to be significantly lower than the intercept from the traditional analysts' portfolio ($\alpha_{CS} < \alpha_{TRAD}$).

4.2 Forecasts issued by company-sponsored research firms

4.2.1 Optimism in company-sponsored forecasts

My fifth hypothesis examines whether forecasts issued by company-sponsored analysts are significantly different from forecasts issued by traditional analysts. To test this hypothesis, forecasts issued by company-sponsored analysts are compared to forecasts issued by traditional analysts for the same company. Two criteria are specified

for a company to be included in the sample. The first criterion is that a company must be followed by at least one traditional analyst and at least one company-sponsored analyst. The second criterion is that a matching forecast must be issued by a traditional analyst after the prior period's earnings and available within 30 days of the forecast issued by the company-sponsored analyst. This ensures that the analysts at both firms are using roughly the same available information to formulate their forecasts. It also controls for changes in optimism over the period since prior research suggests that forecasts become less optimistic as they get closer to the earnings announcement. If forecasts from company-sponsored analysts are different from forecasts issued by traditional analysts (H5), I expect to find a significant difference when using a two-sided t-test of equal means between the two groups.

4.2.2 Probability of meeting or beating company-sponsored forecasts

My sixth hypothesis compares the likelihood of meeting or beating a forecast issued by a company-sponsored analyst to the likelihood of meeting or beating a forecast issued by a traditional analyst. The model is as follows:

$$Pr ob(MEET = 1) = \alpha_0 + \beta_1 CS + \beta_2 SIZE + \beta_3 LOSS_{t-1} + \beta_4 HORIZON + \beta_5 BTM + GROW + P_EPS + FCF + RET + LEV + AGE + \varepsilon \quad (7)$$

Where:

MEET = A categorical variable that takes a value of one if the company met or exceeded the final earnings forecast and zero otherwise.

CS = A categorical variable that takes a value of one if the final earnings forecast was issued by a company-sponsored analyst.

SIZE = The log of the market value of equity for period t-1.

LOSS = A categorical variable that takes a value of one if the company reported a loss for the period.

HORIZON = The number of days between the final earnings forecast and the earnings announcement.

BTM = The book-to-market ratio for period t-1.

<i>GROW</i> =	Sales growth measured as (current year's sales divided by prior year's sales) minus 1.
<i>P_EPS</i> =	EPS scaled by stock price at the end of the prior fiscal period.
<i>RET</i> =	Contemporaneous market-adjusted buy-and-hold stock returns (using the value weighted market portfolio) beginning three days after the announcement of the prior period's earnings.
<i>FCF</i> =	Free cash flow for the period measured as (operating cash flows - investing cash flows - dividends)/total assets for period t.
<i>LEV</i> =	Leverage measured as the ratio of long-term debt to total assets for period t.
<i>AGE</i> =	The number of months the company's stock has been trading on a stock exchange.

Since several factors may influence whether a company meets or misses the earnings target, a variety of control variables are included. Prior research finds larger companies have less optimistic forecasts (Brous and Kini 1993; Brown 1997; Das, Levine, and Sivaramakrishnan 1998; Matsumoto 2002), consequently the log of the market value of equity (*SIZE*) is included to control for size. Studies also suggest that a company is more likely to report a positive earnings surprise when it reports a profit rather than a loss (Downen 1996; Hwang, Jan, and Basu 1996; Degeorge, Patel, and Zeckhauser 1999; Brown 2001). To control for loss companies, a dummy variable (*LOSS*) is equal to one if the company reported a loss for the current period. Brown, Hagerman, Griffin, and Zmijewski (1987b) find older forecasts to be less accurate. Since accuracy might influence whether a company meets or beats an analyst's forecast, the number of days between the earnings forecast and the earnings announcement (*HORIZON*) is included as a variable. Matsumoto (2002), Doyle and Soliman (2004) and Chan, Karceski, and Lakonishok (2005) all suggest that high growth companies have a greater incentive to meet or beat earnings since they suffer a stronger market reaction to negative earnings surprises (Skinner and Sloan 2002). Two variables are included to control for growth: the book-to-market ratio (*BTM*) and annual sales growth (*GROW*). Heflin and Hsu (2008) suggest that current period operating performance is positively related to a company's inherent ability to meet or beat expectations. To control for the current

period's operating performance, several contemporaneous variables have been incorporated into the model including: price deflated earnings per share (P_EPS), buy-and-hold market adjusted returns for the period (RET) and free cash flow (FCF). Leverage (LEV) measured as the ratio of long-term debt to total assets for period t is included to control for any motives to meet or beat earnings caused by debt constraints. Finally, the number of months a stock has been trading on a stock exchange (AGE) controls for the possibility that younger companies with external financing needs meet or beat earnings to impress capital markets. If the likelihood of a company meeting or beating a forecast issued by a company-sponsored analyst is significantly different from the likelihood of a company meeting or beating a forecast issued by a traditional analyst (H6), I expect the coefficient for the company-sponsored research variable (β_1) to be significant.

4.2.3 Revisions of company-sponsored forecasts

Hypothesis seven and hypothesis eight examine the likelihood that a company-sponsored analyst issues an upward or downward forecast revision relative to a traditional analyst. For this test, a company must have at least one forecast issued by a traditional analyst after the release of the prior period's earnings and at least one forecast issued by a company-sponsored analyst after the release of the prior period's earnings. The final forecast (F_{FINAL}) for each analyst is compared to the earliest forecast made by the same analyst in the period ($F_{INITIAL}$). If the final forecast is greater than the initial forecast for the period ($F_{FINAL} - F_{INITIAL} > 0$), it is considered to be an upward revision and the variable UP_REV takes a value of one, otherwise the variable UP_REV takes a value of zero. If the final forecast is less than the initial forecast for the period ($F_{FINAL} - F_{INITIAL} < 0$), it is considered to be a downward revision and the variable $DOWN_REV$ takes a value of one, otherwise the variable $DOWN_REV$ takes a value of zero. The variables UP_REV and $DOWN_REV$ are then regressed on the following model:

$$\begin{aligned}
 Prob(UP_REV, DOWN_REV = 1) = & \alpha_0 + \beta_1 CS + \beta_2 F_ERROR \\
 & + \beta_3 F_ERROR \times CS + \beta_4 HORIZON + \beta_5 CO_FOLLOW + \beta_6 SIZE \\
 & + \beta_8 EXPERIENCE + \varepsilon
 \end{aligned} \tag{8}$$

Where:

UP_REV = A categorical variable that takes a value of one if the final forecast is greater than the initial forecast for the period ($F_{FINAL} - F_{INITIAL} > 0$).

DOWN_REV = A categorical variable that takes a value of one if the final forecast is less than the initial forecast for the period ($F_{FINAL} - F_{INITIAL} < 0$).

F_ERROR = The difference between the initial forecast and actual earnings as reported in First Call ($F_{INITIAL} - ACTUAL$).

HORIZON = The number of days between the initial forecast and earnings announcement.

CO_FOLLOW = Number of companies followed by the brokerage firm.

SIZE = The log of the market value of equity for period t-1.

EXPERIENCE = Number of years the brokerage firm has been following the company.

Since several factors may influence whether an analyst revises his forecast, a variety of control variables are included. A forecast that is above (below) the actual earnings number should have a greater probability of being revised downward (upward), therefore the difference between the initial forecast and the actual earnings number (*F_ERROR*) is included in the model. Forecasts issued earlier in the period are expected to be less accurate than forecasts issued later in the period, therefore as the number of days between the initial forecast and the earnings announcement (*HORIZON*) increases, the likelihood of a forecast revision should also increase. Finally, Agrawal and Chen (2005) suggest that analysts revise their forecasts more frequently when they follow more companies (*CO_FOLLOW*), the company is larger (*SIZE*), or they have more experience with the company (*EXPERIENCE*).³³

Hypothesis seven is tested using the coefficient for the *CS* variable. If analysts at company-sponsored research firms revise their forecasts less often than analysts at

³³ Agrawal and Chen (2005) use IBES data and include both the analyst's general forecasting experience and the analyst's company-specific forecasting experience. I use First Call data which does not have information for the individual analyst. As a substitute, I include the time in years between when the company first appears in the database for that brokerage firm until the date of the initial forecast ($F_{INITIAL}$).

traditional brokerage firms (H7), I expect the coefficient on the *CS* variable to be significantly negative for both upward and downward revisions. Hypothesis eight is tested using the interaction between the *CS* variable and the forecast error. If company-sponsored analysts intend to only convey positive signals about a client company by avoiding negative signals, the coefficient on the interaction between *CS* and the forecast error should be significantly negative for downward revisions and significantly positive for upward revisions. If company-sponsored analysts are more likely to revise their forecasts downward to increase the probability that the company meets or beats the earnings target, the coefficient on the interaction between *CS* and the forecast error should be significantly positive for downward revisions and significantly negative for upward revisions.

4.2.4 The market's reaction to revisions of company-sponsored forecasts

Hypothesis nine compares the market reaction to forecast revisions issued by company-sponsored analysts to forecast revisions issued by traditional analysts. To measure the market's reaction, size adjusted value-weighted returns are calculated over trading days (0 to +1) (where day 0 is the forecast announcement date).³⁴ The model is as follows:

$$\begin{aligned}
 CAR = & \alpha + \beta_1 CS + \beta_2 POS_REV_{CS} + \beta_3 POS_REV_{TRAD} + \beta_4 NEG_REV_{CS} \\
 & + \beta_5 NEG_REV_{TRAD} + \beta_6 REV_DAYS + \beta_7 HORIZON + \beta_8 AB_RET \\
 & + \beta_9 CS * AB_RET + \varepsilon
 \end{aligned} \tag{9}$$

Where:

CAR = The two-day cumulative abnormal return centered around the forecast announcement date (0 to +1).

CS = A categorical variable which takes the value of one if the revision was issued by a company-sponsored analyst.

³⁴I also test the results using the following return windows: (-2 to +2) and (-3 to +3), (0 to +1) and (0 to +2).

<i>POS_REV</i> =	The difference between the final forecast (F_{FINAL}) and the initial forecast (F_{INITIAL}) if the difference is greater than zero, and zero otherwise.
<i>NEG_REV</i> =	The difference between the final forecast (F_{FINAL}) and the initial forecast (F_{INITIAL}) if the difference is less than zero, and zero otherwise.
<i>REV_DAYS</i> =	The number of days in the forecast revision period.
<i>HORIZON</i> =	The number of days between the last forecast and the earnings announcement.
<i>AB_RET</i> =	The size adjusted abnormal return from two days after the initial forecast until two days prior to the final forecast.

Data for the model consists of companies with at least one company-sponsored analyst and one traditional analyst. To control for differing intervals of time between forecasts where more information may be available to support a revision, *REV_DAYS* is included as a variable. Since forecasts issued closer to the earnings announcement tend to be more accurate (Brown et al. 1987b), *HORIZON* is included as a control variable. Finally, to control for information regarding the revision that is available to the market, the abnormal return from two days after the initial forecast until two days prior to the final forecast is included as a control variable. Variables subscribed with *CS* denote revisions issued by company-sponsored analysts, while variables subscribed with *TRAD* denote revisions issued by traditional analysts. If company-sponsored analysts' revisions are perceived to be biased (H9A), then the market reaction to revisions issued by company-sponsored analysts is expected to be lower (greater) than the market reaction to revisions issued by traditional analysts ($\beta_2 < \beta_3$ and $\beta_4 < \beta_5$ or $\beta_2 > \beta_3$ and $\beta_4 > \beta_5$). If forecast revisions issued by company-sponsored analysts have lower informational content, then the market reaction to positive (negative) revisions issued by company-sponsored analysts is expected to be less positive (less negative) than the market reaction to positive (negative) revisions issued by traditional analysts ($\beta_2 < \beta_3$ and $\beta_4 > \beta_5$).

CHAPTER 5

EMPIRICAL RESULTS AND ANALYSIS

5.1 Recommendations issued by company-sponsored analysts

5.1.1 Sample Selection

Recommendation data is obtained from the First Call Historical Database. Company-sponsored research firms within the database were identified from various news articles and web searches using the keywords “paid-for research”, “company-sponsored research” and “issuer-paid research”.³⁵ The initial sample consists of 2,059 company-sponsored recommendations issued for 582 companies³⁶ between January 1, 2000 and August 31, 2008. To minimize any temporal difference between company-sponsored analysts’ recommendations and traditional analysts’ recommendations, each company is required to have at least one traditional analyst’s recommendation issued within sixty days of the company-sponsored recommendation.³⁷ This reduces the sample to 707 recommendations issued by company-sponsored analysts and 1,997 recommendations issued by traditional analysts for 319 companies (see Table 5.1.1). Within this sample, there were 926 traditional analyst recommendations issued prior to the company-sponsored analysts’ recommendations and 1,011 traditional analyst recommendations issued after the company-sponsored analysts’ recommendations (60 traditional analyst recommendations were issued on the same day as the company-sponsored recommendation). The assumption of no order effect cannot be rejected using normal significance levels ($p\text{-value} = 0.59$). This implies that neither analyst issues a recommendation systematically before the other analyst issues a recommendation. Tests which require stock prices/returns data from the Center for Research in Security Prices (CRSP), further reduce the sample to 451 recommendations issued by company-

³⁵One company-sponsored research firm, Investrend Communications Inc., is classified as a traditional brokerage firm because it provides both company-sponsored research and broadcasts traditional research. Since I am unable to identify which companies paid for analyst coverage, I classify all recommendations issued by the firm as traditional research.

