A CLOSE LOOK ON THE IMPACT AND PERFORMANCE OF FINANCIAL ANALYSTS

By Changhee Lee

A dissertation submitted to the

Graduate School-Newark

Rutgers, the State University of New Jersey

in partial fulfillment of requirements

for the degree of Doctor of

Philosophy Ph.D. in

Management Written under

the direction of Professor

Dan Palmon

and approved by

_____

_____

_____

_____

_____

Newark, New Jersey

October, 2014

ABSTRACT OF THE DISSESRTATION

A Close Look on the Impact and Performance of Financial Analysts

By Changhee Lee

Thesis director: Professor Dan Palmon

This dissertation consists of two essays on financial analysts' stock recommendations. The first essay examines the relationship between corporate social responsibility (CSR) report and the value of financial analysts' stock recommendation revisions. We find that the value of stock recommendations for socially responsible companies is lower than non-socially responsible companies. Also, we show that there is an inverse relation between the level of information on CSR strengths and concerns and the value of financial analysts' stock recommendations. Furthermore, when we focus on the sensitivity of change of CSR ratings, our result indicates that the value of stock recommendations is negatively associated with a firm's improvement on CSR score. As a firm experiences more change in social responsibility strengths and concerns, the value of analysts' stock recommendations decreases. Our results imply that the value of recommendation is a function of firms' CSR ratings and the amount of information on CSR strengths and concerns. In the second essay, we hypothesize that a perception of higher ability is implicit when an analyst makes a bold recommendation, and that this self-assessment is more likely to be correct when there are few analysts covering the firm. Consistent with our hypothesis, we find that it is highly profitable to trade based on bold recommendations for firms with low analyst coverage (risk-adjusted return of 30% per year), but not bold recommendations for high coverage firms. Herding

recommendations, whether for firms with low or high coverage, are not profitable. The profit from this trading strategy is related to the news released during earnings announcements.

Acknowledgements

I would like to express my deepest gratitude to my advisor, Professor Dan Palmon, for his guidance, caring, and support. I would also like to thank Professor Foong Soon Cheong for guiding my dissertation and providing insightful discussions about research. I have been very fortunate to work with them during my PhD program.

I would like to thank my dissertation committee members, Professor Ephraim Sudit, and Professor Ari Yezegel for their brilliant comments and suggestions on my dissertation. I would also like to thank my parents and brother. They were always supporting me and encouraging me with their best wishes.

I would never been able to finish doctoral thesis without the guidance my dissertation members and infinite love from my family.

Dedication

To my parents and brother.

Table of Contents

List of Tables

List of Figures

Chapter 1 Corporate Social Responsibility and the Value of Analysts' Recommendations

1.1 Introduction

As more firms start to publicize corporate social responsibility ("CSR") reports, firms are starting to invest more resources in CSR. For instance, an advertisement of Goldman Sachs shows the education they offer to the female entrepreneurs in emerging markets rather than introducing their business activities. Similarly, Exxon mobile, in their television commercials, presents a CSR program that supports to help secure a better math and science standing in the world by training elementary teachers through the Mickelson ExxonMobil Teachers Academy.

Then, what would be the benefit to the socially responsible companies and why do they make a great effort to be socially responsible? It contributes to enhancing the image of the company that ultimately affects consumers to purchase the products of the company which in turn may impact other market participants.

Among such market participants, we focus especially on financial analysts. This is because financial analysts function as an information intermediary and this function is one of the important sources that investors rely on in making their investment decisions. Among the information that analysts provide, we are interested in analysts' stock recommendations since it is a more subjective than their earnings forecast (James and Karceski 2006) and it is the analysts' belief on a firm with its own independent signal that incorporates earnings forecasts (Francis and Soffer 1997).

A natural question is whether analysts' recommendations reflecting CSR activities are valuable to investors. In other words, can we relate CSR to the value of analysts' stock recommendations? Moas's sell recommendations for non-socially responsible companies and strong buy recommendations for socially responsible companies must be valuable to investors since it helps investors make decisions. However, it is unclear whether the sell recommendations for non-socially responsible companies[1] and the strong buy recommendations for socially responsible companies are equally valuable to investors.

A study by Ioannou and Serafeim (2010) shows that socially responsible firms get more favorable recommendations from financial analysts. The recent analyst's note and study finding motivate us to question whether recommendations for socially responsible firms are valuable to investors or not.

Gelb and Strawer (2001) find that socially responsible firms generally disclose more information than non-socially responsible firms since it is the socially responsible thing to do and the information disclosed by socially responsible firms is often more informative and extensive. This practice enhances the quality of information and facilitates investors' information gathering process.

Thus, socially responsible firms are believed to create transparent business practice and this can affect the demand of analysts' work. In general, investors need analysts' work more if a company's information environment is hard to understand due to the scarce or uncertainty of available information. However, if a company's information

[1] The distinction between socially responsible and non-socially responsible companies is based on total number of MSCI strengths and concerns. We regard the companies with high number of strengths (concerns) as socially responsible companies (non-socially responsible companies).

environment is easy to understand, investors might not demand analysts' services (Asquith et al. 2005). To the extent that there is a discrepancy between the transparency of information provided by socially responsible firms and non-socially responsible firms, the value of recommendation would not be the same between two groups.

We measure the value of analysts' stock recommendations using the cumulative average abnormal return (CAAR) around analysts' revisions of stock recommendations. To measure CSR rating, previous studies mainly use net score of MSCI ESG STATS (MSCI hereafter; formerly known as KLD Research & Analytics, Inc.) CSR strengths and concerns. However, this approach doesn't fit to our analysis well since the conditions in which CSR strengths and concerns are released to the market are disparate, thereby preventing us from measuring the market reaction to analysts' recommendations properly.

For instance, CSR strengths items (concerns items) are more likely to be disclosed voluntarily (mandatorily) and market might react differently depending on CSR strengths and concerns. In other words, CSR strengths items to the market tend to be newly released information but, CSR concerns items tend to be already disclosed to the market through the annual or quarterly reports. See Appendix A for the partial list of these voluntary strengths and mandatory concerns items.

As a result, voluntarily disclosed CSR strengths items provide new information to the market and enriches firm's information environment, which will decrease the demand of analysts work. However, mandatorily disclosed CSR concerns items are already incorporated into the market and their incremental contribution to the current firm's

information environment would be limited, which would not increase the demand of analyst work.

To address this issue, the first measure to define firms' CSR rating considers the total number of CSR strengths only. Alternatively, we also consider the net score of CSR strengths and concerns to be consistent with the prior literature. Also, we use CSR concerns to define the firm's CSR rating to see whether we can see any difference in market reaction to analysts' recommendations.

We find that the value of analysts' recommendations for socially responsible firms is lower than that of non-socially responsible firms. The difference in three-day CAAR between low and high CSR ratings groups for upgraded recommendations is significant.

Similarly, we find that the three-day CAAR of firms with abundant information on CSR (measured by the sum of total number of CSR strengths and concerns) is lower than that of firms with limited information on CSR. The difference in the three-day CAAR between low and high CSR ratings groups for upgraded recommendations is significant.

This paper is associated with prior paper Luo et al. (2014) that analysts facilitate the relation between corporate social performance and corporate financial performance as a mediator role. However, the paper does not investigate whether the value of analysts' stock recommendations for between socially responsible companies and non-socially responsible companies is disparate.

The contribution of this paper is that we make a connection between the information environment that socially responsible firms have created and the value of analysts' recommendations. That is new aspect what Ioannous and Serafeim (2010) did not look at in their paper but closely related with their findings. In addition, our paper contributes to existing literature in that we focus on market reaction to analysts' recommendation on CSR activity, not market reaction to certain CSR activities in MSCI category. (Bird et al. 2007; Roger et al. 2008; Becchitti and Ciriretti 2006) This enables us to understand how the market reacts to analysts' work on socially responsible firms, not firms' CSR activity in general. Finally, we consider the new determinant of the value of analysts' recommendation by considering a unique environment that firms have created in the perspective of corporate social responsibility.

The order of paper as follows. In section 2, we review the prior research on corporate social responsibility and information environment transparency and how analysts behave in response to socially responsible companies. Then we develop the hypothesis that examines the relationship between the value of recommendation and firms' CSR performance. In section 3, we present our sample and we introduce our research design in section 4. Results will be discussed in section 5. Finally, we conclude in section 6.

1.2. Literature Review and Hypothesis Development

1.2.1 Corporate Social Responsibility and Information Environment Transparency

Prior research shows the evidence that corporate social responsibility is associated with corporate transparency of information environment. (Kim et al. Dhaliwal et al. 2011, Dhaliwal et al. 2012) In the accounting literature, research finds the relation between corporate social responsibility and information environment transparency using the following proxies: (1) earnings management, (2) cost of equity capital, and (3) analyst forecast accuracy and dispersion.

In the perspective of earnings management that determines firms' transparency, recent study by Kim et al. (2012) shows that socially responsible firms are less likely to be involved in earnings management. Cost of capital is affected by the information environment transparency created by companies' socially responsible activities. Firms facing high cost of equity capital are more likely to issue a CSR related report and by doing that, socially responsible firms enjoy the reduced cost of equity capital in the following year. (Dhaliwal et al. 2011) As for the relationship between corporate social responsibility and analysts' information environment, Dhaliwal et al. (2012) find that analysts who follow socially responsible firms have low forecast errors and less dispersion among analysts. Also, these socially responsible firms get more attention by institutional investors and analysts. Furthermore, even regulatory bodies seem to recognize the value of socially responsible firms. The observation that socially responsible firms are less likely to be under SEC investigation due to the GAAP violation

shows that socially responsible firms with have more transparent business practice than non-socially responsible firms. (Kim et al. 2012).

1.2.2 Analyst behavior and Socially Responsible Companies

There is abundant research on the relation between firms' performance and CSR but, the research related to analysts' behavior and CSR is still very limited. However, it is worthwhile to examine the relationship since analysts issue their earnings forecasts and stock recommendations by processing information that companies with diverse characteristics have created. If the companies' information environment is not transparent enough and this prevents investors from making appropriate investment decisions, the demand of analysts' work should increase by its nature. In this situation, investors' demand on analysts' interpretation role should be stressed. (Chen et al. 2010)

As mentioned above, analysts' forecast quality is higher for the firms that initiate CSR related reports (Dhaliwal 2011). The result implies that the information that socially responsible firms have created is more transparent than the information that non-socially responsible firms have created, thereby enhancing analysts' forecast quality.

The transparency of firms seems to appeal to financial analysts in terms of analysts' recommendations. Ioannou and Serafeim (2010)'s finding shows that socially responsible firms get more favorable recommendations than non-socially responsible firms. This implies that somehow socially responsible firms receive recognition from analysts.

The natural question that comes to mind is whether the favorable recommendation for socially responsible firms would be valuable information or not. If investors believe that the recommendation from analysts is not informative, then investors will not react strongly to the analysts' recommendations. Specifically, investors who have stakes in socially responsible firms are likely to be in a more transparent information environment than the investors who have stakes in non-socially responsible firms. For that reason, analysts' services are more likely to be informative due to the existing abundant information. If this is the case, we should observe a weaker stock market reaction to analysts' stock recommendations.

On the other hand, when it comes to investors who have stakes in non-socially responsible firms, the opposite result should be observed. Due to the opaqueness of the information environment, investors who are interested in non-socially responsible firms are more likely to seek analysts' help to compensate for the lack of available information in the market. If this is the case, we should observe strong market reaction to the analysts' stock recommendations.

In sum, socially responsible firms are more likely to be responsible to their shareholders by being more transparent and by providing more information to the public. This, in turn, is likely to decrease the importance of private information generated by financial analysts.

Therefore, we present the following hypotheses.

Hypothesis 1*: The value of stock recommendations for socially responsible companies is lower than for non-socially responsible companies*

Hypothesis 2*: The more information about firms' social responsibility strengths* ***and*** *concerns, the lower the value of financial analysts' stock recommendations.*

A more direct way of looking at disclosure of corporate social responsibility is focused on the information about individual specific component of CSR evaluation, namely strengths and concerns in MSCI rating.

Often, the market is not sensitive enough to the absolute level of information, but reacts when the information changes. Therefore, we present two parallel additional hypotheses focusing on the change in strengths and concerns in MSCI rating.

Hypothesis 3*: The value of analysts' recommendation is negatively associated with firms' improvement on corporate social responsibility rating (proxied by the change in strengths minus change in concerns compared to previous year).*

Hypothesis 4*: The more change about firms' social responsibility strengths* ***and*** *concerns, the lower the value of financial analysts' stock recommendations (proxied by the absolute value of change in strengths plus the absolute value of change in concerns compared to previous year).*

1.3. Data

We collect analysts' recommendations data from I/B/E/S from 1993 to 2011. Due to the data availability of analysts' recommendations, the sample period starts in 1993. Analysts' recommendations from I/B/E/S have five scales of recommendation classification: strong buy, buy, hold, underperform, and sell. Data on corporate social responsibility is from MSCI (formerly, MSCI Research & Analytics, Inc.). MSCI issues a yearly rating on corporate social responsibility in various categories under different dimensions as an indicator variable. Every category in every dimension has two variables: strength and concern, which are each valued 0 or 1. We consider the following six dimensions in our analyses: environment, community, employee relations, diversity, product, and governance. The ratings in the category of controversial business issues are not included in our analyses following the previous literature (Kim et al. 2012). We obtain daily stock returns from the CRSP database. CRSP value-weighted and size decile portfolio daily returns are from CRSP's indice files. We retrieve other financial variables from Compustat fundamental annual files. The final sample size is 49,804 firm-analyst-date observations.

1.4. Research Design

1.4.1 Univariate Analysis

To examine the relationship between corporate social responsibility and the value of analysts' recommendations, we follow an event study approach. We investigate the market reaction to analysts' recommendation revisions as a proxy for the value of

analysts' recommendations and compare the market reaction across the high, low, and medium CSR score groups based on MSCI ratings.

To test the first and second hypotheses, we use four criteria to construct high and low CSR score groups: (1) total number of strengths, (2) total number of strengths minus total number of concerns, (3) total number of concerns, and (4) sum of total number of strengths and total number of concerns. Criteria (1), (2), and (3) measure the evaluation of firms' CSR activity to test Hypotheses 1. A criterion (4) measures the amount of available information about firms' CSR activities to Hypotheses 2. We define a high group as the observations in the highest quintile and low group as the remaining quintiles.

To test the third and fourth hypotheses, we consider two criteria to construct high and low change in CSR score groups compared to the previous year: (5) ΔStrengths–ΔConcerns (=the change in strengths minus change in concerns) (6) |ΔStrengths|+|ΔConcerns| (=the absolute value of change in strengths plus the absolute value of change in concerns).

We define ΔStrengths–ΔConcerns to test the Hypothesis 3. ΔStrengths–ΔConcerns measures change in rating for CSR compared to the previous year. To test the Hypothesis 4, we define |ΔStrengths|+|ΔConcerns| as the change in the amount of information about CSR compared to previous year.

To examine the short term market reaction, we calculate the cumulative average abnormal returns (CAAR) based on various windows around the analysts' recommendation revisions. Specifically, the abnormal return is size adjusted return, the difference between raw security return and the return on the size decile portfolio. We

consider NYSE, AMEX, and NASDAQ exchange deciles separately for retrieving the benchmark return depending on the market where a firm is traded. For instance, if a firm is traded on NYSE, we calculate the size adjusted return by taking the difference between raw return and the market return of the size decile in NYSE only where the firm is traded.

1.4.2 Regression Analysis

As a multivariate analysis, we examine the relation between corporate social responsibility and the value of analysts' stock recommendations after controlling for variables that have been considered in the previous analyses. The dependent variable is the three-day cumulative average abnormal return to measure the value of analysts' revisions of recommendation. Following the previous study Palmon and Yezegel (2010), in the case of negative market reaction to downgraded recommendations, we multiply by -1 to the cumulative average abnormal return to measure the magnitude of CAAR in response to the analysts' recommendations.

Regarding Hypotheses 1 and 2, our variables of interest are total number of MSCI strengths (STRENGTH) and total number of concerns (CONCERNS), sum of total number of strengths and total number of concerns (STRENGTH+CONCERN), and total number of strengths minus total number of concerns (STRENGTH–CONCERN) across the following six categories: community, diversity, employees relations, environment, corporate governance, and product. The control variables we included are firm size, book to market ratio, analyst experience, analyst coverage, and R&D expense.

$$3CAAR_{itj} = \alpha + \beta_1 CSR_X + \beta_2 RND_{itj} + \beta_3 SIZE_{itj} + \beta_4 BM_{itj} + \beta_5 EXP_{itj} + \beta_6 COV_{itj} + \varepsilon_{itj}$$

where $x = 1, 2, 3, \text{or } 4$

$CSR_1 = STRENGTH_{ijt}$, when x=1

$CSR_2 = STRENGTH_{ijt} - CONCERN_{ijt}$, when x=2

$CSR_3 = CONCERN_{ijt}$, when x=3

$CSR_4 = STRENGTH_{ijt} + CONCERN_{ijt}$, when x=4,

3CAAR	Three-day cumulative abnormal returns
STRENGTH	total number of MSCI strength across the following categories: community, diversity, employees relations, environment, corporate governance, and product
CONCERN	total number of MSCI concern across the following categories: community, diversity, employees relations, environment, corporate governance, and product
STRENGTH+CONCERN	STRENGTH+CONCERN
STRENGTH-CONCERN	STRENGTH-CONCERN
SIZE	market value at fiscal year end
BM	book-to-market ratio at fiscal year end.
RND	ratio of R&D expense to sales
EXP	number of years that the analyst made at least one recommendation for the firm
COV	number of analysts who follows the firms

We include R&D expense (RND) in our regression model since Palmon and Yezegel (2010) show that the value of analysts' recommendation is increasing as a firm is more R&D intensive. For that reason, we expect the positive relationship between R&D expense (RND) and three-day cumulative abnormal returns (3CAAR). Following the Clement(1999) and Clement and Tse (2005), we count the number of years that an analyst follows the firm. The estimated coefficient represents whether the value of analysts' recommendation is increasing as analysts have more experience. We expect a positive relationship because prior research shows that analysts' forecasting ability is increasing as analysts have more experience, thereby issuing more informative

recommendations. The number of analysts who follow a firm is considered in the regression model since firms with high analysts following can represent the demand of market (Bhushan 1989), which contributes to the high market reaction. We control for book to market value and size of firms because it is related to cross-sectional expected stock returns.

We examine five different models by considering our variables of interests: STRENGTH, STRENTH–CONCERN, CONCERN, and STRENGTH+CONCERN. In the first model, following the Dhaliwal et al. (2011), we include only STRENGTH to proxy for firms' CSR performance. In model (2), we consider STRENTH–CONCERN, which represents the evaluation of firms' social responsibility (Johnson and Greening 1999; Waddock and Graves 1997).

To see the effect of the number of concerns on the value of recommendations, we include CONCERN in model (3). In our fourth model, we consider STRENGTH and CONCERN concurrently. Model (4) includes both STRENGTH and CONCERN. We need to be cautious since they might be positively significantly correlated, thereby creating multicollinearity problems. STRENGTH + CONCERN is included in the fourth model to measure the amount of information about CSR activity. We expect that the variables of interests in model (1)-(5), STRENGTH, STRENTH–CONCERN, CONCERN, and STRENGTH+CONCERN, will be negatively related to CAAR. To the extent that more information exists regardless of its characteristics such as STRENGTH, STRENGTH–CONCERN, CONCERN, STRENGTH+CONCERN, the influx of analysts' new information might not have additional information contents.