³⁶Thirty-eight companies purchased analyst services from more than one company-sponsored research firm.

³⁷Lin and McNichols (1998) use the same criterion to compare recommendations from affiliated firms (firms with investment banking ties) to unaffiliated firms (firms with no investment banking ties).

sponsored analysts and 1,497 recommendations issued by traditional analysts for 232 companies.

5.1.2 Descriptive Statistics

Table 5.1.2 provides a breakdown of the recommendations by year. While the proportion of recommendations is weighted toward later years, there appears to be a good sample distribution across the full period. As expected, the number of company-sponsored recommendations is generally increasing from 17 in the year 2000 to 155 in the year 2007.³⁸ Table 5.1.3 provides a breakdown of recommendations by company-sponsored research firms. The number of recommendations appears heavily weighted toward two firms. Approximately two thirds of all the company-sponsored recommendations are from either J.M. Dutton and Associates or Taglich Brothers. Kirk (2008) asserts that the two company-sponsored research firms are more predominant in the sample because they tend to cover relatively more companies traded on the major exchanges.

Table 5.1.4 shows the characteristics of the sample relative to companies that are covered exclusively by traditional analysts. As expected, companies purchasing commissioned research received less coverage from traditional analysts (median number of analysts is four for companies covered only by traditional analysts versus one for companies covered by company-sponsored analysts). The median number of traditional analysts for the full sample of 582 companies (not shown) is also greater than zero which suggests that a majority of the companies that purchase commissioned research are not overlooked by traditional brokerage firms.³⁹ As expected, companies that purchase commissioned research are smaller (market value of equity: \$94 million) than companies followed exclusively by traditional analysts (market value of equity: \$216 million). They also have a higher frequency of losses and a lower return on assets than companies with only traditional analyst coverage. Finally, the debt-to-equity ratio is significantly

³⁸The year 2008 is a partial year which includes recommendations through the end of August.

³⁹This is consistent with Badruswamy (2005) who reports that about 40% of the stocks with paid-for-research coverage during the last two years received non-paid-for-research coverage as well.

lower for the sample, consistent with companies purchasing analyst coverage when they have a relatively higher proportion of equity financing.

Finally, Table 5.1.5 presents a breakdown of the industries that purchase commissioned research. The table suggests that companies that hire company-sponsored analysts come from a variety of industries. With the exception of Chemicals and Allied Products (14.42%) and Business Services (20.69%) no industry comprises more than 10% of the sample. Fifty-one different two-digit SIC codes are represented in the sample.

5.1.3 Tests of Hypothesis One

The first hypothesis examines whether recommendations issued by company-sponsored analysts are more optimistic than recommendations issued by traditional analysts for the same company. To control for any temporal differences, I select the traditional recommendation that is closest in date to the recommendation issued by the company-sponsored analyst.⁴⁰ Table 5.1.6 shows the breakdown of the recommendation by rating. Examining the proportion of recommendations in each category, it appears that recommendations issued by company-sponsored analysts are more optimistic than recommendations issued by traditional analysts. A significantly larger proportion of the recommendations issued by company-sponsored analysts' were "Strong Buy" and "Buy" recommendations, while traditional analysts issued a significantly larger proportion of the "Hold", "Sell" and "Strong Sell" recommendations. There also appears to be very little correlation between the recommendations issued by company-sponsored and traditional analysts. The Pearson correlation between the two types of recommendations is only 0.162 (p-value <0.01).

Table 5.1.7 presents the results for the ordinal logistic model where the dependent variable is the analyst's recommendation coded as "Strong Buy" = 5, "Buy" = 4, "Hold" = 3, "Sell" = 2 and "Strong Sell" = 1. The evidence is consistent with hypothesis one, suggesting that company-sponsored analysts' recommendations are more optimistic than

⁴⁰If multiple traditional analysts issue a recommendation closest in date to the recommendation issued by the company-sponsored analyst, then the traditional analyst's recommendation is selected at random.

recommendations from traditional analysts. Column (1) shows the results of the model without the interactions between the *CS* variable and the *INITIATE* and *DROP* variables. The coefficient for *CS* is significantly positive, implying that the probability of observing a favorable rating from a company-sponsored analyst is significantly greater than the probability of observing a favorable rating from a traditional analyst. In addition, the coefficient for the *INITIATE* variable is significantly positive consistent with McNichols and O'Brien's (1997) theory of analyst self-selection.⁴¹ Finally, the coefficient for the *DROP* variable is significantly negative suggesting that analysts tend to discontinue coverage of stocks whose future prospects they view unfavorably (McNichols and O'Brien 1997).⁴²

Column (2) presents the interaction between the *CS* variable and both *INITIATE* and *DROP*. The coefficient for the *CS*INITIATE* interaction variable is significantly negative, implying that the difference between company-sponsored and traditional analysts' initial recommendations is less than the difference between company-sponsored and traditional analysts' subsequent recommendations.⁴³ One explanation for this finding is that the maximum value of the dependent variable (five) creates a ceiling that reduces the difference between initial recommendations issued by company-sponsored analysts and initial recommendations issued by traditional analysts. A second explanation is that a change in optimism over the duration of coverage may be different for company-sponsored research relative to traditional research. McNichols and O'Brien (1997) suggest that optimism is generally decreasing over the duration of coverage because of analyst self-selection. However, company-sponsored research may behave differently since the company rather than the analyst determines the future performance threshold required for initiation or termination of coverage. If the optimism in company-sponsored

⁴¹They suggest that traditional analysts will not initiate coverage unless the expected performance of a stock surpasses a certain threshold. While the exact threshold is unknown, it is expected to be greater than the threshold to continue coverage because of the start-up costs incurred at the time of initiation. This causes the distribution of recommendations for newly added stocks to be skewed toward favorable ratings, relative to the distribution of stocks with previous coverage.

⁴²McNichols and O'Brien (1997) state that if the benefits of continued coverage are positively related to a stock's future performance while the costs of continued coverage are fixed, analysts are more likely to drop stocks with sufficiently poor expected performance.

⁴³I still find that initial recommendations issued by company-sponsored analysts are more optimistic than initial recommendations issued by traditional analysts ($\beta_1 + \beta_4 > 0$ at a p-value of 0.05).

analysts' initial recommendations is not significantly different from the optimism in subsequent recommendations, while the optimism in traditional analysts' initial recommendations is greater than the optimism in subsequent recommendations, then the difference in optimism between company-sponsored and traditional analysts' initial recommendations will be smaller than the difference between company-sponsored and traditional analysts' subsequent recommendations. To test this theory, I use an ordinal logistic regression model which compares the optimism in company-sponsored analysts' initial recommendations to the optimism in their subsequent recommendations.⁴⁴ The results, not shown, suggest that initial recommendations from company-sponsored analysts are not more optimistic than their subsequent recommendations (0.20 p-value = 0.12). However, traditional analysts' initial recommendations are significantly more optimistic than their subsequent recommendation (0.95 p-value < 0.01).

Similar results are found when comparing recommendations issued by company-sponsored analysts prior to a drop in coverage to recommendations issued by traditional analysts prior to a drop in coverage. The coefficient for the *CS*DROP* interaction is significantly positive (0.389 p-value = 0.08) suggesting that the final recommendation issued by a company-sponsored analyst is significantly more optimistic than the final recommendation issued by a traditional analysts. However, this difference appears to be caused by a decline in optimism in traditional analysts' recommendations prior to a drop in coverage. Traditional analysts' recommendations issued prior to a drop in coverage are significantly less optimistic than traditional analysts' recommendations issued for ongoing coverage (-0.49 p-value = 0.02). Conversely, the optimism in recommendations issued by company-sponsored analysts prior to a drop in coverage is not significantly different from the optimism in company-sponsored analysts' recommendations issued for ongoing coverage (-0.06 p-value = 0.39). These results are consistent with the theory that the manager of the company rather than the analyst determines when coverage by the company-sponsored research firm will end, and that the decision is not related to the future performance of the company.

⁴⁴I eliminate all one time recommendations from the sample (i.e. where the initial recommendation is also the final recommendation).

These findings suggest that company-sponsored analysts are more optimistic than analysts at traditional brokerage firms. This optimism persists after controlling for initiations and drops in coverage. I also find no significant change in optimism from a company-sponsored analyst's initial recommendation to his final recommendation for a company prior to the drop in coverage. This is inconsistent with McNichols and O'Brien's (1997) theory of analyst self-selection and suggests that either companies purchasing commissioned research are not significantly undervalued (i.e. the optimism is not due to a non-strategic bias) or commissioned research does not correct for this undervaluation.

To control for sampling issues, economic fluctuations and outliers, I include several variations of the model. In Column (3), I analyze the results by year and take the mean value across all years (a Fama-MacBeth approach).⁴⁵ The coefficient for CS has a value of 1.315 and is significantly positive in five of the eight years, which suggests that the results are not due to outliers or economic fluctuations. However, there is no longer a difference between initial recommendations issued by company-sponsored analysts and initial recommendations issued by traditional analysts (i.e. $\beta_1 + \beta_4$ is not significantly greater than zero). Column (4) presents the results post Sarbanes-Oxley. Prior to the Sarbanes-Oxley Act of 2002, smaller companies may have obtained analyst coverage through investment banking relationships. This may have influenced the optimism in traditional analysts' recommendations. To control for this factor, the sample is analyzed using only recommendations issued in the year 2003 or later. Results are not systematically different from the results using all years, suggesting that the optimism was not influenced by the passage of Sarbanes-Oxley.

Column (5) and Column (6) in Table 5.1.7 control for any possible order effect between traditional and company-sponsored analysts' recommendations. Column (5) includes recommendations issued by company-sponsored analysts within sixty days prior to the traditional analysts' recommendations (Pre-Traditional Recommendation). Column (6) includes recommendations issued by company-sponsored analysts within sixty days after the traditional analysts' recommendations (Post-Traditional

⁴⁵Tests of the model exclude recommendations issued prior to 2001 because the model did not converge (small sample size).

Recommendation). The results are very similar to the full sample, suggesting that my findings are not due to the order in which the recommendation is issued.

Since a large portion of my sample comprises of two company-sponsored research firms (J.M. Dutton & Associates and Taglich Brothers), my results may be skewed toward the practices at these two firms. I address this issue by including two categorical variables that take a value of one if the recommendation was issued by either an analyst at J.M. Dutton & Associates (*DUTTON*) or Taglich Brothers (*TAGLICH*). The results are shown in Column (7) in Table 5.1.7. Compared to the full sample in Column (2), the coefficient of the *CS* variable has decreased from 1.233 to 0.868; however it is still significantly greater than zero (p-value < 0.01). The cause of the decline appears to be due to the inclusion of the *DUTTON* variable which is significantly positive (0.699 p-value < 0.01), suggesting that analysts at J.M. Dutton & Associates are more optimistic than analysts at other company-sponsored research firms. The coefficient for the *TAGLICH* variable is insignificant suggesting that there is no difference between the recommendations issued by analysts at Taglich Brothers and analysts at other company-sponsored research firms. These findings suggest that my results are not due to the practices at one or two firms.

Finally, analysts at company-sponsored research firms may behave differently if the company is already covered by a traditional analyst. Therefore, as an alternative test, I compare recommendations issued by company-sponsored analysts for companies without traditional analyst coverage to recommendations issued by traditional analysts for similar companies. For this method, I identify all recommendations issued by company-sponsored analysts without a matching recommendation issued by a traditional analyst within sixty days of the announcement. Each recommendation is then matched with a recommendation issued by a traditional analyst for a separate company based on year, three digit SIC code, the market value of equity and return on assets (from COMPUSTAT). The three digit SIC code ensures that the matched sample belongs to a similar industry while the market value of equity and return on assets control for both size and prior performance. The results are shown in Column (8) of Table 5.1.7. The coefficient for the *CS* variable is 0.843 which is significant at a p-value < 0.01. While the coefficient is significantly positive, it is smaller than the coefficient from the matched

sample of 1.255. This could mean that analysts are less optimistic when there are no traditional analysts covering the company. Overall, these results indicate that company-sponsored analysts are more optimistic than traditional analysts.