To test Hypotheses 3 and 4, we use the same model but replace our variables of interest to new variables that reflects change: $\Delta\text{Strengths} - \Delta\text{Concerns}$ and $|\Delta\text{Strengths}|+|\Delta\text{Concerns}|$

$$3\text{CAAR}_{itj} = \alpha + \beta_1 \text{CSR}_X + \beta_2 \text{RND}_{itj} + \beta_3 \text{SIZE}_{itj} + \beta_4 \text{BM}_{itj} + \beta_5 \text{EXP}_{itj} + \beta_6 \text{COV}_{itj} + \varepsilon_{itj}$$

where $x = 5$ or 6

$\text{CSR}_5 = \Delta\text{Strengths}_{ijt} - \Delta\text{Concerns}_{ijt}$, when x=5,

$\text{CSR}_6 = |\Delta\text{Strengths}|_{ijt} + |\Delta\text{Concerns}|_{ijt}$, when x=6

3CAAR	three-day cumulative abnormal returns
ΔStrengths-ΔConcerns	the change in strengths minus change in concerns
|ΔStrengths|+|ΔConcerns|	the absolute value of change in strengths plus the absolute value of change in concerns
SIZE	market value at fiscal year end
BM	book-to-market ratio at fiscal year end.
RND	ratio of R&D expense to sales
EXP	number of years that the analyst made at least one recommendation for the firm
COV	number of analysts who follows the firms

ΔStrengths–ΔConcerns measures the change in firms' CSR ratings by appreciating the improvement of CSR strengths and penalizing CSR concerns. |ΔStrengths|+|ΔConcerns| measures the change in total strengths and concerns. We expect the coefficient of ΔStrengths–ΔConcerns and |ΔStrengths|+|ΔConcerns| to be negative.

1.5 Result

1.5.1 Sample Selection and Descriptive Statistics

Table 1.1 shows the sample selection procedure and the descriptive statistics. Panel A describes the sample selection procedure. For the first step, we collect analysts' historical

stock recommendations data from the I/B/E/S and corporate social responsibility (CSR) ratings data from MSCI ESG STATS (formerly known as KLD Research & Analytics, Inc.). After we combine the I/B/E/S and MSCI database, we require each firm-data-analyst observation to have non-missing stock return and financial variables. The final sample size is 49,804 firm-date-analyst observations.[2]

Panel B of Table 1.1 shows the industry composition based on I/B/E/S sector classification. The technology sector represents 33.93%, the largest portion in the sample. Following the technology sector, the health care and consumer services sectors represent approximately 20 % of the sample.

Panel C of Table 1.1 shows the descriptive statistics of the variables in the analyses. All continuous variables are winzorized at the 1% and 99% of the variables distribution. Average number of total strengths and total concerns is about two, which is consistent with Inoannou and Serafeim (2010). Our sample is composed of firms of various sizes and R&D expenses. Analysts who follow sample firms have, on average, about five years of general experience, and the number of analysts who follow sample firms is, on average, 16 analysts.

We present the Pearson correlation coefficient in Table 1.2. Contrary to Inoannou and Serafeim's (2010) result, there is a significant positive relationship between total number of strengths and total number of concerns, in which the magnitude of coefficient is about five5. This might cause a multicollinearity problem if we consider them together in regression[3]. Three-day cumulative abnormal returns are significantly correlated with the rest of the variables except for book-to-market value.

[2] The reduction of observations in final sample is mainly due to the availability of R&D expense.
[3] The highest VIF is 3.2 from all regression models and multicollinearity problem seems to be negligible.

1.5.2 Test for Hypotheses 1 and 2

1.5.2.1 Univariate Analysis of Market Reaction to Analysts' Revisions of Stock Recommendations– Level Analysis

Table 1.3 investigates our two hypotheses that the value of analysts' recommendations is higher for both the non-socially responsible firms and the firms with less information on corporate social responsibility than others. We tabulate the cumulative average abnormal returns (CAAR) based on the various windows around analysts' revisions of recommendations separately for upgrade and downgrade recommendations.

We provide the result based on two groups: high CSR group and low CSR group. High CSR score group is the observations in the highest quintile and low CSR score group is the observations in the rest of the quintile. To test Hypotheses 1 and 2, we consider four kinds of CSR score group classifications: (1) total number of strengths, (2) total number of strengths minus total number of concerns, (3) total number of concerns, and (4) total number of strengths plus concerns.

We use two definitions to measure firms' CSR ratings: (1) total number of strengths and (2) total number of strengths minus total number of concerns. The reason why we use two definitions is that CSR strengths are more likely released voluntary by management but, CSR concerns tend to be released by mandatory disclosures. Therefore, CSR strengths might be the new information to the market but, CSR concerns might not. Our first measure addresses this issue by considering only CSR strengths. However, we provide the result based on the net score of CSR strengths and concerns to be consistent with the prior literature. The mean return and t-statistics reported in the univariate

analysis are based on the Fama-MacBeth (1973) procedure: Compute the mean return for the recommendations each month, and report the time-series mean over the sample period (228 months). Fama-MacBeth t-statistics are reported in bracket.

Panel A of Table 1.3 finds that the three-day CAAR of firms with high CSR rating (high number of CSR strengths) is significantly higher than that of firms with low CSR rating (low number of CSR strengths). It implies that the value of analysts' recommendations for socially responsible firms is lower than that of non-socially responsible firms. Specifically, the difference in three-day CAAR between low and high CSR ratings groups for upgraded recommendations is significant, at 0.99%. The CAARs of other windows also show comparable results.

This is also applied to the findings of Panel B where we define CSR rating as the net score of CSR strengths and concerns. For socially responsible firms (number of strengths minus concerns), we find that the three-day cumulative average abnormal returns (CAAR) based on non-socially responsible firms is significantly higher than socially responsible firms. The difference in three-day CAAR between low and high CSR ratings groups for upgraded recommendations is significant, at 0.40%.

Next, to examine whether investors react to the CSR strengths and concerns differently, we define firms' CSR ratings as the total number of CSR concerns. Panel C finds that three-day CAAR of socially responsible firms (low number of CSR concerns) is higher than non-socially responsible firms (high number of CSR concerns), meaning that the CSR information based on CSR concerns does not offer investors additional information and the market does not find analysts' recommendations for these firms to be useful.

Similarly, Panel D of Table 1.3 finds that the three-day CAAR of firms with abundant information on CSR (measured by the sum of total number of CSR strengths and concerns) is lower than that of firms with limited information on CSR. The difference in the three-day CAAR between low and high CSR ratings groups for upgraded recommendations is significant, at 1.60%.

Put together, the findings in Panels A and B show that due to the transparent information environment associated with socially responsible firm, the value of recommendations for these firms is lower. On the other hand, the value of recommendations is higher for non-socially responsible firms. Also, the findings in Panels D of Table 1.3 show that as a company has more (less) information on CSR, the value of recommendations decreases (increases). These findings are also evident when we focus on CSR strengths and concerns separately.

1.5.2.2 Regression Analysis of the Value of Recommendations on Various Definitions of CSR score–Level Analysis

Table 1.4 examines the relationship between various definitions of CSR scores and the value of analysts' stock recommendations after controlling for variables that affect the value of analysts' recommendations.

Results of the multiple regression of Models 1 and 2 support hypothesis 1 that the value of recommendations for the socially responsible firms is higher than that of non-socially responsible firms. Specifically, the coefficients of STRENGTH and STRENTH–CONCERN are significantly negative, meaning that as firms are socially responsible, the value of analysts' recommendations decreases, possibly due to the transparent information environment that these firms have created.

While the regression results of Models 1 and 2 show that the value of recommendations for non-socially responsible firms is higher than that of socially responsible companies, the results of Model 3 suggest that firms' CSR rating based on the number of concerns shows the opposite result. This implies that our definition of CSR concern does not capture the true market reaction since the concern items are usually previously disclosed through the firms' annual and quarterly reports.

To see whether our results hold when we consider both the number of strengths and concerns together in a model, we employ Model 4. Consistent with the results from Mode 1, 2, and 3, the signs of both STRENTH and CONCERN are negative.

Model 5 provides the results of investigating whether the information volume (STRENTH+CONCERN) about firms' CSR activity affects the value of analysts' recommendations. We find that as there is more information about firms' CSR strengths and concerns, the value of analysts' recommendations decreases. We interpret that when firms get stronger signal on their CSR scores (i.e. high number of strengths and high number of concerns compared to no strengths and no concerns), it contributes to provide more information to the market, thereby decreasing the demand on analysts' work.

When we integrate the results of Table 1.4 the key finding is that both socially responsible companies and high information volume about firms' CSR activity is negatively related to the demand of analysts' work.

1.5.3 Test for Hypotheses 3 and 4

1.5.3.1 Univariate Analysis of Market Reaction to Analysts' Revisions of Stock Recommendations–Change Analysis

The Table 1.5 investigates whether the change in value of recommendation is related to both the change in firms' CSR ratings and change in firms' information volume of CSR. While Table 1.3 finds the relationship between CSR and the change in value of recommendation based on absolute level, the market is often more sensitive to the information changes. To see whether the results of Table 1.4 hold after redefining firms' CSR ratings and information volume of CSR as a change format, we repeat the analysis in Table 1.3.

To test the third and fourth hypotheses, we consider two criteria to construct high and low change in CSR score groups compared to previous year: ΔStrengths–ΔConcerns (=the change in strengths minus change in concerns) and |ΔStrengths|+|ΔConcerns| (=the absolute value of change in strengths plus the absolute value of change in concerns)

Specifically, we define ΔStrengths–ΔConcerns to test Hypothesis 3. ΔStrengths–ΔConcerns measures change in rating for CSR compared to the previous year. To test hypothesis 4, we define |ΔStrengths|+|ΔConcerns| as the change in the amount of information about CSR compared to the previous year.

Panel A of Table 1.5 shows that the market reaction to analysts' revisions of recommendations for the firms with highest improvement in CSR ratings is the lowest of the various windows, both upgrade and downgrade recommendations.

In addition, Panel B of Table 1.5 presents that the change in firms' information volume of CSR (both firms' CSR strengths and concerns) mitigates the value of financial

analysts' stock recommendations (proxied by the absolute value of change in strengths plus the absolute value of change in concerns compared to the previous year).

1.5.3.2 Regression Analysis of the Value of Recommendations on Various Definitions of CSR score–Change Analysis

The Table 1.6 investigates whether the value of recommendations is related to the change in various definitions of CSR ratings after controlling for the variables that affect the value of analysts' recommendations. Results of the regression in Models 1, 2, 3, and 4 confirm Hypothesis 3 that the value of analysts' recommendations is negatively related to firms' improvement on CSR ratings.

Specifically, the coefficients of both ΔStrengths and ΔStrengths–ΔConcerns, which represent the change in firms' CSR ratings, are significantly negative, meaning that firms' improvements (deteriorations) of CSR rating contribute to ameliorate (worsen) information environment for these firms, thereby decreasing (increasing) the demand of analysts' work.

To recap, in Table 1.4, our measure of CSR rating based on the absolute level of CSR concerns does not capture the low value of stock recommendations, due to the differential timing of information release of CSR strengths and concerns. Even though our measure of CSR rating based on the change of CSR concerns is still susceptible to this problem, we do find that the decrease in the number of CSR concerns is related to the decrease in the value of analysts' recommendations. It is possibly due to the market being often more sensitive to the information changes.

To examine the short term market reaction, we calculate the cumulative average abnormal returns (CAAR) based on various windows around the analysts' revisions of

recommendation. Specifically, the abnormal return is size market adjusted return, the difference between raw security return and the return on the size decile portfolio. We consider NYSE, AMEX, and NASDAQ exchange deciles separately for retrieving the benchmark return depending on the market where a firm is traded. We define high group as the observations in the highest quintile and low group as the rest of the quintiles.

Table 1.6 investigates whether the value of recommendations is related to the change in various definitions of CSR ratings after controlling for the variables that affect the value of analysts' recommendations.

Results of the regression in Models 1, 2, 3, and 4 confirm Hypothesis 4 that the value of analysts' recommendations is negatively related to the change in firms' information volume of CSR ratings.

Specifically, the coefficients of |ΔStrengths|, |ΔStrengths|+|ΔConcerns|, and |ΔConcerns|, which represent the change in volume of CSR information, are significantly negative. It indicates that any change in firms' CSR information contributes to improving the information environment for these firms, thereby decreasing the demand of analysts' work. This result holds when we consider |ΔStrengths| and |ΔConcerns|, separately in the Models 2 and 3, respectively.

The sign of control variables is consistent with the previous literature. For example, value of recommendations is positively related to firms' R&D expenses and negatively related to the size of the firm. This suggests that analysts' recommendations are more informative when a firm has more uncertainty and analysts' recommendation revisions are also more valuable for smaller firms. Also, the value of recommendations is mitigated in cases where the firms have high analysts' following.

1.6. Conclusion

We examine the relationship between corporate social responsibility and the value of financial analysts' stock recommendation revisions. Socially responsible firms are expected to create a transparent information environment enabling investors to process available information more easily than for firms which are not socially responsible.

Therefore, we hypothesize and find that value of analysts' stock recommendations for socially responsible firms is distinguishable from those for non-socially responsible firms. Specifically, by employing event study methodology, we find that the value of analysts' stock recommendation is associated with corporate CSR activity. For socially responsible firms, the value of recommendation decreases. Also, the value of financial analysts' stock recommendations is lower for firms with more information about social responsibility strengths and concerns.

Furthermore, when we focused on the sensitiveness of change of MSCI score, our result indicates that the value of stock recommendations is negatively associated with firms' improvement on MSCI score. Also, as a firm experiences more change in social responsibility strengths and concerns, the value of analysts' stock recommendations decreases.

1.7 Tables for Chapter 1

Table 1.1 Sample Selection and Descriptive Statistics

This Table shows the sample selection procedure and the descriptive statistics. Panel A describes the sample selection procedure. Panel B shows the industry composition based on I/B/E/S sector classification. Panel C shows the descriptive statistics of the variables in the analyses.

Our sample of recommendations consists of 49,804 firm-date-analyst observations I/B/E/S from 1993 to 2011. STRENGTH is the total number of MSCI strengths across the following categories: community, diversity, employees relations, environment, corporate governance, and product. CONCERN is the total number of MSCI concerns across the following categories: community, diversity, employees relations, environment, corporate governance, and product. SIZE is market value at fiscal year end. BM is book-to-market ratio at fiscal year end. RND is ratio of R&D expense to sales. EXP is number of years that the analyst made at least one recommendation for the firm. COV is number of analysts who follow the firms. STR_Minus_CON is STRENGTH minus CONCERN. STR_Plus_CON is STRENGTH plus CONCERN.

To examine the short-term market reaction, proxy for the value of analysts' recommendations, we calculate the cumulative average abnormal returns (CAAR) based on various windows around the analysts' revisions of recommendations. Specifically, the abnormal return is size adjusted return, the difference between raw security return and the return on the size decile portfolio. We consider NYSE, AMEX, and NASDAQ exchange deciles separately for retrieving the benchmark return depending on the market where a firm is traded. 3CAAR is the three-day cumulative abnormal returns. All continuous variables are winzorized at the 1% and 99% of the variables distribution.

Panel A Sample Selection

Steps	Sample selection	Observations
Step 1	Analyst-by-analyst historical stock recommendation :the number of firm-analyst-date observations	564,403
	After restricting the sample to the observations with revision of recommendation to upgrade/downgrade: the number of firm-analyst-date observations	285,053
	Corporate social responsibility (CSR) rating of firm-year observations from MSCI (formerly, KLD Research & Analytics, Inc.) database	29,434
Step 2	Total number of firm-analyst-date after combining analysts' recommendations from I/B/E/S and CSR ratings from MSCI database.	132,642
Step 3	Total number of firm-analyst-date after restricting the observations with financial variables from CSRP	124,961
Step 4: Final Sample	Total number of firm-analyst-date after restricting the observations with financial information from Compustat.	49,804

Panel B Industry Composition based on I/B/E/S Sector Classification

Sector Name	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Basic industries	2,818	5.66	2,818	5.66
Capital goods	3,230	6.49	6,048	12.14
Consumer durables	2,025	4.07	8,073	16.21
Consumer non-durables	2,322	4.66	10,395	20.87
Consumer services	7,700	15.46	18,095	36.33
Energy	859	1.72	18,954	38.06
Finance	4,164	8.36	23,118	46.42
Health care	9,526	19.13	32,644	65.54
Public utilities	245	0.49	32,889	66.04
Technology	16,900	33.93	49,789	99.97
Transportation	15	0.03	49,804	100.00

Panel C Descriptive Statistics

		N	Mean	Min	25th Percentile	50th Percentile	75th Percentile	Max
Three-day Cumulative Abnormal Return	(3CAAR)	49,804	0.00	-0.37	-0.04	0.00	0.03	0.32
Total CSR Strengths-Concerns	(STR_Minus_CON)	49,804	-0.27	-6.0	-2.0	0.0	1.0	8.0
Total CSR Strengths+Concerns	(STR_Plus_CON)	49,804	3.94	0.0	2.0	3.0	5.0	20.0
Total CSR Strengths	(STRENGTH)	49,804	1.83	0.00	0.00	1.00	2.00	13.00
Total CSR Concerns	(CONCERN)	49,804	2.10	0.00	1.00	2.00	3.00	9.00
R&D	(RND)	49,804	292.80	0.00	0.23	32.23	134.67	5156.00
Firm Size	(SIZE)	49,804	11359.00	124.94	749.51	2064.83	6947.46	133319.60
Book to Market Ratio	(BM)	49,804	0.49	-0.14	0.24	0.41	0.63	1.89
Analysts' Experience	(EXP)	49,804	5.32	1.00	2.00	4.00	8.00	19.00
Analysts' Following	(COV)	49,804	16.33	2.00	8.00	14.00	22.00	43.00

Table 1.2 Pearson Correlation Analysis

This Table presents the Pearson correlation coefficient. Our sample of recommendations consists of 49,804 firm-date-analyst observations I/B/E/S from 1993 to 2011. STRENGTH is the total number of MSCI strengths across the following categories: community, diversity, employees relations, environment, corporate governance, and product. CONCERN is the total number of MSCI concerns across the following categories: community, diversity, employees relations, environment, corporate governance, and product. SIZE is market value at fiscal year end. BM is book-to-market ratio at fiscal year end. RND is ratio of R&D expense to sales. EXP is number of years that the analyst made at least one recommendation for the firm. COV is number of analysts who follow the firms. STR_Minus_CON is STRENGTH minus CONCERN. STR_Plus_CON is STRENGTH plus CONCERN.

To examine the short-term market reaction, proxy for the value of analysts' recommendations, we calculate the cumulative average abnormal returns (CAAR) based on various windows around the analysts' revisions of recommendations. Specifically, the abnormal return is size adjusted return, the difference between raw security return and the return on the size decile portfolio. We consider NYSE, AMEX, and NASDAQ exchange deciles separately for retrieving the benchmark return depending on the market where a firm is traded. 3CAAR is the three-day cumulative abnormal returns. All continuous variables are winzorized at the 1% and 99% of the variables distribution.