5.1.4 Tests of Hypothesis Two

To test the likelihood of a company-sponsored analyst downgrading (upgrading) his or her recommendation relative to a traditional analyst, the initial recommendation issued by a company-sponsored analyst is identified for companies with coverage by both types of analysts. The model requires a two-year window following the initiation of coverage by the company-sponsored analyst; therefore, initial company-sponsored recommendations occurring after December 31, 2005, are removed from the sample. To be included in the sample, a company must have at least one recommendation from a traditional analyst prior to initiation of coverage by a company-sponsored analyst and at least one recommendation from the same traditional analyst after the initiation of coverage by the company-sponsored analyst. The company must also have at least one other recommendation from the company-sponsored analyst after the initiation of coverage. This ensures that there is no break in coverage by either the traditional or company-sponsored analyst.⁴⁶

The initial sample consists of 547 traditional analyst revision periods and 212 company-sponsored analyst revision periods for 200 companies. Since an analyst's decision to upgrade or downgrade may be influenced by other analysts, I randomly select one traditional analyst and one company-sponsored analyst to represent the opinions of all analysts covering the company for a total of 400 revision periods (200 traditional analyst revision periods and 200 company-sponsored analyst revision periods). A breakdown of the initial recommendation prior to revision by rating is shown in Table 5.1.8. Similar to my previous finding, recommendations issued by company-sponsored analysts are more optimistic than recommendations issued by traditional analysts. More than three-quarters of the initial recommendations (155 out of the 200 initial recommendations) issued by company-sponsored analysts are either "Buy" or "Strong

⁴⁶I also remove all periods where there is an "X" in the Stop Record field after the initial recommendation.

Buy” compared to 42.5% (85 out of 200 initial recommendations) of the matched recommendations issued by traditional analysts. Examining Panel A, it appears that traditional analysts do not upgrade more often than company-sponsored analysts (p-value = 0.26). However, all upgrades issued by company-sponsored analysts originate from the “Buy” or “Hold” categories, whereas the majority of the upgrades issued by traditional analysts originate from the “Hold” or “Sell” categories. This may be due to the distribution of recommendations in each category since recommendations issued by company-sponsored analysts are more optimistic than traditional analysts. Panel B shows the number of downgrades by each type of analyst. Company-sponsored analysts appear to downgrade less often than traditional analysts (forty-one downgrades for company-sponsored analysts compared to fifty-five for traditional analysts – p-value = 0.10). The number of downgrades by traditional analysts in the two years following the initiation of coverage by the company-sponsored analyst is significantly greater for every category of recommendation except for “Sell” recommendations (neither type of analyst have any downgrades).

In Table 5.1.9, I report the results of the hazard models for comparing the likelihood of company-sponsored analysts issuing an upgrade (downgrade) relative to traditional analysts. Panel A reports the results related to Hypothesis 2A, while Panel B reports the results related to Hypothesis 2B. In both the upgrade and downgrade models, I do not include a categorical variable for “Sell” recommendations; therefore it represents the reference or comparison category in the model.⁴⁷ In all cases, the models have a highly significant likelihood ratio and Wald statistics (not tabulated) relative to a global null hypothesis that all the coefficients are zero.

The first set of columns in Panel A shows the results for the upgrade model without the CS interaction. The results of the model suggest that both types of analysts are quicker to upgrade from “Hold” recommendations relative to “Sell” recommendations (0.78, p-value <0.01). The Hazard Ratio, which measures the probability of upgrading from “Hold” recommendations relative to upgrading from “Sell” recommendations, is 2.17. This suggests that analysts are 217% more likely to upgrade from a “Hold”

⁴⁷In the upgrade model, “Strong Sell” recommendations are grouped with “Sell” recommendations because of the limited number in the sample. None of the conclusions are affected by this design.

recommendation relative to a “Sell” recommendation conditional on having arrived at time t without an upgrade. However, analysts do not appear to upgrade quicker from “Buy” recommendations (0.04, p -value = 0.45) relative to “Sell” recommendations.

The second set of columns in Panel A shows the results for the upgrade model with the *CS* interaction. Examining the results, it appears that company-sponsored analysts are quicker to upgrade from “Buy” recommendations than analysts at traditional brokerage firms. The coefficient on the interaction between *CS* and the “Buy” recommendation is significantly positive (2.18) at a p -value of 0.03. The Hazard Ratio for the interaction is 8.89, which suggests that company-sponsored analysts are 889% more likely than traditional analysts to upgrade from a “Buy” recommendation relative to traditional analysts conditional on having arrived at time t without an upgrade. These findings are inconsistent with comments from O'Brien et al. (2005) who suggest that affiliated analysts consider a “Buy” recommendation as a sufficiently positive signal, so that they have less incentive to upgrade from “Buy” to “Strong Buy” than from “Hold” to “Buy”. The coefficient for the interaction between *CS* and the “Hold” recommendation is also positive (0.35) but not significant. The insignificant difference between the analysts for “Hold” recommendations may be due to traditional analyst’s motivation to avoid negative recommendations as well. Chen and Cheng (2003) suggest that the market interprets “Hold” recommendations as unfavorable. Since trading volume is lower for negative recommendations (Hayes 1998), traditional analysts may try to avoid “Hold” recommendations as well. Overall, these findings are consistent with Hypothesis 2A that the conflict of interest between the company-sponsored research firm and client company leads company-sponsored analysts to upgrade their recommendations more quickly than analysts at traditional brokerage firms.

Panel B shows the results from the downgrade model. Similar to the upgrade model, I first test the model without the *CS* interaction. The results are consistent with the findings of O'Brien et al. (2005), where the coefficients for “Strong Buy”, “Buy” and “Hold” are all significantly positive. This suggests that analysts are more likely to downgrade from a “Strong Buy”, “Buy” and “Hold” recommendation relative to a “Sell” recommendation conditional on having arrived at time t without a downgrade. An analyst is 3,398% more likely to downgrade from a “Strong Buy” recommendation than a

“Sell” recommendation, 2,808% more likely to downgrade from a “Buy” recommendation than a “Sell” recommendation, and 842% more likely to downgrade from a “Hold” recommendation than a “Sell” recommendation.⁴⁸ Since the Hazard Ratio is greatest for “Strong Buy” recommendations and lowest for “Hold” recommendations, this trend exhibits that all analysts prefer to downgrade from very favorable ratings than to downgrade from less favorable ratings, viewing it as less costly.

The second set of columns in Panel B shows the results for the downgrade model with the *CS* interaction. As expected, I find that the interaction between the *CS* variable and the initial recommendation is negative for all categories, however the interaction with the *CS* variable is significant at a 5% level for only the “Buy” recommendation. Conditional on arriving at time *t* without a downgrade, company-sponsored analysts are 44% less likely to downgrade from a “Buy” recommendation relative to traditional analysts. These findings support Hypothesis 2B that the conflict of interest between the company-sponsored research firm and client company leads company-sponsored analysts to downgrade their recommendations more slowly than analysts at traditional brokerage firms.

5.1.5 Tests of Hypothesis Three

The third hypothesis compares the market’s reaction to recommendations issued by company-sponsored analysts to the market’s reaction to recommendations issued by traditional analysts. The sample for this test consists of recommendations issued by company-sponsored and traditional analysts for the same company within sixty days of each other with return data in CRSP. Recommendations issued within two days of another recommendation for the same company or within two days of an earnings forecast are removed from the sample. This reduces the sample size to 370 recommendations issued by company-sponsored analysts and 710 recommendations

⁴⁸My results are similar to O'Brien, McNichols and Lin (2005) who find a hazard ratio of 25.85 for “Strong Buy” recommendations, 14.63 for “Buy” recommendations and 1.23 for “Hold” recommendations. I find similar results when I eliminate all “Sell” recommendations and use “Hold” recommendations as the comparison category in the model.

issued by traditional analysts for 210 companies.⁴⁹ Table 5.1.10 presents the results related to the third hypothesis. Column (1) shows the mean (median) market reaction to all recommendations without differentiating between company-sponsored and traditional analysts. The mean (median) market reaction to “Strong Buy” and “Buy” recommendations is significantly positive suggesting that the market perceives them to be favorable. Similar to Lin and McNichols (1998), I also find that the mean (median) market reaction to “Hold” recommendations is significantly less than zero. This suggests that the market interprets a “Hold” recommendation to be a negative signal. Finally, the mean market reaction to “Sell” recommendations is not significantly different from zero; however the median market reaction to “Sell” recommendations (-0.40%) is significantly negative at a 5% level.

Columns (2) and (3) show the market reaction to company-sponsored and traditional analysts’ recommendations by category. As expected, the market reaction to favorable (“Strong Buy” and “Buy”) recommendations issued by company-sponsored analysts is less than the market reaction to favorable (“Strong Buy” and “Buy”) recommendations issued by traditional analysts. However, the difference between the means (medians) is not significant at a 5% level. This suggests that the market does not perceive favorable recommendations issued by company-sponsored analysts to be less accurate representations of a company’s future prospects. Examining unfavorable recommendations, the market reaction to “Hold” and “Sell” recommendations issued by company-sponsored analysts is more positive (less negative) than the market reaction to “Hold” and “Sell” recommendations issued by traditional analysts. The mean market reaction to “Hold” recommendations issued by company-sponsored analysts is significantly greater than the market reaction to “Hold” recommendations issued by traditional analysts at a p-value of less than 0.01. However, this appears to be due to an outlier since the median market reaction to “Hold” recommendations issued by company-sponsored analysts is not significantly different from the market reaction to traditional analysts’ “Hold” recommendations. These results suggest that the market does not view unfavorable recommendations from company-sponsored analysts to be a more negative

⁴⁹I find similar results for hypothesis one using this reduced sample size.

signal of the client company's future prospects.⁵⁰

One possible explanation for the results could be the mix of high and low credible company-sponsored research firms in the sample. In a similar paper, Kirk (2008) finds that the higher credible company-sponsored research firms have more positive abnormal returns for "Strong Buy" and "Buy" recommendations than low credible company-sponsored research firms. To test whether my results are driven by the credibility of the company-sponsored research firm, I divide my sample into high and low credibility firms based on Kirk's (2008) methodology. High credibility firms are pure research firms and do not allow analysts to hold or trade client stock. Low credibility firms have other lines of business such as investment banking or business consulting and allow analysts to hold and trade client stock. A breakdown of the high and low credible firms can be found in Table 5.1.11. The market reaction to company-sponsored recommendations using high and low credible firms can be found in Table 5.1.12 and Table 5.1.13. Inconsistent with Kirk (2008), I find that credibility of the company-sponsored research firm does not influence the market reaction to company-sponsored analysts' recommendations. The difference between the market reaction for company-sponsored analysts' recommendation and the market reaction for traditional analysts' recommendations is not significant at a 5% level in the proper direction for any category. In addition, I find that the market reaction to traditional analysts' recommendations issued for the sample of companies followed by high credible company-sponsored research firms is significantly greater than the market reaction to traditional analysts' recommendations issued for the sample of companies followed by low credible company-sponsored research firms (not shown). This implies that the market is not reacting to the credibility of the company-sponsored research firm and suggests that there is some omitted factor that is explaining Kirk's results.

⁵⁰I find similar results when I regress the abnormal return (the return less the risk free rate) over the two-day window on the Carhart (1997) four-factors.

5.1.5 Tests of Hypothesis Four

To test whether the performance of portfolios comprised of stocks recommended by company-sponsored analysts is downwardly biased relative to portfolios comprised of stocks recommended by traditional analysts, I compare the abnormal returns associated with calendar-time portfolios created using each type of analysts' recommendations. Three-month portfolio returns based on company-sponsored recommendations are detailed in Table 5.1.14. Mean returns from each portfolio suggest that recommendations issued by company-sponsored analysts lead to abnormal returns. The mean monthly return for "Strong Buy" recommendations is 3.20% (p-value = 0.02) and the mean monthly return for "Sell" recommendations is -1.06% (p-value = 0.29). "Buy" and "Hold" returns are both insignificantly different from zero. A risk-free portfolio which takes a long position in "Strong Buy" recommendations and a short position in "Sell" and "Strong Sell" recommendations generates a mean monthly return of 4.51% (p-value = 0.01). However, these returns do not take into account any risk in the portfolios. The next set of columns shows the intercept and the coefficient from a regression of the mean raw returns on the Carhart (1997) four-factor model. Results from the model, suggest that "Strong Buy" recommendations earn a 2.98% monthly return (p-value = 0.03) and "Sell" recommendations earn -3.75% monthly return (p-value = 0.03). "Buy" and "Hold" recommendations are insignificantly different from zero. The return on the risk-free portfolio generates a monthly abnormal return of 5.39%, which is significant at a p-value of less than 0.01. For the risk factors in the Carhart (1997) model, the coefficient on the market return factor is less than one for all portfolios with the exception of the "Sell" portfolio. This implies that the "Strong Buy", "Buy" and "Hold" portfolios are not as risky as the market return. As expected, the coefficient on the size factor (SMB_t) is significantly greater than one, suggesting that these portfolios include companies that are smaller in size. The book-to-market factor (HML_t) and the momentum factor (UMD_t) are insignificant in all portfolios. For the risk-free return, none of the risk factors are significant suggesting that risk is not explaining any of the return generated by the portfolio.