	Three-day Cumulative Abnormal Return	Total CSR Strengths-Concerns	Total CSR Strengths+ Concerns	Total CSR Strengths	Total CSR Concerns	R&D	Firm Size	Book to Market Ratio	Analysts' Experience	Analysts' Following
Three-day Cumulative Abnormal Return (3CAAR)	1									
Total CSR Strengths-Concerns (STR_Minus_CON)	-0.0109 (0.0011)	1								
Total CSR Strengths+Concerns (STR_Plus_CON)	0.0145 (<0.001)	0.3354 (<0.001)	1							
Total CSR Strengths (STRENGTH)	0.0054 (0.1099)	0.7216 (<0.001)	0.8916 (<0.001)	1						
Total CSR Concerns (CONCERN)	0.0213 (<0.001)	-0.3231 (<0.001)	0.7778 (<0.001)	0.4142 (<0.001)	1					
R&D (RND)	0.006 (0.1831)	0.4329 (<0.001)	0.6379 (<0.001)	0.6536 (<0.001)	0.3962 (<0.001)	1				
Firm Size (SIZE)	-0.002 (0.5539)	0.3039 (<0.001)	0.573 (<0.001)	0.5613 (<0.001)	0.3665 (<0.001)	0.6528 (<0.001)	1			
Book to Market Ratio (BM)	0.0267 (<0.001)	-0.0854 (<0.001)	-0.0019 (0.5705)	-0.0424 (<0.001)	0.0558 (<0.001)	-0.0774 (<0.001)	-0.111 (<0.001)	1		
Analysts' Experience (EXP)	0.0173 (<0.001)	0.1524 (<0.001)	0.3768 (<0.001)	0.3483 (<0.001)	0.2709 (<0.001)	0.3013 (<0.001)	0.2449 (<0.001)	0.0137 (<0.001)	1	
Analysts' Following (COV)	0.0062 (0.0649)	0.2543 (<0.001)	0.4147 (<0.001)	0.4225 (<0.001)	0.2462 (<0.001)	0.4072 (<0.001)	0.435 (<0.001)	-0.0898 (<0.001)	0.2476 (<0.001)	1

Table 1.3 Test for Hypothesis 1 and 2
Univariate Analysis of the Market Reaction to Analysts' Recommendations
Revisions–Level Analysis

This Table investigates our two hypotheses that the value of analysts' recommendations is higher for both the non-socially responsible firms and the firms with less information on corporate social responsibility than others. We tabulate the cumulative average abnormal returns (CAAR) based on the various windows around analysts' revisions of recommendations separately for upgrade and downgrade recommendations.

Our sample of recommendations consists of 49,804 firm-date-analyst observations I/B/E/S from 1993 to 2011. STRENGTH is the total number of MSCI strengths across the following categories: community, diversity, employees relations, environment, corporate governance, and product. CONCERN is the total number of MSCI concerns across the following categories: community, diversity, employees relations, environment, corporate governance, and product. SIZE is market value at fiscal year end. BM is book-to-market ratio at fiscal year end. RND is ratio of R&D expense to sales. EXP is number of years that the analyst made at least one recommendation for the firm. COV is number of analysts who follow the firms. STR_Minus_CON is STRENGTH minus CONCERN. STR_Plus_CON is STRENGTH plus CONCERN.

We use four criteria to construct high and low CSR score groups: (1) total number of strengths, (2) total number of strengths minus total number of concerns, (3) total number of concerns, and (4) sum of total number of strengths and concerns. We define high group as the observations in the highest quintile and low group as the rest of the quintiles.

To examine the short-term market reaction, proxy for the value of analysts' recommendations, we calculate the cumulative average abnormal returns (CAAR) based on various windows around the analysts' revisions of recommendations. Specifically, the abnormal return is size adjusted return, the difference between raw security return and the return on the size decile portfolio. We consider NYSE, AMEX, and NASDAQ exchange deciles separately for retrieving the benchmark return depending on the market where a firm is traded. 3CAAR is the three-day cumulative abnormal returns. All continuous variables are winzorized at the 1% and 99% of the variables distribution. We define high group as the observations in the highest quintile and low group as the rest of the quintiles.

The mean return and t-statistics reported in this table are based on the Fama-MacBeth (1973) procedure: Compute the mean return for the recommendations each month, and report the time-series mean over the sample period (228 months). Fama-MacBeth t-statistics are reported in bracket. *, **, and *** denote significance at the 10, 5, and 1 percent significance levels, respectively.

[Panel A] CSR Strength

	Upgrade						Downgrade					
			CAAR						CAAR			
CSR Score Group	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)
Low	3.06***	3.26***	3.33***	3.32***	3.38***	3.62***	-3.58***	-3.69***	-3.73***	-3.82***	-3.81***	-3.80***
	(33.55)	(31.01)	(26.92)	(30.92)	(25.32)	(19.02)	(-23.47)	(-19.04)	(-17.66)	(-23.10)	(-20.45)	(-15.87)
High	2.23***	2.45***	2.58***	2.45***	2.60***	2.82***	-2.50***	-2.76***	-2.81***	-2.60***	-2.50***	-2.32***
	(14.60)	(13.17)	(12.56)	(13.28)	(12.48)	(10.80)	(-17.87)	(-15.20)	(-13.37)	(-14.05)	(-11.06)	(-9.16)
Low-High	0.83***	0.81***	0.75***	0.87***	0.78***	0.80***	-1.09***	-0.93***	-0.93***	-1.22***	-1.31***	-1.48***
	(5.26)	(4.48)	(3.84)	(4.51)	(3.71)	(3.02)	(-6.70)	(-4.76)	(-4.12)	(-5.81)	(-5.16)	(-5.09)

[Panel B] CSR Strength-Concern

	Upgrade						Downgrade					
			CAAR						CAAR			
CSR Score Group	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)
Low	2.90***	3.12***	3.20***	3.14***	3.25***	3.49***	-3.37***	-3.51***	-3.55***	-3.59***	-3.58***	-3.54***
	(32.36)	(28.81)	(24.83)	(28.66)	(23.43)	(17.60)	(-23.41)	(-19.11)	(-17.66)	(-22.70)	(-19.50)	(-14.61)
High	2.50***	2.62***	2.75***	2.71***	2.75***	2.96***	-3.10***	-3.31***	-3.35***	-3.26***	-3.20***	-3.14***
	(20.17)	(17.83)	(17.12)	(18.46)	(16.76)	(13.80)	(-18.28)	(-15.42)	(-13.95)	(-15.40)	(-13.11)	(-11.41)
Low-High	0.40***	0.51***	0.45***	0.43***	0.50***	0.53**	-0.27	-0.20	-0.20	-0.33	-0.38	-0.40
	(3.39)	(3.62)	(2.93)	(2.84)	(2.89)	(2.30)	(-1.61)	(-0.95)	(-0.86)	(-1.53)	(-1.42)	(-1.22)

[Panel C] CSR Concern

	Upgrade						Downgrade					
			CAAR						CAAR			
CSR Score Group	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)
Low	3.02***	3.17***	3.25***	3.30***	3.37***	3.62***	-3.65***	-3.78***	-3.82***	-3.88***	-3.86***	-3.87***
	(31.40)	(28.37)	(25.65)	(30.36)	(25.74)	(19.97)	(-23.47)	(-19.16)	(-17.82)	(-23.23)	(-20.91)	(-16.84)
High	2.23***	2.54***	2.65***	2.37***	2.46***	2.61***	-2.34***	-2.58***	-2.68***	-2.42***	-2.40***	-2.16***
	(18.40)	(16.97)	(15.03)	(15.11)	(13.36)	(10.71)	(-16.50)	(-14.26)	(-13.69)	(-15.83)	(-13.21)	(-9.19)
Low-High	0.78***	0.63***	0.60***	0.93***	0.91***	1.01***	-1.31***	-1.20***	-1.14***	-1.46***	-1.46***	-1.71***
	(6.13)	(4.13)	(3.52)	(5.97)	(5.45)	(4.79)	(-8.26)	(-6.09)	(-5.43)	(-8.57)	(-7.99)	(-7.66)

[Panel D] CSR Strength+Concern

	Upgrade						Downgrade					
			CAAR						CAAR			
CSR Score Group	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)
Low	3.14***	3.30***	3.38***	3.41***	3.49***	3.73***	-3.70***	-3.81***	-3.85***	-3.95***	-3.93***	-3.92***
	(33.06)	(30.28)	(26.82)	(31.32)	(26.96)	(20.19)	(-23.31)	(-19.20)	(-17.65)	(-22.90)	(-20.56)	(-15.84)
High	2.11***	2.37***	2.47***	2.28***	2.40***	2.56***	-2.33***	-2.59***	-2.66***	-2.42***	-2.39***	-2.24***
	(15.04)	(14.36)	(13.00)	(13.10)	(11.96)	(10.21)	(-16.76)	(-13.47)	(-11.89)	(-13.19)	(-10.24)	(-8.24)
Low-High	1.03***	0.94***	0.91***	1.14***	1.08***	1.17***	-1.37***	-1.22***	-1.19***	-1.53***	-1.55***	-1.68***
	(7.09)	(5.85)	(5.09)	(6.37)	(5.77)	(5.15)	(-8.08)	(-5.81)	(-4.76)	(-6.97)	(-5.77)	(-5.14)

Table 1.4 Test for Hypothesis 1 and 2
Regression Analysis of the Value of Recommendations on Various Definitions of CSR score–Level Analysis

This Table examines the relationship between various definitions of CSR scores and the value of analysts' stock recommendations after controlling for the variables that affect the value of analysts' recommendations. The value of recommendation (dependent variable) is measured by three-day cumulative average abnormal return (3CAAR).

Our sample of recommendations consists of 49,804 firm-year-analyst observations I/B/E/S from 1993 to 2011. STRENGTH is the total number of MSCI strengths across the following categories: community, diversity, employees relations, environment, corporate governance, and product. CONCERN is the total number of MSCI concerns across the following categories: community, diversity, employees relations, environment, corporate governance, and product. SIZE is market value at fiscal year end. BM is book-to-market ratio at fiscal year end. RND is ratio of R&D expense to sales. EXP is number of years that the analyst made at least one recommendation for the firm. COV is number of analysts who follow the firms. STR_Minus_CON is STRENGTH minus CONCERN. STR_Plus_CON is STRENGTH plus CONCERN.