Three month portfolios comprised of recommendations issued by traditional analysts within sixty days of the recommendations issued by company-sponsored analysts

are shown in Table 5.1.15. “Strong Buy” recommendations issued by traditional analysts generate a mean raw return of 3.50% (p-value<0.01) and an abnormal return of 3.53% (p-value<0.01). The portfolios comprised of “Buy”, “Hold” and “Sell” recommendations are all insignificant. Finally the risk-free portfolio which takes a long position in “Strong Buy” recommendations and a short position in “Sell” and “Strong Sell” recommendations generates a mean monthly return of 1.46% (p-value = 0.10). However, once the risk factors are included, the return is not significantly different from zero.

To test whether the performance of portfolios comprised of stocks recommended by company-sponsored analysts is downwardly biased relative to portfolios comprised of stocks recommended by traditional analysts, I test the constraint $\alpha_{CS} = \alpha_{TRAD}$ using model (6) identified in the methodology section. The results shown in Table 5.1.16 are consistent with hypothesis four. With the exception of one portfolio, the abnormal returns for portfolios of stocks recommended by company-sponsored analysts are less than the abnormal returns for the portfolio of stocks recommended by traditional analysts. The difference between the portfolios is greatest for “Strong Buy” recommendations and “Sell” recommendations. The abnormal returns for portfolios of stock classified as “Strong Buy” and “Sell” by company-sponsored analysts are significantly less (at a 10% level or lower) than the abnormal returns for similar portfolios classified by traditional analysts. These findings are consistent with Barber et al. (2007) who find that “Buy” recommendations of independent research firms outperform those of investment banks by an average of 3.1 basis points per day, while investment bank hold/sell recommendations, in contrast, outperform those of the independent research firms by 1.8 basis points per day, on average. The results also suggest that there is an initial increase in price for stocks classified by company-sponsored analysts as a “Strong Buy”; however, the earlier price increase appears to decline as time progresses. Conversely, stocks classified as “Sell” continue to generate negative abnormal returns. These results suggest that companies purchasing commissioned research are not undervalued, and that the optimism in company-sponsored analysts’ recommendations is due to a non-strategic bias.

5.2 Forecasts issued by company-sponsored analysts

5.2.1 Sample Selection

Quarterly forecast data is obtained from the First Call Historical Database – Detailed Forecast Estimates. Company-sponsored research firms in the database were identified from various news articles and web searches using the keywords “paid-for research”, “company-sponsored research” and “issuer-paid research”. The initial sample consists of 16,181 quarterly forecasts issued by company-sponsored analysts for 757 companies⁵¹ between January 1, 2000 and December 31, 2007. To minimize error, the forecast must be issued after the announcement of the previous quarter’s earnings and at least two days prior to the announcement of the current period’s earnings. I also require a similar forecast issued by a traditional analyst for the same period and that each company has a CUSIP number. This reduces the sample to 988 forecasts issued by company-sponsored analysts and 3,313 forecasts issued by traditional analysts for 346 companies (see Table 5.2.1). Within this sample, traditional analysts issued their forecasts an average of 4.85 days prior to forecasts issued by company-sponsored analysts (p-value < 0.01). This implies that company-sponsored analysts have access to forecasts issued by traditional analysts when estimating the client company’s earnings.

5.2.2 Descriptive Statistics

Table 5.2.2 provides a breakdown of the forecasts by year. In contrast to my earlier findings for recommendations where the proportion of observations were weighted toward later years, the proportion of forecasts appears to be weighted toward earlier years. The number of company-sponsored forecasts is generally decreasing from 298 in the year 2000 to 23 in the year 2007. However, there appears to be a good sample distribution across the full period. Table 5.2.3 provides a breakdown of forecasts by company-sponsored research firms. The largest number of forecasts comes from one

⁵¹The initial sample includes twenty-five observations where more than one company-sponsored research firm issued a forecast for the same company in the quarter.

firm, Redchip Research. I provide evidence about sensitivity of results by control for this firm in my sample.

5.2.3 Tests of Hypothesis Five

Hypothesis five examines whether forecasts issued by company-sponsored analysts are significantly different from forecasts issued by traditional analysts for the same company. For this test, a traditional forecast must be issued after the announcement of the prior period's earnings and within thirty days (before or after) of the forecast issued by the company-sponsored analyst. If there are multiple forecasts issued by traditional analysts within the thirty day period, I select the forecast from the traditional analyst that is closest in date to the forecast issued by the company-sponsored analyst.⁵² Also to control for outliers, the largest positive and the largest negative differences between company-sponsored and traditional analysts' forecasts (i.e. the top and bottom one percent) are removed from the sample. This reduces the sample to 924 forecasts issued by company-sponsored analysts and 924 forecasts issued by traditional analysts. The results are shown in Panel A of Table 5.2.4. It appears that forecasts issued by company-sponsored analysts are significantly greater than forecasts issued by traditional analysts. The mean forecast issued by the company-sponsored analysts is 11.4 cents compared to the mean forecast issued by traditional company-sponsored analysts of 10.8 cents. The difference between the two forecasts of 0.6 cents is significant at a p-value of less than 0.01. Given that the average company in my sample has 28 million shares, this amounts to a difference of \$150,000 between the two types of analysts. Examining the relation between the two types of forecasts, it appears that company-sponsored forecasts and traditional analyst forecasts are highly correlated. The Pearson correlation between the two forecasts is 0.9935 which is highly significant. This suggests that both types of analysts are using roughly the same information to develop their forecasts; however, the average forecast issued by company-sponsored analysts is significantly greater. Finally, there does not appear to be a significant difference in forecast accuracy (the mean

⁵²If multiple traditional analysts issue a forecast closest in date to the forecast issued by the company-sponsored analyst, then the traditional analyst's forecast is selected at random.

absolute value of the difference between the forecasts and the actual earnings number) between forecasts issued by company-sponsored analyst and forecasts issued by traditional analysts.

Since a large percentage of the forecasts appear to come from one company-sponsored research firm, I show results excluding Redchip Research in Panel B of Table 5.2.4. It appears that my previous findings are due to an outlier. Excluding Redchip Research, I find no significant difference between company-sponsored analysts and traditional analysts for mean EPS forecast, forecast accuracy, or the percentage of forecasts that are below, same as, or above actual earnings.⁵³ Examining the sample of forecasts that originate from Redchip Research, the mean EPS forecast is one cent greater than the forecast issued by traditional analysts. Also, the percentage of forecasts below actual earnings is significantly lower for Redchip Research than traditional analysts, while the percentage of forecasts above actual earnings is significantly greater than Redchip Research. However, I find no significant difference in forecast accuracy between Redchip Research and forecasts issued by traditional analysts. These results suggest that the majority of company-sponsored analysts issue forecasts similar to traditional analysts with the exception of one company-sponsored research firm.

5.2.4 Tests of Hypothesis Six

Hypothesis six examines whether the likelihood of meeting or beating a forecast issued by a company-sponsored analyst is significantly different from the likelihood of meeting or beating a forecast issued by a traditional analyst. Table 5.2.5 presents the results related to the sixth hypothesis. One of the assumptions of logistic regression is that the observations are independent of each other. Including all forecasts for a company with both traditional and company-sponsored analysts would violate the assumptions of the model, since a company may have multiple forecasts within a quarter. To control for this, I select the forecast that is closest in date to the earnings announcement (minimum of two days difference) for my sample. If the forecast was

⁵³I find similar results using traditional analysts' forecasts issued prior to the forecasts issued by the company-sponsored analysts and traditional analysts' forecasts issued after the forecasts issued by company-sponsored analysts.

issued by a company-sponsored analyst, the *CS* variable takes a value of one; otherwise, it takes a value of zero. The results using the full sample are shown in the column labeled (1). As predicted by hypothesis six, the results show that companies are less likely to meet or beat forecasts issued by company-sponsored research analysts. The variable on the *CS* coefficient is -0.28 (p-value = 0.08). This suggests that forecasts issued by company-sponsored analysts are more optimistic than forecasts issued by traditional analysts. Other variables in the model are generally consistent with prior literature. Larger companies are more likely to meet or beat the earnings forecast (0.28, p-value < 0.01), consistent with prior literature that size influences the optimism in forecasts. Also, companies with better operating performance measured by price deflated earnings per share (*P_EPS*) and buy-and-hold market adjusted returns for the period (*MOMENTUM*) are more likely to exceed earnings thresholds. Finally, the number of months a stock has been trading on a stock exchange (*AGE*) has a negative coefficient, consistent with younger companies having greater incentive to meet or beat earnings to impress capital markets. Contrary to my expectations, I find that companies with high book-to-market and debt leverage are less likely to meet or beat earnings.

Columns (2) and (3) show the results after removing forecasts from Redchip Research. Similar to the findings from hypothesis five, I find that my results are driven by Redchip Research. The *CS* variable is not significantly different from zero for the sample of forecasts that exclude Redchip Research (0.04, p-value = 0.91) and highly significant for the sample of forecasts issued by Redchip Research (-0.39, p-value = 0.02). The coefficients on several other variables (*LOSS*, *HORIZON*, *BTM*, *GROWTH*, *P_EPS*) also change when forecasts issued by Redchip Research is excluded from the model.

As an alternative approach, I also show the results using a matched pair sample that includes both the most recent forecast issued by a company-sponsored analyst and the most recent forecast issued by a traditional analyst for the same company. These results are shown in Columns (4) – (6). Similar to the results using the most recent forecast, I find that the *CS* variable is significantly negative for the full sample (-0.23, p-value = 0.02), but the results are due to the inclusion of Redchip Research in the sample. The *CS* variable is not significantly different from zero for the sample of forecasts issued

by company-sponsored forecasts excluding Redchip Research (0.25, p-value = 0.34), while the CS variable is highly significant for the sample of forecasts issued by Redchip Research (-0.42, p-value <0.01). The coefficients on the other variables are similar to results using the most recent forecast. These findings suggest that, with the exception of one company-sponsored research firm, there is not a significant difference in optimism between forecasts issued by company-sponsored analysts and forecasts issued by traditional analysts. This is consistent with Dechow et al. (2000) and Malmendier and Shanthikumar (2007) who suggest that analyst affiliation does not affect near-term EPS forecasts. The different results for company-sponsored recommendations and forecasts may be due to the fact that recommendations are more difficult to objectively evaluate than forecasts, and EPS forecasts tend to be geared more toward sophisticated institutional investors who are likely to recognize a conflict of interest (Malmendier and Shanthikumar 2007a; Mikhail et al. 2007).

5.2.5 Tests of Hypotheses Seven and Eight

Hypothesis seven and eight examine whether company-sponsored analysts are less likely to revise their forecasts and whether the relationship between the company-sponsored research firm and the client company influences the direction of the revision. The sample consists of 1,184 forecasting periods where there was at least one company-sponsored forecast and one traditional forecast issued for the same company in the quarter.⁵⁴ Descriptive statistics are shown in Table 5.2.6. Initial and final forecast estimates issued by company-sponsored analysts are not significantly different from initial and final forecast estimates from traditional analysts suggesting that there is no difference in optimism. However there does appear to be a difference in the likelihood of a forecast revision. The results show that company-sponsored analysts revise their forecast upward 1.9% of the time compared to 6.1% of the time for traditional analysts. The difference of 4.1% is significant at a p-value of less than 0.01. Company-sponsored analysts also revise their forecasts downward 5.7% of the time compared to 12.2% for traditional

⁵⁴If there was multiple company-sponsored analysts (or multiple traditional analysts) issuing forecasts for the company in the period, one company-sponsored analyst (one traditional analyst) was selected at random.

analysts. The difference of 6.5% is also significant at a p-value of less 0.01. These results imply that company-sponsored analysts revise their forecasts less often than traditional analysts, however these results do not control for other factors which could be influencing the likelihood of a revision.

Table 5.2.7 shows the results of the binary logistic model examining the likelihood of a forecast revision by a company-sponsored analyst relative to a traditional analyst. Since the results from the tests of hypotheses five and six suggest that forecasts issued by Redchip Research are significantly different from forecasts from other company-sponsored research firms, I include a categorical variable that takes a value of one if the company is followed by Redchip Research. The dependent variable in Column (1) is a categorical variable that is assigned a value of one if the final forecast is greater than the initial forecast for the period while the dependent variable in Column (2) is a categorical variable that is assigned a value of one if the final forecast is less than the initial forecast for the period.⁵⁵ Consistent with Hypothesis 7, the likelihood of a revision is significantly less for company-sponsored analysts relative to traditional analysts. The *CS* variable is significantly negative in both models. This suggests that company-sponsored analysts, who are not compensated for their additional effort, are less likely to revise their forecasts than analysts at traditional brokerage firms. The error in the initial forecast (*F_ERROR*) also appears to explain an analyst's decision to revise his or her forecast. The higher (lower) the initial forecast relative to the actual earnings number, the lower (higher) the probability an analyst will revise the initial forecast upward (downward).