We use four criteria to construct high and low CSR score groups: (1) total number of strengths, (2) total number of strengths minus total number of concerns, (3) total number of concerns, and (4) sum of total number of strengths and concerns. We define high group as the observations in the highest quintile and low group as the rest of the quintiles.

To examine the short-term market reaction, proxy for the value of analysts' recommendations, we calculate the cumulative average abnormal returns (CAAR) based on various windows around the analysts' revisions of recommendations. Specifically, the abnormal return is size adjusted return, the difference between raw security return and the return on the size decile portfolio. We consider NYSE, AMEX, and NASDAQ exchange deciles separately for retrieving the benchmark return depending on the market where a firm is traded. 3CAAR is the three-day cumulative abnormal returns. In case of negative market reaction to downgraded recommendations, we multiply by -1 to the 3CAAR to measure the magnitude of CAAR in response to the analysts' recommendations. All continuous variables are winzorized at the 1% and 99% of the variables distribution.

We compute the t-statistics using robust standard errors adjusted for clustering by company and year in all our regressions. *, **, and *** denote significance at the 10, 5, and 1 percent significance levels, respectively.

	Model 1	Model 2	Model 3	Model 4	Model 5
	3CAAR	3CAAR	3CAAR	3CAAR	3CAAR
Intercept	0.0893***	0.0885***	0.0928***	0.0921***	0.0918***
	(42.39)	(41.43)	(43.27)	(43.73)	(42.90)
Strength	-0.0029***				-0.0026***
	(-9.99)				(-8.68)
Strength-concern		-0.0008**			
		(-3.11)			
Concern			-0.0027***		-0.0020***
			(-7.02)		(-5.13)
Strength+concern				-0.0023***	
				(-11.16)	
RND	0.0000***	0.0000	0.0000**	0.0000***	0.0000***
	(5.96)	(1.94)	(2.75)	(6.45)	(6.62)
SIZE	-0.0000***	-0.0000***	-0.0000***	-0.0000***	-0.0000***
	(-5.96)	(-5.62)	(-5.63)	(-5.89)	(-5.96)
B/M	-0.0114***	-0.0115***	-0.0106***	-0.0108***	-0.0109***
	(-4.53)	(-4.53)	(-4.18)	(-4.28)	(-4.33)
EXP	-0.0014***	-0.0018***	-0.0016***	-0.0013***	-0.0013***
	(-7.49)	(-9.59)	(-8.21)	(-6.61)	(-6.64)
COV	-0.0000	-0.0001	-0.0002	-0.0000	-0.0000
	(-0.11)	(-1.19)	(-1.76)	(-0.47)	(-0.35)
N	49,804	49,804	49,804	49,804	49,804
Adj R-sq	0.0284	0.0241	0.0263	0.0297	0.0298

Table 1.5 Test for Hypothesis 3 and 4
Univariate Analysis of the Market Reaction to Analysts' Recommendation Revisions–Change Analysis

This Table investigates whether the change in value of recommendation is related to both the change in firms' CSR ratings and change in firms' information volume of CSR. While Table 1.3 finds the relationship between CSR and the change in value of recommendation based on absolute level, the market is often more sensitive to the information changes. To see whether the results of Table 4 hold after redefining firms' CSR ratings and information volume of CSR as a change format, we repeat the analysis in Table 3.We tabulate the cumulative average abnormal returns (CAAR) based on the various windows around analysts' revisions of recommendations separately for upgrade and downgrade recommendations.

Our sample of recommendations consists of 49,804 firm-date-analyst observations I/B/E/S from 1993 to 2011. STRENGTH is the total number of MSCI strengths across the following categories: community, diversity, employees relations, environment, corporate governance, and product. CONCERN is the total number of MSCI concerns across the following categories: community, diversity, employees relations, environment, corporate governance, and product. SIZE is market value at fiscal year end. BM is book-to-market ratio at fiscal year end. RND is ratio of R&D expense to sales. EXP is number of years that the analyst made at least one recommendation for the firm. COV is number of analysts who follow the firms.

To test the third and fourth hypothesis, we consider two criteria to construct high and low change in CSR score groups compared to previous year: ΔStrengths-ΔConcerns (=the change in strengths minus change in concerns) and |ΔStrengths|+|ΔConcerns| (=the absolute value of change in strengths plus the absolute value of change in concerns). Specifically, we define ΔStrengths-ΔConcerns to test Hypothesis 3. ΔStrengths-ΔConcerns measures change in rating for CSR compared to the previous year. To test hypothesis 4, we define |ΔStrengths|+|ΔConcerns| as the change in the amount of information about CSR compared to the previous year.

To examine the short-term market reaction, proxy for the value of analysts' recommendations, we calculate the cumulative average abnormal returns (CAAR) based on various windows around the analysts' revisions of recommendations. Specifically, the abnormal return is size adjusted return, the difference between raw security return and the return on the size decile portfolio. We consider NYSE, AMEX, and NASDAQ exchange deciles separately for retrieving the benchmark return depending on the market where a firm is traded. 3CAAR is the three-day cumulative abnormal returns. All continuous variables are winzorized at the 1% and 99% of the variables distribution. We define high group as the observations in the highest quintile and low group as the rest of the quintiles.

The mean return and t-statistics reported in this table are based on the Fama-MacBeth (1973) procedure: Compute the mean return for the recommendations each month, and report the time-series mean over the sample period (228 months). Fama-MacBeth t-

statistics are reported in bracket. *, **, and *** denote significance at the 10, 5, and 1 percent significance levels, respectively.

Panel A] ΔCSR Strength-ΔConcern

	Upgrade						Downgrade					
			CAAR						CAAR			
CSR Score Group	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)
Low	2.89***	3.08***	3.15***	3.04***	3.09***	3.34***	-3.07***	-3.08***	-3.11***	-3.27***	-3.19***	-3.02***
	(31.40)	(27.60)	(24.61)	(27.49)	(22.37)	(17.55)	(-23.50)	(-18.48)	(-17.04)	(-22.53)	(-19.18)	(-14.42)
High	2.34***	2.58***	2.71***	2.49***	2.67***	2.87***	-2.65***	-2.73***	-2.73***	-2.66***	-2.64***	-2.35***
	(20.92)	(20.09)	(17.68)	(18.58)	(16.93)	(15.05)	(-14.51)	(-12.06)	(-10.94)	(-12.91)	(-11.45)	(-8.72)
Low-High	0.55***	0.50***	0.43***	0.56***	0.42***	0.46**	-0.42**	-0.35	-0.38	-0.61***	-0.56**	-0.67**
	(5.40)	(4.23)	(3.38)	(4.38)	(2.73)	(2.58)	(-2.26)	(-1.52)	(-1.53)	(-2.88)	(-2.29)	(-2.43)

[Panel B] ΔCSR Strength|+|ΔConcern|

	Upgrade						Downgrade					
			CAAR						CAAR			
CSR Score Group	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)	(0,+1)	(-1,+1)	(-2,+2)	(0,+5)	(0,+10)	(0,+20)
Low	2.89***	3.07***	3.13***	3.07***	3.14***	3.41***	-3.11***	-3.10***	-3.13***	-3.31***	-3.21***	-3.03***
	(30.86)	(27.65)	(25.16)	(28.24)	(24.33)	(19.20)	(-22.72)	(-18.32)	(-17.33)	(-22.67)	(-19.66)	(-15.28)
High	2.26***	2.54***	2.62***	2.36***	2.47***	2.66***	-2.36***	-2.42***	-2.43***	-2.42***	-2.44***	-2.21***
	(15.00)	(14.25)	(12.35)	(12.13)	(10.91)	(8.91)	(-15.53)	(-12.10)	(-10.28)	(-13.11)	(-12.01)	(-8.09)
Low-High	0.63***	0.53***	0.52**	0.71***	0.67***	0.75***	-0.75***	-0.69***	-0.70***	-0.89***	-0.78***	-0.82***
	(3.94)	(2.94)	(2.56)	(3.54)	(3.00)	(2.63)	(-4.54)	(-3.39)	(-3.19)	(-4.90)	(-3.97)	(-3.35)

Table 1.6 Test for Hypothesis 3
Regression Analysis of the Value of Recommendations on Change in Various Definitions of CSR Score–Change Analysis

This Table investigates whether the value of recommendations is related to the change in various definitions of CSR ratings after controlling for the variables that affect the value of analysts' recommendations. The value of recommendation (dependent variable) is measured by three-day cumulative average abnormal return (3CAAR).

Our sample of recommendations consists of 49,804 firm-date-analyst observations I/B/E/S from 1993 to 2011. STRENGTH is the total number of MSCI strengths across the following categories: community, diversity, employees relations, environment, corporate governance, and product. CONCERN is the total number of MSCI concerns across the following categories: community, diversity, employees relations, environment, corporate governance, and product. SIZE is market value at fiscal year end. BM is book-to-market ratio at fiscal year end. RND is ratio of R&D expense to sales. EXP is number of years that the analyst made at least one recommendation for the firm. COV is number of analysts who follow the firms. The sample size for this table is 41,342 firm-date-analyst observations.

To test the third and fourth hypotheses, we consider two criteria to construct high and low change in CSR score groups compared to the previous year: ΔStrengths–ΔConcerns (=the change in strengths minus change in concerns) and |ΔStrengths|+|ΔConcerns| (=the absolute value of change in strengths plus the absolute value of change in concerns).

Specifically, we define ΔStrengths–ΔConcerns to test Hypothesis 3. ΔStrengths–ΔConcerns measures change in rating for CSR compared to previous year. To test hypothesis 4, we define |ΔStrengths|+|ΔConcerns| as the change in the amount of information about CSR compared to the previous year.

To examine the short-term market reaction, proxy for the value of analysts' recommendations, we calculate the cumulative average abnormal returns (CAAR) based on various windows around the analysts' revisions of recommendations. Specifically, the abnormal return is size adjusted return, the difference between raw security return and the return on the size decile portfolio. We consider NYSE, AMEX, and NASDAQ exchange deciles separately for retrieving the benchmark return depending on the market where a firm is traded. 3CAAR is the three-day cumulative abnormal returns. In case of negative market reaction to downgraded recommendations, we multiply by -1 to the 3CAAR to measure the magnitude of CAAR in response to the analysts' recommendations. All continuous variables are winzorized at the 1% and 99% of the variables distribution.

We compute the t-statistics using robust standard errors adjusted for clustering by company and year in all our regressions. *,**,*** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively.

	Model 1 3CAAR	Model 2 3CAAR	Model 3 3CAAR	Model 4 3CAAR
Intercept	0.0868***	0.0864***	0.0868***	0.0865***
	(35.99)	(35.74)	(35.57)	(35.66)
ΔStrengths (H3)	-0.0032***			-0.0032***
	(-5.08)			(-5.13)
ΔStrength-ΔConcern (H3)		-0.0022***		
		(-4.46)		
ΔConcerns (H3)			0.0011	0.0012
			(1.42)	(1.51)
RND	0.0000	0.0000	0.0000	0.0000
	(1.79)	(1.69)	(1.48)	(1.79)
SIZE	-0.0000***	-0.0000***	-0.0000***	-0.0000***
	(-6.92)	(-6.91)	(-6.85)	(-6.93)
B/M	-0.0047	-0.0047	-0.0048	-0.0047
	(-1.65)	(-1.65)	(-1.65)	(-1.65)
EXP	-0.0021***	-0.0020***	-0.0021***	-0.0020***
	(-8.90)	(-8.78)	(-8.92)	(-8.78)
COV	-0.0002	-0.0002	-0.0002	-0.0002
	(-1.45)	(-1.51)	(-1.79)	(-1.42)
N	41,342	41,342	41,342	41,342
Adj R-sq	0.0173	0.0172	0.0164	0.0174

Table 1.7 Test for Hypothesis 4 Regression Analysis of the Value of Recommendations on Change in Various Definitions of CSR Score–Change Analysis

This Table investigates whether the value of recommendations is related to the change in various definitions of CSR ratings after controlling for the variables that affect the value of analysts' recommendations. The value of recommendation (dependent variable) is measured by three-day cumulative average abnormal return (3CAAR).

Our sample of recommendations consists of 49,804 firm-date-analyst observations I/B/E/S from 1993 to 2011. STRENGTH is the total number of MSCI strengths across the following categories: community, diversity, employees relations, environment, corporate governance, and product. CONCERN is the total number of MSCI concerns across the following categories: community, diversity, employees relations, environment, corporate governance, and product. SIZE is market value at fiscal year end. BM is book-to-market ratio at fiscal year end. RND is ratio of R&D expense to sales. EXP is number of years that the analyst made at least one recommendation for the firm. COV is number of analysts who follow the firms. The sample size for this table is 41,342 firm-date-analyst observations.

To test the third and fourth hypotheses, we consider two criteria to construct high and low change in CSR score groups compared to the previous year: ΔStrengths–ΔConcerns (=the change in strengths minus change in concerns) and |ΔStrengths|+|ΔConcerns| (=the absolute value of change in strengths plus the absolute value of change in concerns).

Specifically, we define ΔStrengths–ΔConcerns to test Hypothesis 3. ΔStrengths–ΔConcerns measures change in rating for CSR compared to previous year. To test hypothesis 4, we define |ΔStrengths|+|ΔConcerns| as the change in the amount of information about CSR compared to the previous year.

To examine the short-term market reaction, proxy for the value of analysts' recommendations, we calculate the cumulative average abnormal returns (CAAR) based on various windows around the analysts' revisions of recommendations. Specifically, the abnormal return is size adjusted return, the difference between raw security return and the return on the size decile portfolio. We consider NYSE, AMEX, and NASDAQ exchange deciles separately for retrieving the benchmark return depending on the market where a firm is traded. 3CAAR is the three-day cumulative abnormal returns. In case of negative market reaction to downgraded recommendations, we multiply by -1 to the 3CAAR to measure the magnitude of CAAR in response to the analysts' recommendations. All continuous variables are winzorized at the 1% and 99% of the variables distribution.

We compute the t-statistics using robust standard errors adjusted for clustering by company and year in all our regressions.*,**,*** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively.

	Model 1 3CAAR	Model 2 3CAAR	Model 3 3CAAR	Model 4 3CAAR
Intercept	0.0876***	0.0887***	0.0883***	0.0884***
	(35.91)	(35.54)	(35.08)	(35.10)
|ΔStrength| (H4)	-0.0037***			-0.0034***
	(-5.23)			(-4.65)
|ΔStrength|+|ΔConcern| (H4)		-0.0027***		
		(-4.92)		
|ΔConcern| (H4)			-0.0028**	-0.0019
			(-2.74)	(-1.79)
RND	0.0000*	0.0000*	0.0000	0.0000*
	(2.12)	(2.00)	(1.55)	(2.09)
SIZE	-0.0000***	-0.0000***	-0.0000***	-0.0000***
	(-6.94)	(-6.97)	(-6.90)	(-6.98)
B/M	-0.0047	-0.0047	-0.0048	-0.0047
	(-1.64)	(-1.64)	(-1.64)	(-1.64)
EXP	-0.0020***	-0.0020***	-0.0021***	-0.0020***
	(-8.82)	(-8.93)	(-9.08)	(-8.86)
COV	-0.0002	-0.0002	-0.0002	-0.0002
	(-1.48)	(-1.49)	(-1.73)	(-1.46)
N	41,342	41,342	41,342	41,342
Adj R-sq	0.0174	0.0175	0.0167	0.0176

1.8 Appendix for Chapter 1

1.8.1 Partial List of the Strengths and Concerns Items in MSCI ESG Ratings.

The Appendix shows a partial list of the strengths and concerns items in MSCI ESG ratings. MSCI ratings are categorized as the three areas: 1) Environment, 2) Social, and 3) Governance. Each area has strengths and concerns items. Given the following evaluation criteria from User Guide and ESG ratings definition (2013), concerns items are more likely to be disclosed on time mandatorily whenever it occurs. On the other hand, CSR strengths items are more voluntarily disclosed depending on management's decision. Hence, it is highly likely that market has known already about the concern items and might not aware of voluntary items. Currently, SEC does not specify rule for reporting CSR strengths and concerns.

VOLUNATRY : STRENGTH	Evaluation Criteria
Climate Change (environment ratings)	This indicator measures a firm's policies, programs, and initiatives regarding climate change. Factors affecting this evaluation include, but are not limited to, the following: • Companies that invest in renewable power generation and related services. • Companies that invest in efforts to reduce carbon exposure through comprehensive carbon policies and implementation mechanisms, including carbon reduction objectives, production process improvements, installation of emissions capture equipment, and/or switch to cleaner energy sources. • Companies that take proactive steps to manage and improve the energy efficiency of their operations. • Companies that measure and reduce the carbon emissions of their products throughout the value chain and implement programs with their suppliers to reduce carbon footprint.
Innovative Giving (social ratings)	This indicator evaluates company charitable giving programs. Companies whose programs support affordable housing, access to healthcare, K-12 public education, initiatives to relieve hunger, or in-kind giving and other programs targeted at disadvantaged communities, score higher.
Community Engagement (Community)	The company has a notable community engagement program concerning involvement of local communities in areas where the firm has major operations.
Cash Profit Sharing	This indicator captures companies that have a cash profit-

(employee relations)	sharing program through which it has recently made distributions to a significant proportion of its workforce.
Professional Development (employee relations)	This indicator captures companies that provide excellent employee training and development programs.
Social Opportunities	This indicator evaluates company efforts that benefit the disadvantaged. Factors reviewed include, but are not limited to, the following: • How companies are taking advantage of opportunities for longer term growth and protecting license to operate through efforts to improve access to healthcare in developing countries and for under-served populations in developed markets. • How information technology and telecommunication companies are taking advantage of opportunities for growth in historically underserved markets, including developing countries and underserved populations in developed countries • How companies are taking advantage of the growth opportunities in the market for healthier products.

MANDATORY: CONCERNS	
Toxic Spills & Releases (environment ratings)	This indicator measures the severity of controversies related to a firm's hazardous waste spills and releases. Factors affecting this evaluation include, but are not limited to, a history of involvement in land or air emissions-related legal cases, widespread or egregious impacts due to hazardous emissions, resistance to improved practices, and criticism by NGOs and/or other third-party observers.
Anticompetitive Practices (Product)	This indicator measures the severity of controversies related to a firm's anti-competitive business practices. Factors affecting this evaluation include, but are not limited to, a history of involvement in anti-trust legal cases, widespread or egregious instances of price-fixing, collusion, or bid-rigging, resistance to improved practices, and evidence-based criticism by NGOs and/or other third-party observers.
Customer Relations (Product)	This indicator measures the severity of controversies related to a firm's customer relations. Factors affecting this evaluation include, but are not limited to, a history of involvement in customer-related legal cases, predatory lending, widespread or egregious instances of discrimination, fraud or unfair treatment, resistance to improved practices, and criticism by NGOs and/or other third-party observers.
Regulatory Compliance (environment ratings)	This indicator measures a firm's record of compliance with environmental regulations. Factors affecting this evaluation include, but are not limited to, fines/sanctions for causing environmental damage, and/or violations of operating permits.
Employee Health & Safety (employee relations)	This indicator measures the severity of controversies related to the safety of a firm's employees. Factors affecting this evaluation include, but are not limited to, a history of involvement in workplace safety-related legal cases, widespread or egregious fines for unsafe workplace practices.
Governance Structures (Corporate governance)	This indicator measures the severity of controversies related to a firm's executive compensation and governance practices. Factors affecting this evaluation include, but are not limited to, a history of involvement in compensation-related legal

	cases, widespread or egregious instances of shareholder or board-level objections to pay practices and governance structures, resistance to improved practices, and criticism by NGOs and/or other third-party observers.
Controversial Investments (Corporate governance)	This indicator measures the severity of controversies related to the social and environmental impact of a firm's financing activities. Factors affecting this evaluation include, but are not limited to, a history of financing controversial projects, resistance to improved practices, and criticism by NGOs and/or other third-party observers.
Business Ethics (Corporate governance)	This indicator measures the severity of controversies related to a firm's business ethics practices. Factors affecting this evaluation include, but are not limited to, a history of involvement in widespread or egregious instances of bribery, tax evasion, insider trading, accounting irregularities, resistance to improved practices, and criticism by NGOs and/or other third-party observers.