Inconsistent with hypothesis eight, the interaction between the *CS* variable and the error in the initial forecast (*F_ERROR*) is not significant in either model. This suggests that the relationship between the company-sponsored research firm and the client company does not influence the analyst's decision to revise his or her forecast. Finally, the likelihood of a revision increases as the number of days between the initial forecast date and earnings announcement increases. Overall, these results suggest that company-sponsored analysts are less likely to revise their forecasts because they are not

⁵⁵In the upward revision model, downward revisions are assigned a value of zero. In the downward revision model, upward revisions are assigned a value of zero. I find similar results when all downward revisions are removed from the upward revision model and all upward revisions are removed from the downward revision model.

compensated for their effort. The relationship between the company-sponsored research firm and the client company does not appear to influence an analyst's decision to revise his or her forecast.

5.2.6 Tests of Hypothesis Nine

Hypothesis nine compares the market reaction to forecast revisions issued by company-sponsored analysts relative to forecast revisions issued by traditional analysts. The results are shown in Table 5.2.8. To control for other events, I eliminate any forecast revision that was issued within one day of another forecast for the same company from the sample. The final sample consists of 98 forecast revisions issued by company-sponsored analysts and 2,006 forecast revisions issued by traditional analysts. Column (1) shows the market reaction to all forecasts without differentiating between traditional and company-sponsored forecasts. As expected, the market reacts positively to upward forecast revisions (0.032, p-value <0.01), and negatively to downward forecast revisions (-0.003, p-value = 0.06) suggesting that analyst forecasts influence market expectations about future earnings. The other variables are insignificant with the exception of abnormal returns over the revision period, which are positively related to the market reaction. Column (2) shows the market reaction to forecasts differentiated between both types of analysts. The market reaction to positive and negative forecast revisions issued by company-sponsored analysts is not significantly different from zero while the market reaction to positive and negative forecast revisions from traditional analysts is significant and in the expected direction. These results support Hypothesis 9B and suggest that the market does not find revisions from company-sponsored analysts to have as much informational value as forecast revisions from traditional analysts. However, an F-test examining whether the coefficient for positive (negative) forecast revisions issued by company-sponsored analysts is significantly different from the coefficient for positive (negative) forecast revisions issued by traditional analysts ($\beta_2 \neq \beta_3; \beta_4 \neq \beta_5$) is not significant at conventional levels. This may be due to the limited number of revisions issued by company-sponsored analysts in the sample, or it could mean that the market reaction to forecast revisions issued by company-sponsored analysts is not significantly different from the market reaction to forecast revisions issued by traditional analysts.

Columns (3) and (4) separate forecast revisions into two categories: forecast revisions issued by analysts at company-sponsored research firms other than Redchip Research⁵⁶ and forecast revisions issued by analysts at Redchip Research.⁵⁷ This does appear to change the results. The coefficients for positive and negative forecast revisions issued by company-sponsored analysts are not significant in either sample. These results suggest that additional research is required to identify whether the market reacts differently to revisions issued by company-sponsored analysts relative to traditional analysts. While I find that the coefficients for positive and negative forecast revisions issued by company-sponsored analysts are not significant, I cannot reject the null hypothesis that the market reaction to forecast revisions issued by company-sponsored analysts is the same as the market reaction to forecast revisions issued by traditional analysts. Further tests may be required once a larger sample can be obtained.

⁵⁶This sample consists of 51 forecast revisions issued by company-sponsored analysts and 452 forecast revisions issued by traditional analysts.

⁵⁷This sample consists of 45 forecast revisions issued by company-sponsored analysts and 1,690 forecast revisions issued by traditional analysts.

Table 5.1.1
Sample Attrition

	Companies	Recommendations
Initial sample	582	2,059
Less: Companies without a traditional analyst	(118)	(332)
Less: Companies where the time period between the company-sponsored recommendation and recommendation issued by a traditional analyst differs by more than 60 days	(145)	(1,020)
Final sample	319	707

Table 5.1.2
Number of Recommendations by Year

Year	Recommendations Issued by Company-Sponsored Analysts		Recommendations Issued by Traditional Analysts	
		Percent		Percent
2000	17	2%	17	1%
2001	45	6%	91	5%
2002	29	4%	95	5%
2003	114	16%	443	22%
2004	142	20%	455	23%
2005	89	13%	228	11%
2006	86	12%	244	12%
2007	155	22%	376	19%
2008	30	4%	48	2%
Total	707	100%	1,997	100%

Table 5.1.3
Recommendations by Company-Sponsored Research Firm

Company-Sponsored Research Firm	Number of Recommendations	Percentage of Sample
BlueFire Research	34	5%
Cohen Independent Research	19	3%
J.M. Dutton & Associates	273	39%
Forun Tech	82	12%
Fundamental Research Corp	3	0%
RedChip Research	81	11%
SISM Research and Investment Services	7	1%
Spelman Research	20	3%
Taglich Brothers	188	27%
Total	707	100%

Table 5.1.4
Companies Followed by Company-Sponsored Analysts

Descriptive Statistic	Sample	Companies Covered Only by Traditional Brokerage Firms	p-value
Median number of traditional analysts following the company	1.00	4.00	<0.01
Market value of equity	\$94 million	\$216 million	<0.01
Return on assets	-0.03	0.01	<0.01
Percentage of companies with losses	0.50	0.38	<0.01
Debt-to-equity ratio	0.14	0.31	<0.01

Companies covered only by traditional brokerage firms consist of all companies in the First Call Historical Database between January 1, 2000 and August 31, 2008 with no recommendations from company-sponsored analysts during that time period. The sample consists of 319 companies with recommendations issued by company-sponsored analysts between January 1, 2000 and August 31, 2008. All amounts are median values. Number of traditional analysts following the company is determined by the number of brokerage firms issuing a recommendation for the company within a calendar year. Market value of equity is the price at year-end times the number of shares outstanding. Return on assets equals income before extraordinary items divided by total assets. A loss is defined as a company with income before extraordinary items less than zero. The debt-to-equity ratio equals total long-term debt divided by total stockholders' equity. Market value of equity, return on assets, percentage of companies with losses and the debt-to-equity ratio are all calculated using information from COMPUSTAT from the year prior to the issuance of the recommendation. To control for companies being included multiple times in the sample, mean values are calculated for each company across all years (between 2000 and 2007). Significance is determined using Wilcoxon signed-rank test, which tests whether both population medians are equal.

Table 5.1.5
Purchasers of Company-Sponsored Research by Industry Classification

Two-Digit SIC Code	Major Industry	Number of Companies	%
2	Agricultural Production – Livestock and Animal Specialties	1	0.31%
7	Agricultural Services	2	0.63%
10	Metal Mining	3	0.94%
12	Coal Mining	2	0.63%
13	Oil and Gas Extraction	7	2.19%
14	Mining and Quarrying of Nonmetallic Minerals, Except Fuels	1	0.31%
15	Building Construction – General Contractors & Operative Builders	1	0.31%
17	Construction – Special Trade Contractors	1	0.31%
20	Food and Kindred Products	5	1.57%
23	Apparel, Finished Products from Fabrics & Similar Materials	1	0.31%
25	Furniture and Fixtures	1	0.31%
26	Paper and Allied Products	1	0.31%
27	Printing, Publishing and Allied Industries	3	0.94%
28	Chemicals and Allied Products	46	14.42%
29	Petroleum Refining and Related Industries	3	0.94%
30	Rubber and Miscellaneous Plastic Products	4	1.25%
31	Leather and Leather Products	3	0.94%
33	Primary Metal Industries	3	0.94%
	Fabricated Metal Products, Except Machinery & Transport		
34	Equipment	1	0.31%
35	Industrial and Commercial Machinery and Computer Equipment	14	4.39%
	Electronic, Electrical Equipment & Components, Except Computer		
36	Equipment	29	9.09%
37	Transportation Equipment	6	1.88%
38	Instruments and Related Products	27	8.46%
39	Miscellaneous Manufacturing Industries	5	1.57%
44	Water Transportation	1	0.31%
45	Transportation by Air	1	0.31%
47	Transportation Services	2	0.63%
48	Communications	11	3.45%
49	Electric, Gas and Sanitary Services	3	0.94%
50	Wholesale Trade – Durable Goods	6	1.88%
51	Wholesale Trade – Nondurable Goods	4	1.25%
54	Food Stores	2	0.63%
55	Automotive Dealers and Gasoline Service Stations	1	0.31%
57	Home Furniture, Furnishings and Equipment Stores	1	0.31%
58	Eating and Drinking Places	3	0.94%
59	Miscellaneous Retail	4	1.25%
60	Depository Institutions	4	1.25%
61	Nondepository Credit Institutions	1	0.31%
62	Security & Commodity Brokers, Dealers, Exchanges & Services	3	0.94%
63	Insurance Carriers	1	0.31%
64	Insurance Agents, Brokers and Service	1	0.31%

Table 5.1.5 (Continued)
Purchasers of Company-Sponsored Research by Industry Classification

Two-Digit SIC Code	Major Industry	Number of Companies	%
65	Real Estate	3	0.94%
67	Holding and Other Investment Offices	3	0.94%
70	Hotels, Rooming Houses, Camps, and Other Lodging Places	1	0.31%
72	Personal Services	1	0.31%
73	Business Services	66	20.69%
78	Motion Pictures	1	0.31%
79	Amusement and Recreation Services	5	1.57%
80	Health Services	6	1.88%
87	Engineering, Accounting, Research, Management & Related Svcs	12	3.76%
99	Non-Classifiable Establishments	1	0.31%
	Unknown	1	0.31%
Total		319	100%

Table 5.1.6
Number of Recommendations across Categories of Recommendation

Rating	Company- Sponsored Recommendations	%	Traditional Recommendations	%	Difference
Strong Buy	190	26.9%	157	22.2%	4.7%**
Buy	324	45.8%	176	24.9%	20.9%***
Hold	156	22.1%	223	31.5%	-9.4%***
Sell	33	4.7%	131	18.5%	-13.8%***
Strong Sell	4	0.6%	20	2.8%	-2.2%***
Total	707	100%	707	1.00%	

Significance is determined using a two sample t-test which examines $H_0: \mu_1 - \mu_2 = 0$ versus $H_1: \mu_1 - \mu_2 \neq 0$.

*, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.1.7
Optimism in Company-Sponsored Recommendations

Variable	Expected Sign	Full Sample (1)	Full Sample (2)	By Year (3)	Post Sarbanes-Oxley (4)	Pre-Traditional Rec. (5)	Post-Traditional Rec. (6)	Dutton Associates & Taglich Brothers (7)	No Trad. Analyst Coverage (8)
<i>CS</i>	+	0.821*** (0.099)	1.233*** (0.154)	1.315*** (0.353)	1.327*** (0.163)	1.148*** (0.172)	1.245*** (0.171)	0.868*** (0.210)	0.843*** (0.142)
<i>INITIATE</i>	+	0.625*** (0.098)	1.147*** (0.140)	1.216*** (0.304)	0.945*** (0.149)	1.123*** (0.140)	1.110*** (0.140)	1.157*** (0.140)	0.751*** (0.121)
<i>DROP</i>	-	-0.217** (0.109)	-0.441*** (0.163)	0.345 (0.384)	-0.299** (0.173)	-0.433*** (0.163)	-0.427*** (0.163)	-0.444*** (0.164)	-0.134 (0.147)
<i>CS*INITIATE</i>	?		-0.984*** (0.196)	-1.001** (0.422)	-0.863** (0.210)	-0.926*** (0.218)	-1.128*** (0.216)	-0.844*** (0.206)	-0.577*** (0.183)
<i>CS*DROP</i>	?		0.389* (0.220)	-0.143 (0.332)	0.343 (0.231)	0.430* (0.238)	0.311 (0.240)	0.437** (0.221)	-0.082 (0.207)
<i>DUTTON</i>	?							0.699*** (0.176)	
<i>TAGLICH</i>	?							-0.040 (0.190)	
Optimism in company-sponsored analysts' initial recommendations ($\beta_1 + \beta_4$)			0.249**	0.314	0.464***	0.222*	0.117	0.024	0.266*
Optimism in company-sponsored analysts' final recommendations ($\beta_1 + \beta_5$)			1.622***	1.172***	1.670***	1.578***	1.556***	1.305***	0.761***

$$\ln\left(\frac{\text{prob}(REC)}{(1 - \text{prob}(REC))}\right) = \alpha_j + \beta_1 CS + \beta_2 INITIATE + \beta_3 DROP + \beta_4 CS * INITIATE + \beta_5 CS * DROP + \varepsilon$$

REC is the analyst recommendation coded from one to five with a 5=“Strong Buy” and 1=“Strong Sell”; *CS* is a categorical variable that takes the value of one if the recommendation was issued by a company-sponsored analyst; *INITIATE* is a categorical variable that takes the value of one if there is no prior recommendation for the company, and *DROP* is a categorical variable that takes the value of one if this was the final recommendation prior to a drop in coverage. The full sample consists of 707 recommendations issued by company-sponsored analysts and 707 recommendations issued by traditional analysts for 319 companies between January 1, 2000 and August 31, 2008. The by year sample consists of analyzing the full sample by year and taking the mean value across all years (a Fama-MacBeth approach). The Post Sarbanes-Oxley sample consists of 616 recommendations issued by company-sponsored analysts and 616 recommendations issued by traditional analysts for 282 companies between January 1, 2004 and August 31, 2008. The Pre-Traditional Recommendation sample consists of 596 company-sponsored analysts’ recommendations issued within sixty days prior to a sample of 596 recommendations issued by traditional analysts for 258 companies. The Post-Traditional Recommendation sample consists of 601 company-sponsored analysts’ recommendations issued within sixty days after a sample of 601 recommendations issued by traditional analysts for 266 companies. The Dutton Associates and Taglich Brothers takes the full sample and includes two categorical variables that take a value of one if the company-sponsored analyst issuing the recommendation works for either J.M. Dutton & Associates or Taglich Brothers. The No Traditional Analyst sample takes all recommendations issued by company-sponsored analysts without a corresponding recommendation issued by a traditional analyst within sixty days of the announcement and matches them with traditional recommendations issued for similar companies based on year, three digit SIC code, the market value of equity and return on assets (from COMPUSTAT). The sample consists of 908 recommendations issued by company-sponsored analysts for 341 companies and 938 recommendations issued by traditional analysts for 407 companies. Standard errors are in parentheses below the coefficients. *, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.1.8
Frequencies of Upgrades and Downgrades across Categories of Initial Recommendations, Partitioned by Type of Analyst

		Initial Recommendation				
		Strong Buy	Buy	Hold	Sell	Strong Sell
<i>Panel A: Upgrades</i>						
Company-Sponsored Analysts	Total	43	112	38	7	0
	Upgrades	0	23	12	0	0
	% of Total	0%	20.5%	31.5%	0%	0%
Traditional Analysts	Total	49	36	51	61	3
	Upgrades	0	4	20	20	1
	% of Total	0%	11.1%	29.2%	32.8%	33.3%
<i>Panel B: Downgrades</i>						
Company-Sponsored Analysts	Total	43	112	38	7	0
	Downgrades	15	25	1	0	0
	% of Total	34.9%	22.3%	2.6%	0%	0%
Traditional Analysts	Total	49	36	51	61	3
	Downgrades	18	28	9	0	0
	% of Total	36.7%	77.7%	17.6%	0%	0%

The sample consists of companies covered by traditional and company-sponsored analysts over the same period. To be included in the sample, a company-sponsored analyst must have initiated coverage between January 1, 2000 and December 31, 2005. If more than one traditional (company-sponsored) analyst is covering the company, one company is selected at random. The sample consists of 400 revision periods (200 traditional analyst revision periods and 200 company-sponsored analyst revision periods).

Table 5.1.9
Cox Regressions of the Duration to Upgrade (Downgrade) within a Two-Year Window after Initiation of Coverage by Company-Sponsored Analysts

	Coefficient Estimate	Std. Error	Hazard Ratio	Coefficient Estimate	Std. Error	Hazard Ratio
Panel A: Upgrades						
<i>BUY</i>	0.04	0.32	1.04	-1.85*	1.03	0.16
<i>HOLD</i>	0.78***	0.31	2.17	0.65*	0.34	1.91
<i>CS*BUY</i>				2.18**	1.02	8.89
<i>CS*HOLD</i>				0.35	0.36	1.42
Panel B: Downgrades						
<i>STRONG BUY</i>	3.52***	1.02	33.98	3.61***	1.03	37.08
<i>BUY</i>	3.33***	1.01	28.08	3.85***	1.03	47.17
<i>HOLD</i>	2.13**	1.06	8.42	2.27**	1.08	9.72
<i>CS*STRONG BUY</i>				-0.19	0.36	0.83
<i>CS*BUY</i>				-0.83***	0.31	0.44
<i>CS*HOLD</i>				-0.51	0.82	0.60

$$\ln h_{ij}(t) = \alpha_j(t) + \beta_1 REC_{ij}(t) + \beta_2 CS_{ij}(t) \times REC_{ij}(t) + \varepsilon$$

The Cox (1972, 1975) model measures the likelihood of the analyst issuing an upgrade (downgrade) in the recommendation at time t . The partial likelihood model adjusts for left truncation at the time of the company-sponsored analyst's initial recommendation and for right censoring at the end of the two-year window. CS is a variable that takes a value of one if the analyst issuing the recommendations works for a company-sponsored research firm; REC is the analyst's recommendation when the company-sponsored analyst initiated coverage (either the company-sponsored analyst's initial recommendation or the most recent recommendation issued by the traditional analyst prior to the initiation of coverage). To be included in the sample, a company must receive coverage from both a traditional and company-sponsored analyst over the same period. Second, the initiation of coverage must have occurred between January 1, 2000 and December 31, 2005. If more than one traditional (company-sponsored) analyst is covering the company, one company is selected at random. The sample consists of 400 revision periods (200 traditional analyst revision periods and 200 company-sponsored analyst revision periods). *, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.1.10
Comparison of the Market Reaction to Company-Sponsored and Traditional Analysts' Recommendations

	All (1)	Company- Sponsored (2)	Traditional (3)	Difference (4)
<i>Strong Buy</i>				
Mean Market Reaction	1.92%***	1.28%**	2.40%***	-1.12%*
Median Market Reaction	1.22%***	0.86%**	1.89%***	-1.03%
<i>Buy</i>				
Mean Market Reaction	1.19%***	1.08%**	1.29%***	-0.21%
Median Market Reaction	0.31%**	0.16%	0.43%**	-0.27%
<i>Hold</i>				
Mean Market Reaction	-0.63%*	2.20%	-1.40%***	3.60%***
Median Market Reaction	-0.78%***	-0.47%	-0.85%***	0.38%
<i>Sell</i>				
Mean Market Reaction	-0.27%	1.01%	-0.56%	1.57%
Median Market Reaction	-0.40%**	-0.14%	-0.65%**	0.51%

RET is the buy-and-hold return less the size (decile) adjusted value-weighted return over the period. *SB* is a categorical variable equal to one if the recommendation is a “Strong Buy” and zero otherwise. *B* is a categorical variable equal to one if the recommendation is a “Buy” and zero otherwise. *H* is a categorical variable equal to one if the recommendation is a “Hold” and zero otherwise. *S* is a categorical variable equal to one if the recommendation is a “Sell” or “Strong Sell” and zero otherwise. The sample consists of 370 recommendations issued by company-sponsored analysts and 710 recommendations issued by traditional analysts for 210 companies between January 1, 2000 and December 31, 2007. Mean differences are tested using a one-way Analysis of Variance (ANOVA). Median differences are tested using a Kruskal-Wallis test of the equality of medians for two populations. Standard errors are in parentheses below the coefficients. *, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.1.11
High Credibility and Low Credibility Company-Sponsored Research Firms

Company-Sponsored Research Firm	Rank	Research	Investment Banking	Consulting	Trading Restrictions
BlueFire Research	Low	Yes		Yes	?
Cohen Independent Research	Low	Yes		Yes	Yes
J.M. Dutton & Associates	High				
Forun Tech	Low	Yes		Yes	Yes
Fundamental Research Corp	High	Yes			
RedChip Research	Low	Yes		Yes	Yes
SISM Research and Investment Services	High	Yes			
Spelman Research	High	Yes			
Taglich Brothers	Low	Yes	Yes		Yes

Table 5.1.12
Comparison of the Market Reaction to High Credibility Company-Sponsored and
Traditional Analysts' Recommendations

	All (1)	Company- Sponsored (2)	Traditional (3)	Difference (4)
<i>Strong Buy</i>				
Mean Market Reaction	2.93%***	2.24%***	3.79%***	-1.54%
Median Market Reaction	1.91%***	1.10%**	2.25%***	-1.15%
<i>Buy</i>				
Mean Market Reaction	0.94%**	0.38%	1.33%**	-0.95%
Median Market Reaction	0.73%**	0.86%	0.63%*	0.23%
<i>Hold</i>				
Mean Market Reaction	0.77%	5.62%	-0.27%	5.89%**
Median Market Reaction	-0.16%	1.11%	-0.31%	1.42%
<i>Sell</i>				
Mean Market Reaction	0.55%	0.05%	-0.59%	0.64%
Median Market Reaction	0.06%	0.10%	-0.06%	0.16%

RET is the buy-and-hold return less the size (decile) adjusted value-weighted return over the period. *SB* is a categorical variable equal to one if the recommendation is a "Strong Buy" and zero otherwise. *B* is a categorical variable equal to one if the recommendation is a "Buy" and zero otherwise. *H* is a categorical variable equal to one if the recommendation is a "Hold" and zero otherwise. *S* is a categorical variable equal to one if the recommendation is a "Sell" or "Strong Sell" and zero otherwise. The sample consists of 140 recommendations issued by company-sponsored analysts and 274 recommendations issued by traditional analysts for 75 companies between January 1, 2000 and December 31, 2007. Mean differences are tested using a one-way Analysis of Variance (ANOVA). Median differences are tested using a Kruskal-Wallis test of the equality of medians for two populations. Standard errors are in parentheses below the coefficients. *, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.1.13
Comparison of the Market Reaction to Low Credibility Company-Sponsored and
Traditional Analysts' Recommendations

	All (1)	Company- Sponsored (2)	Traditional (3)	Difference (4)
<i>Strong Buy</i>				
Mean Market Reaction	1.39%***	0.31%	1.97%***	-1.66%*
Median Market Reaction	0.98%**	0.61%	1.72%**	-1.11%*
<i>Buy</i>				
Mean Market Reaction	1.23%***	1.47%**	1.02%*	0.45%
Median Market Reaction	0.11%	0.05%	0.25%	-0.20%
<i>Hold</i>				
Mean Market Reaction	-1.41%***	0.74%	-2.06%***	2.80%**
Median Market Reaction	-1.04%***	-0.70%	-1.13%***	0.43%
<i>Sell</i>				
Mean Market Reaction	-0.69%	1.20%	-1.35%**	2.55%*
Median Market Reaction	-0.61%**	0.14%	-0.80%**	0.94%

RET is the buy-and-hold return less the size (decile) adjusted value-weighted return over the period. *SB* is a categorical variable equal to one if the recommendation is a "Strong Buy" and zero otherwise. *B* is a categorical variable equal to one if the recommendation is a "Buy" and zero otherwise. *H* is a categorical variable equal to one if the recommendation is a "Hold" and zero otherwise. *S* is a categorical variable equal to one if the recommendation is a "Sell" or "Strong Sell" and zero otherwise. The sample consists of 229 recommendations issued by company-sponsored analysts and 440 recommendations issued by traditional analysts for 139 companies between January 1, 2000 and December 31, 2007. Mean differences are tested using a one-way Analysis of Variance (ANOVA). Median differences are tested using a Kruskal-Wallis test of the equality of medians for two populations. Standard errors are in parentheses below the coefficients. *, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.1.14
Abnormal Returns Earned by Portfolios on the Basis of Company-Sponsored Analysts' Recommendations

Portfolio	Months	Mean Raw Return	Abnormal Return (α_t)	<u>Coefficient Estimates from the Four-Factor Model</u>				Adjusted R ²
				$R_{mt} - R_{ft}$	SMB_t	HML_t	UMD_t	
STRONG BUY	87	3.20%** (0.02)	2.98%** (0.02)	0.88** (0.45)	1.39*** (0.54)	-0.88 (0.54)	0.08 (0.33)	0.21
BUY	86	1.67% (0.01)	1.38% (0.01)	0.58* (0.37)	1.28*** (0.44)	-0.57 (0.45)	-0.39 (0.27)	0.28
HOLD	88	-0.16% (0.02)	1.35% (0.02)	0.58 (0.63)	1.81** (0.78)	0.59 (0.77)	-0.39 (0.45)	0.07
SELL	57	-1.06% (0.02)	-3.74%** (0.02)	1.68*** (0.60)	1.62** (0.76)	0.95 (0.94)	0.37 (0.09)	0.24
RISK-FREE RETURN	88	1.46% (0.10)	-0.22% (0.83)	-0.42 (0.14)	0.94 (<0.01)	0.85 (0.01)	0.55 (<0.01)	0.28

Returns are based on portfolios created using 451 recommendations issued by company-sponsored analysts for 232 companies between January 1, 2000 and December 31, 2007. Companies are grouped into portfolios using outstanding recommendations for all company-sponsored research firms for that day. A recommendation is considered to be outstanding if it was issued within the previous three months, and there is no more recent recommendation issued by the same brokerage firm for that company. Returns for each portfolio are value-weighted by dividing the market value of equity of the company from the prior day ($\tau-1$) by the total market value of all companies in the portfolio. Months is the number of months included in the sample. Raw returns are the mean percentage monthly returns earned by each portfolio. The abnormal return is the intercept from a regression of the monthly return on the Carhart (1997) four factors model. The risk-free return is a portfolio that takes a long position in companies with a "Strong Buy" recommendation and a short position in companies with "Sell" or "Strong Sell" recommendations. Standard errors are in parentheses below the coefficients. *, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.1.15
Abnormal Returns Earned by Portfolios on the Basis of Traditional Analysts' Recommendations

Portfolio	Months	Mean Raw Return	Abnormal Return (α_t)	<u>Coefficient Estimates from the Four-Factor Model</u>				Adjusted R ²
				$R_{mt} - R_{ft}$	SMB_t	HML_t	UMD_t	
STRONG BUY	88	3.50%*** (0.01)	3.53%*** (0.01)	0.72** (0.36)	1.56*** (0.43)	-1.03*** (0.43)	0.00 (0.26)	0.34
BUY	90	0.26% (0.01)	0.32% (0.01)	0.98*** (0.36)	0.67 (0.41)	-0.50 (0.41)	-0.80*** (0.23)	0.38
HOLD	85	2.35% (0.01)	1.25% (0.01)	0.65* (0.34)	1.54*** (0.41)	0.15 (0.40)	-0.12 (0.24)	0.25
SELL	66	0.14% (0.02)	-0.88% (0.02)	0.96* (0.09)	1.86*** (0.71)	-0.15 (0.78)	-1.02** (0.02)	0.31
RISK-FREE RETURN	96	1.46% (0.10)	-0.22% (0.83)	-0.42 (0.14)	0.94 (<0.01)	0.85 (0.01)	0.55 (<0.01)	0.28

Returns are based on portfolios created using 1,497 recommendations issued by company-sponsored analysts for 232 companies between January 1, 2000 and December 31, 2007. Companies are grouped into portfolios using outstanding recommendations for all traditional research firms for that day. A recommendation is considered to be outstanding if it was issued within the previous three months, and there is no more recent recommendation issued by the same brokerage firm for that company. Returns for each portfolio are value-weighted by dividing the market value of equity of the company from the prior day ($\tau-1$) by the total market value of all companies in the portfolio. Months is the number of months included in the sample. Raw returns are the mean percentage monthly returns earned by each portfolio. The abnormal return is the intercept from a regression of the monthly return on the Carhart (1997) four factors model. The risk-free return is a portfolio that takes a long position in companies with a "Strong Buy" recommendation and a short position in companies with "Sell" or "Strong Sell" recommendations. Standard errors are in parentheses below the coefficients. *, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.1.16
Comparison of the Abnormal Returns Earned by Portfolios based on Company-Sponsored Analysts' Recommendations to Portfolios based on Traditional Analysts' Recommendations

Three-Month Portfolios				
	Strong Buy	Buy	Hold	Sell
Company-Sponsored	2.98%** (0.015)	1.38% (0.012)	-1.35% (0.022)	-3.74%** (0.018)
Traditional	3.53%*** (0.012)	0.32% (0.012)	1.24% (0.011)	-0.88% (0.015)
Difference	-0.55%	1.06%	-2.59%	-2.86%

Six-Month Portfolios				
	Strong Buy	Buy	Hold	Sell
Company-Sponsored	1.37%* (0.009)	0.28% (0.010)	0.10% (0.019)	-2.85%** (0.016)
Traditional	3.24%*** (0.011)	0.75% (0.011)	1.00% (0.010)	0.20% (0.013)
Difference	-1.87%*	-0.47%	-0.90%	-3.05%*

Nine-Month Portfolios				
	Strong Buy	Buy	Hold	Sell
Company-Sponsored	0.43% (0.009)	0.95% (0.009)	-0.25% (0.016)	-2.78%** (0.015)
Traditional	2.83%*** (0.008)	1.34% (0.011)	0.96% (0.009)	1.46% (0.010)
Difference	-2.40%**	-0.39%	-1.21%	-4.24%***

One Year Portfolios				
	Strong Buy	Buy	Hold	Sell
Company-Sponsored	0.82% (0.008)	0.96% (0.009)	-0.15% (0.015)	-2.91%*** (0.013)
Traditional	2.31%*** (0.008)	0.99% (0.010)	0.59% (0.008)	1.49% (0.010)
Difference	-1.49%*	-0.03%	-0.74%	-4.40%***

Abnormal returns are based on portfolios created using 1,497 recommendations issued by company-sponsored analysts for 232 companies between January 1, 2000 and December 31, 2007. Companies are grouped into portfolios using outstanding recommendations for all traditional research firms for that day. A recommendation is considered to be outstanding if it was issued within the time period identified and there is no more recent recommendation issued by the same brokerage firm for that company. Returns for

each portfolio are value-weighted by dividing the market value of equity of the company from the prior day ($\tau-1$) by the total market value of all companies in the portfolio. The abnormal return is the intercept from a regression of the monthly return on the following model:

$$\begin{aligned} R_{pt} - R_{ft} = & \alpha_{CS} + \alpha_{TRAD} + \beta_t(R_{mt} - R_{ft}) \times CS + \beta_t(R_{mt} - R_{ft}) \times TRAD \\ & + s_t SMB_t \times CS + s_t SMB_t \times TRAD + h_t HML_t \times CS \\ & + h_t HML_t \times TRAD + u_t UMD_t \times CS + u_t UMD_t \times TRAD + \varepsilon \end{aligned}$$

Standard errors are in parentheses below the coefficients. *, **, *** denote significance at the 0.10, 0.05, and 0.01 levels.

Table 5.2.1
Sample Attrition

	Companies	Forecasts
Initial sample	757	16,181
Less: Company-sponsored forecasts issued before the announcement of the previous quarter's earnings or within two days of the current period's earnings announcement	(118)	(13,385)
Less: Company-sponsored forecasts without a similar forecast issued by a traditional analyst for same company	(292)	(1,807)
Forecasts with missing CUSIP numbers	(1)	(1)
Final sample	346	988

Table 5.2.2
Number of Forecasts by Year

Year	Forecasts issued by Company-Sponsored		Forecasts issued by Traditional	
	Analysts	Percent	Analysts	Percent
2000	298	30%	887	27%
2001	185	19%	642	19%
2002	206	21%	775	23%
2003	76	8%	281	8%
2004	85	9%	281	8%
2005	64	6%	176	5%
2006	51	5%	207	6%
2007	23	2%	64	2%
Total	988	100%	3,313	100%

Table 5.2.3
Forecasts by Company-Sponsored Research Firm

Company-Sponsored Research Firm	Number of Forecasts	Percentage of Sample
Cohen Independent Research	7	1%
J.M. Dutton & Associates	55	6%
Forun Tech	109	11%
RedChip Research	680	69%
Researchstock.com	5	1%
Taglich Brothers	132	13%
Total	988	100%

Table 5.2.4

Forecast Estimates issued by Company-Sponsored Analysts and Traditional Analysts

Panel A: All Forecasts (n=924)

	Mean EPS Forecast	Forecast Accuracy	Below Earnings	<u>Percentage of Sample</u> Same as Earnings	Above Earnings
Company-Sponsored Research Firm	0.114	0.069	48.4%	15.5%	36.0%
Traditional Brokerage Firm	<u>0.108</u>	<u>0.065</u>	<u>50.6%</u>	<u>17.9%</u>	<u>31.5%</u>
Difference	0.006***	0.004	-2.2%	-2.4%	4.5%**
Pearson Correlation between Company-Sponsored and Traditional Forecasts: 0.9935***					

Panel B: Forecasts Excluding Redchip Research (n=301)

	Mean EPS Forecast	Forecast Accuracy	Below Earnings	<u>Percentage of Sample</u> Same as Earnings	Above Earnings
Company-Sponsored Research Firm	0.086	0.080	49.8%	15.0%	35.2%
Traditional Brokerage Firm	<u>0.088</u>	<u>0.081</u>	<u>44.5%</u>	<u>14.6%</u>	<u>40.9%</u>
Difference	-0.002	-0.001	5.3%	0.4%	-5.7%
Pearson Correlation between Company-Sponsored and Traditional Forecasts: 0.9851***					

Panel C: Redchip Research (n= 623)

	Mean EPS Forecast	Forecast Accuracy	Below Earnings	<u>Percentage of Sample</u> Same as Earnings	Above Earnings
Company-Sponsored Research Firm	0.126	0.064	47.5%	15.9%	36.6%
Traditional Brokerage Firm	<u>0.116</u>	<u>0.057</u>	<u>53.5%</u>	<u>19.3%</u>	<u>27.3%</u>
Difference	0.010***	0.007	-6.0%***	-3.4%	9.3%***
Pearson Correlation between Company-Sponsored and Traditional Forecasts: 0.9939***					

Forecast accuracy is the mean absolute value of the difference between the forecast and the actual earnings number. Significance is determined using a two sample t-test which examines $H_0: \mu_1 - \mu_2 = 0$ versus $H_1: \mu_1 - \mu_2 \neq 0$. *, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.2.5
Likelihood of Meeting or Beating a Forecast issued by a Company-Sponsored Analyst Relative to a Forecast issued by a Traditional Analyst

Variable	Expected Sign	Most Recent Forecast			Matched Pair		
		Entire Sample	Excluding Redchip Research	Redchip Research	Entire Sample	Excluding Redchip Research	Redchip Research
		(1)	(2)	(3)	(4)	(5)	(6)
<i>INTERCEPT</i>	?	-0.88	-1.50	-0.48	-1.23***	-1.19**	-1.01**
<i>CS</i>	?	-0.28*	0.04	-0.39**	-0.23**	0.25	-0.42***
<i>SIZE</i>	+	0.28***	0.43	0.17*	0.32***	0.24***	0.32***
<i>LOSS</i>	-	-0.12	-0.93**	0.13	-0.45***	-1.33***	-0.15
<i>HORIZON</i>	?	-0.00	-0.01***	0.00	-0.00	-0.00	-0.00
<i>BTM</i>	-	0.27*	0.48**	0.15	0.38***	0.56***	0.09
<i>GROW</i>	+	0.05	-0.07	0.39**	0.02	-0.04	0.03
<i>P_EPS</i>	+	5.47**	1.86	6.66**	4.63***	-1.34	7.47***
<i>MOMENTUM</i>	+	1.21***	2.02***	1.09***	0.47***	0.47***	0.49***
<i>FCF</i>	+	0.89*	-0.07	0.88	0.27	1.19*	-0.05
<i>LEV</i>	+	-1.36***	-2.31**	-0.97*	-1.04***	-0.84	-0.65
<i>AGE</i>	-	-0.00*	0.00	-0.00	-0.00***	0.00	-0.00***

$$Prob(MEET = 1) = \alpha_0 + \beta_1 CS + \beta_2 SIZE + \beta_3 LOSS + \beta_4 HORIZON + \beta_5 BTM + \beta_6 GROW + \beta_7 P_EPS + \beta_8 MOMENTUM + \beta_9 FCF + \beta_{10} LEV + \beta_{11} AGE + \varepsilon$$

MEET is a categorical variable that takes a value of one if the company met or exceeded the final earnings forecast issued prior to the earnings announcement, and zero otherwise; *CS* is a categorical variable that takes a value of one if the earnings forecast was issued by a company-sponsored analyst; *SIZE* is the log of the market value of equity for period t-1; *LOSS* is a categorical variable that takes the value of one if the company reported a loss for the period; *HORIZON* is the number of days between the final earnings forecast and the earnings announcement; *BTM* is the book-to-market ratio for period t-1; *GROW* is sales growth measured as (current year's sales divided by prior year's sales) minus 1; *P_EPS* is earnings per share scaled by stock price at the end of the prior fiscal period;

MOMENTUM is the contemporaneous market-adjusted buy-and-hold stock returns (using the value weighted market portfolio) beginning three days after the announcement of the prior period's earnings; *FCF* is free cash flow for the period measured as (operating cash flows - investing cash flows - dividends)/total assets for period *t*; *LEV* is leverage measured as the ratio of long-term debt to total assets for period *t* and *AGE* is the number of months the firm's stock has been trading on a stock exchange. The most recent forecast sample consists of 746 observations between January 1, 2000 and December 31, 2007. The matched sample consists of 1,492 observations between January 1, 2000 and December 31, 2007. *, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.2.6
Forecast Revisions
Descriptive Statistics

	Company-Sponsored Analysts	Traditional Analysts	Difference
Initial Forecast (EPS)	0.088	0.088	0.000
Final Forecast (EPS)	0.084	0.077	0.007
Number of Upward Revisions	1.9%	6.1%	-4.1%***
Number of Downward Revisions	5.7%	12.2%	-6.5%***

Significance is determined using a two sample t-test which examines $H_0: \mu_1 - \mu_2 = 0$ versus $H_1: \mu_1 - \mu_2 \neq 0$.
*, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.2.7
Likelihood of an Upward or Downward Revision by a Company-Sponsored Analyst
Relative to a Traditional Analyst

Variable	Expected Sign	Upward Revisions (1)	Expected Sign	Downward Revisions (2)
<i>INTERCEPT</i>	?	-2.81**	?	-3.35***
<i>CS</i>	-	-0.84***	-	-0.49***
<i>F_ERROR</i>	-	-6.65***	+	0.77***
<i>F_ERROR</i> × <i>CS</i>	?	1.30	?	-0.51
<i>HORIZON</i>	+	0.02***	+	0.02***
<i>CO_FOLLOW</i>	+	0.00	+	0.00
<i>SIZE</i>	+	-0.13	+	-0.01
<i>EXPERIENCE</i>	+	-0.04	+	-0.13
<i>REDCHIP</i>	?	0.24	?	-0.28*

$$\begin{aligned}
 Prob(UP_REV, DOWN_REV = 1) = & \alpha_0 + \beta_1 CS + \beta_2 F_ERROR \\
 & + \beta_3 F_ERROR \times CS + \beta_4 HORIZON + \beta_5 CO_FOLLOW + \beta_6 SIZE \\
 & + \beta_7 EXPERIENCE + \beta_8 REDCHIP + \varepsilon
 \end{aligned}$$

UP_REV is a categorical variable that takes a value of one if the final forecast is greater than the initial forecast for the period ($F_{FINAL} - F_{INITIAL} > 0$); *DOWN_REV* is a categorical variable that takes a value of one if the final forecast is less than the initial forecast for the period ($F_{FINAL} - F_{INITIAL} < 0$); *F_ERROR* is the difference between the initial forecast and actual earnings as reported in First Call ($F_{INITIAL} - ACTUAL$); *HORIZON* is the number of days between the initial forecast and earnings announcement; *CO_FOLLOW* is the number of companies followed by the brokerage firm; *SIZE* is the log of the market value of equity for period t-1; *EXPERIENCE* is the number of years the brokerage firm has been following the company and *REDCHIP* takes a value of one if the company is followed by Redchip Research. The sample is based on 1,183 forecasting periods where there was at least one company-sponsored forecast and one tradition forecast issued for the same company in that period. If there was multiple company-sponsored analysts (or multiple traditional analysts) issuing forecasts for the company in the period, one company-sponsored analyst (one traditional analyst) was selected at random. *, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

Table 5.2.8
Market Reaction to Forecast Revisions issued by Company-Sponsored Analysts and Traditional Analysts

Variable	Expected Sign	All Revisions (1)	All Revisions (2)	Excluding Redchip Research (3)	Redchip Research (4)
<i>INTERCEPT</i>	?	-0.00 (0.01)	-0.00 (0.01)	0.01 (0.01)	-0.01 (0.01)
<i>CS</i>	?		0.00 (0.01)	0.01 (0.01)	0.01 (0.01)
<i>POS_REV</i>	+	0.03*** (0.00)			
<i>POS_REV_{CS}</i>	+		-0.02 (0.07)	-0.01 (0.09)	0.03 (0.28)
<i>POS_REV_{TRAD}</i>	+		0.03*** (0.00)	0.03*** (0.00)	0.16*** (0.03)
<i>NEG_REV</i>		-0.00* (0.00)			
<i>NEG_REV_{CS}</i>	-		0.05 (0.08)	0.05 (0.11)	0.01 (0.14)
<i>NEG_REV_{TRAD}</i>	-		-0.00** (0.00)	-0.01*** (0.00)	0.02** (0.01)
<i>REV_DAYS</i>	?	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
<i>HORIZON</i>	?	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
<i>AB_RET</i>	?	0.01*** (0.00)	0.01*** (0.00)	0.02*** (0.00)	0.00*** (0.00)
<i>CS*AB_RET</i>	?		-0.01 (0.01)	-0.01 (0.01)	0.00 (0.01)
<i>R²</i>		0.09	0.09	0.24	0.02
<hr/>					
<i>Test: $\beta_2 \neq \beta_3$</i>			0.68	0.25	0.19
<i>Test: $\beta_4 \neq \beta_5$</i>			0.36	0.29	0.01

$$\begin{aligned}
 CAR = & \alpha + \beta_1 CS + \beta_2 POS_REV_{CS} + \beta_3 POS_REV_{TRAD} + \beta_4 NEG_REV_{CS} \\
 & + \beta_5 NEG_REV_{TRAD} + \beta_6 REV_DAYS + \beta_7 HORIZON + \beta_8 AB_RET \\
 & + \beta_9 CS * AB_RET + \epsilon
 \end{aligned}$$

CAR is the two-day cumulative size adjusted abnormal return centered around the announcement date (0, +1); *CS* is a categorical variable which takes the value of one if the revision was issued by a company-sponsored analyst; *POS_REV* is the difference between the final forecast (F_{FINAL}) and the initial forecast ($F_{INITIAL}$) if the difference is greater than zero, and zero otherwise. *NEG_REV* is the difference between the

final forecast (F_{FINAL}) and the initial forecast (F_{INITIAL}) if the difference is less than zero, and zero otherwise; REV_DAYS is the number of days in the forecast revision period; $HORIZON$ is the number of days between the last forecast and earnings announcement; AB_RET is the cumulative size adjusted abnormal return from two days after the initial forecast until two days prior to the final forecast. The full sample consists of 98 forecast revisions issued by company-sponsored analysts and 2,006 forecasts issued by traditional analysts between January 1, 2000 and December 31, 2007. The sample excluding Redchip Research consists of 53 revisions from company-sponsored research firms and 440 from traditional brokerage firms. The Redchip Research sample consists of 45 forecast revisions issued by Redchip Research and 1,589 forecast revisions issued by traditional brokerage firms between January 1, 2000 and December 31, 2007. *, **, *** denotes significance at the 0.10, 0.05, and 0.01 levels.

CHAPTER 6

CONCLUSION

This chapter concludes the dissertation with a discussion of the results, contributions, limitations and possible extensions.

6.1 Results

Company-sponsored research provides an alternative for companies to obtain analyst coverage. Critics have stated that the relationship between the company-sponsored research firm and client company creates a potential conflict of interest, which could influence the company-sponsored analysts' recommendations and forecasts. This is the first study to empirically test whether recommendations and forecasts issued by company-sponsored analysts are more optimistic than recommendations and forecasts issued by traditional analysts. Using a categorical logistic model, I find that recommendations issued by company-sponsored analysts are more optimistic than recommendations issued by traditional analysts for the same company, suggesting a conflict of interest between the company-sponsored research firm and the client company. However, with the exception of one company-sponsored research firm, I fail to find a significant difference between forecasts issued by company-sponsored analysts and forecasts issued by traditional analysts. This is consistent with Dechow et al. (2000) and Malmendier and Shanthikumar (2007) who suggest that analyst affiliation does not affect near-term EPS forecasts. The different results for company-sponsored recommendations and forecasts may be due to the fact that recommendations are more difficult to objectively evaluate than forecasts, and EPS forecasts tend to be geared more toward sophisticated institutional investors who are likely to see through any conflict of interest (Malmendier and Shanthikumar 2007a; Mikhail et al. 2007).

Further, I find that the market reaction to recommendations issued by company-sponsored analysts is not significantly different from the market reaction to recommendations issued by traditional analysts. This suggests that the market is not able to differentiate between recommendations issued by company-sponsored analysts and recommendations issued by traditional analysts. However, I find that recommendations (particularly "Strong Buy" and "Sell" recommendations) from company-sponsored

analysts appear to underperform relative to recommendations issued by traditional analysts.

Finally my results suggest that company-sponsored analysts are less likely to revise their forecasts relative to traditional analysts. I also find that the market reaction to forecast revisions issued by company-sponsored analysts is not significantly different from zero. However, I am unable to reject the null hypothesis that the market reaction to forecast revisions issued by company-sponsored analysts is the same as the market reaction to forecast revisions issued by traditional analysts. This may be due to the limited number of revisions issued by company-sponsored analysts in the sample. These results are consistent with Agrawal and Chen's (2005) theory that analysts who are compensated by commission revenue are more willing than independent analysts to issue timely revisions that reflect changing expectations about earnings.

6.2 Contributions

This study contributes to the accounting and finance literature by examining a rapidly growing area of stock research. Prior studies have not differentiated between research funded through traditional means (i.e. transaction costs) and research funded by payments from companies. My results suggest that recommendations, but not forecasts, issued by company-sponsored analysts are more optimistic than similar ones issued by traditional analysts. These findings suggest that the conflict of interest between the company-sponsored research firm and the client company influences the company-sponsored analysts' behaviors; however, other factors, such as the analyst's intended audience, may offset the bias.

I also find that the market is not able to differentiate between recommendations issued by company-sponsored analysts and recommendations issued by traditional analysts. Further, recommendations from company-sponsored analysts appear to be of lower quality relative to recommendations from traditional analysts. This suggests that the market may be overreacting to the information contained in company-sponsored analysts' recommendations.

Finally, my results suggest that commissions from trading volume play an important role in shaping analysts' forecasting behavior. Analysts who do not earn commissions based on trading volume are less likely to revise their forecasts, and their revisions appear to have informational value, although I am not able to reject the

hypothesis that forecast revisions issued by company-sponsored analysts are the same as forecast revisions issued by traditional analysts. Without these incentives, forecasts issued by company-sponsored analysts may not be an adequate substitute for forecasts from analysts at traditional brokerage firms.

6.3 Limitations and Suggestions for Future Research

This study does have potential limitations. The sample used in this study consists of companies that are followed by both traditional and company-sponsored analysts. Badruswamy (2005) states that only 40% of companies paying for research get non-paid-for research as well; therefore, a majority of companies that purchase commissioned research are excluded from my study. To the extent that company-sponsored analysts or investors behave differently when no traditional analyst is following a company, my results may not generalize to the entire population of companies that purchase commissioned research.

A second limitation of my dissertation is that I make no assumptions as to the motivations of managers that purchase commissioned research. Kirk (2008) suggests that companies purchase commissioned research to reduce information asymmetry between managers and investors; however, there may be strategic reasons as well. To the extent that managers have strategic motivations, and these motivations influence their choice of company-sponsored research firm, my results may be affected. An extension of this paper may be to examine managers' incentives to purchase commissioned research and determine whether these motivations are due to market inefficiency (i.e. information asymmetry) or manager's strategic reasons (i.e. to increase their bonuses or the value of their stock options).

The results of my dissertation suggest several possible areas for future research. One question left unanswered by this study is why the market does react accordingly to recommendations issued by company-sponsored analysts if the recommendations underperform relative to similar recommendations from traditional analysts. A second area for future research is whether company-sponsored analysts "opinion shop" for recommendations and whether managers are more likely to fire a company-sponsored research firm that issues unfavorable recommendations for their company. Finally, it may be useful to examine why companies with existing analyst coverage from traditional

brokerage firms purchase company-sponsored research. This may provide a better understanding of why companies purchase company-sponsored research and determine whether companies purchasing commissioned research without traditional analyst coverage are significantly different from companies purchasing commissioned research with traditional analyst coverage.

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BIOGRAPHICAL SKETCH

William Lawrence Buslepp was born in Canton, Michigan. From 1993 to 1998, William attended Michigan State University where he earned both a Bachelor of Arts in Accounting and a Masters in Business Administration in Accounting Information Systems and Supply Chain Management. After receiving his degrees, William began his career as a consultant at PricewaterhouseCoopers in Detroit, Michigan and then at Arthur Andersen in Milwaukee, Wisconsin. In April of 2002, William joined Sensient Technologies Inc., a global manufacturer of colors, flavors and fragrances, as the Special Projects Manager and was later promoted to the International Accounting Manager for the Color Division. In 2004, William left Sensient Technologies Inc. to pursue a career in academia by enrolling in the doctoral program at Florida State University.

William will begin his career in academia as an Assistant Professor at Texas Tech University where he will be teaching accounting information systems. He has also taught in the areas of financial and managerial accounting. William's research interests focus on empirically examining investor and analyst behaviors, particularly how conflicts of interest influence analysts' forecasts and recommendations.

William is a licensed Certified Public Accountant in the State of Wisconsin and is Certified in Production and Inventory Management by the Association for Operations Management. He is also a member of the American Accounting Association and the American Institute of Certified Public Accountants.