Chapter 2 Does Bold Recommendation Signal Overconfidence or HigherAbility?

"*Don't try to stand out from the crowd; avoid crowds altogether.*"

Hugh MacLeod, cartoonist.

2.1. Introduction

The value of analyst recommendations has been contentious. On the one hand, there is ample evidence that the stock market is highly efficient, and that it is difficult to consistently outperform the market using publicly available information (e.g., Malkiel, 2007). Furthermore, financial analysts are often embroiled in conflicts of interests (e.g., brokerage analysts have incentives to generate trading volume, and prior to the Global Settlement of 2003, investment banking analysts have incentives to promote issues from current clients). Not surprisingly, their earnings forecasts and recommendations are often alleged to be biased.[1]

On the other hand, despite these conflicts, prior studies have shown that trading strategies based on analyst recommendations can be mildly profitable. For example, Barber, Lahavy, McNichols, and Trueman (2001) find that it is profitable to buy (sell short) stocks with the most (least) favorable recommendations. However, their abnormal return of four percent per year (which requires daily portfolio rebalancing) is completely subsumed by transaction costs.

[1] See Ramnath, Rock, and Shane (2008) for a comprehensive review of the analyst literature.

In this paper, we explore the possibility that the value of recommendations appears so low because high quality recommendations have been mixed up with low quality ones. We thus partition the recommendations into "bold" versus "herding". This is because prior research suggests that an analyst will be bold if she perceives her own ability to be higher. Otherwise, analysts tend to herd towards those with a reputation for high ability.[2]

We hypothesize that this self-assessment of higher relative ability, implicit in a bold recommendation, is more likely to be correct when there are few other analysts covering the firm. To the extent that it is more difficult to assess relative ability when the peer group is larger, our hypothesis is motivated by prior findings that overconfidence is more prevalent for more difficult tasks (Barber and Odean, 2001, p. 263).[3] We conjecture that it is more difficult to assess relative ability in larger peer group (i.e., with many analysts) because significantly more pair-wise comparison is necessary.

To test our hypothesis, we employ a simple 2x2 research design (our sample partitioned by bold/herding recommendations, and recommendations for firms with low/high analyst coverage), and examine the profitability of recommendations in each of these four subsets: namely, [bold, low], [bold, high], [herding, low], and [herding, high]. The profitability of recommendations is measured using the trading strategy in Jegadeesh,

[2] "Ability" includes the ability to gather private information. "Bold" recommendations are those that deviate from the consensus (median).

[3] As an example of overconfidence in a large group setting, Svenson (1981) finds that 93% of drivers rate themselves to be more skillful than the median driver. The experimenter had asked 41 participants at the University of Oregon "to compare your own [driving] skill to the skills of the other people in this experiment", and had cautioned them that "this is a difficult question because you do not know all the people gathered here today".

Kim, Krische, and Lee (2004) – namely, buy (sell) stocks in the following month after an upgrade (downgrade) of analyst recommendations.

Note that our hedged trading strategy has no look-ahead bias, because the upgrade or downgrade in recommendation is observed in month t, and the decision to buy or sell is made in month t+1. Also, as a contrast to prior literature on earnings forecasts (e.g., Lys and Sohn, 1990), we focus on the revision of stock recommendation because (a) earnings forecast is just one of the many inputs to the valuation model, which results in a stock recommendation, and (b) the *change* in stock recommendation is more informative than the *level* of recommendation (e.g., Francis and Soffer, 1997).

Consistent with our hypothesis, we find that this strategy is most profitable when based on bold recommendation for low coverage firms, yielding a hedged return of 30% per year. This means that an analyst's bold recommendation (or equivalently, self-assessment of higher relative ability) is likely to be correct when there are few other analysts covering the firm. On the other hand, the profitability of [herding, low] recommendations is significantly lower (hedged return of 7% per year, and statistically insignificant). Turning to firms with high analyst coverage, the profitability of bold recommendations is statistically insignificant, at 4% per year, and is not significantly different from the [herding, high] recommendations.[4]

Next, we explore the channel in which the market learns of the good and bad news following the revision of recommendations. We hypothesize that the [bold, low] recommendations are highly profitable due to the news released in subsequent earnings

[4] These are risk-adjusted returns, based on the standard four-factor model.

announcements. To investigate this possibility, we further partition our sample into firm-months with and without earnings announcements in month t+1. We find that the subsequent hedged return (in month t+1) of the [bold, low] recommendations is much higher during months with earnings announcements (32% per year, compared to 23% per year for the sample without earnings announcements in month t+1). This means that the high hedged return of [bold, low] recommendations is partly due to the news released around earnings announcements. Further investigation reveals that earnings surprise (EPS forecast error) is a source of such news.

Finally, we consider two alternative hypotheses for our findings. First, we examine the possibility of sample selection bias. That is, the [bold, low] recommendations could have been highly profitable if high ability analysts are more likely to issue bold recommendations, and to follow firms with low coverage. Such alternative hypothesis is plausible, since McNichols and O'Brien (1997) find that financial analysts are more likely to issue recommendations for firms in which they have favorable views (i.e., selection bias, which is different from biasing their recommendations). To rule out this possibility, we repeat our analysis with only analysts who issue both herding and bold recommendations, and who follow both firms with low and high coverage at the same time. Our findings from this restricted sample are similar to those of the full sample, implying that our results cannot be explained by selection bias.

The next alternative hypothesis relates to initial under-reaction. While the higher subsequent hedged return (in month t+1) from the [bold, low] recommendations is consistent with those recommendations being more profitable, it is however possible that the subsequent higher return is due to an initial under-reaction to bold recommendations.

For example, if the market assumes that boldness is the result of over-confidence, it is plausible that the stock price initially underreacts in month t, before the market corrects itself in month t+1.

To rule out this possibility, we examine the initial price reaction (three-day return in month t), and find no significant difference in the hedged return between the herding and bold recommendations. This finding applies to both firms with low and high analyst coverage, suggesting that investors do not, initially, discern between bold and herding recommendations.

In terms of related literature, Appendix B considers a list of related research, and explains how this study is different from each of them. For example, Jegadeesh and Kim (2010) examine the stock price reaction to recommendation revisions. Because their research focus is different from ours, they did not relate boldness in the presence of large peer group to the likelihood of being over-confident. Thus, they did not partition their data into firms with low and high analyst coverage, resulting in high quality [bold, low] recommendations being commingled with recommendations arising from overconfidence. We believe this explains why their equivalent result is much weaker (see their 2.2 on p. 913, for trading days between 21 to 42).

In terms of contribution, we are the first to show that the profitability of bold recommendation depends on analyst coverage. We show how a simple trading strategy can yield a high return of about 30% per year, without any look-ahead bias. Our result contributes to the ongoing debate on market efficiency, and the value of financial analysts.

Finally, we show that the profitability of recommendations in the [bold, low] subset is partly due to the information released around earnings announcements.

The remainder of our study is organized as follows. Section 2 explains the sample selection process and descriptive statistics. Section 3 investigates the profitability of bold/herding recommendations, separately for the firms with low/high analyst coverage. Section 4 examines whether our highly profitable trading strategy is due to the news released in subsequent earnings announcement. Section 5 performs robustness test, and Section 6 concludes.

2.2 Sample Selection and Descriptive Statistics

Table 2.1 describes the sample selection and data construction procedure. As our analysis is based on firm-month-analyst observations, the first step is to construct a list of analysts, their recommendations (e.g., to buy or sell), and their EPS forecasts (for the upcoming earnings announcement) for each firm-month. This step is necessary because while I/B/E/S issues monthly "summary" recommendation and EPS forecast for each firm, they do not specify which analysts are included in that monthly summary measure.

We construct our data using the procedure from the Wharton Research Data Services (Glushkov, 2009), summarized as follows: Each recommendation and EPS forecast of an analyst (from I/B/E/S "detail history" file) is deemed to be included in the monthly summary measure if (1) it is issued before the date in which the I/B/E/S summary statistics (also known as "consensus") is announced, (2) it is not discontinued by I/B/E/S, and (3) it is the latest recommendation or forecast by a particular analyst.

This data construction procedure is applied to both recommendations and EPS forecasts, and the two files are then merged using analyst ID, stock ticker symbol, and announcement dates of the I/B/E/S summary statistics (these dates are known as "statistical period", or STATPERS). Finally, we require each firm-month-analyst observation to have non-missing stock return in the following month and non-missing earnings announcement date.

The final sample consists of 4,106,463 firm-month-analyst observations from December 1993 to December 2013. Panel A of Table 2.1 lists the number of observations after each sample selection criteria.

Panel B of Table 2.1 tabulates the frequency and proportion of firm-months with low and high analyst coverage. We define a firm-month as “low coverage” if a firm is followed by less than three analysts in a month. Otherwise, we define it as "high coverage".

The firm-months in the low analyst coverage group account for about 40% of the sample. Given that our sample has about 800,000 firm-month observations and about four million firm-month-analyst observations, this means that each firm-month is (on average) followed by about five analysts.

Panels C and D of Table 2.1 describes the frequency distribution of the firm-month-analysts observations under low and high coverage respectively, separately for bold and herding recommendations, as well as recommendations that were revised upwards, downwards, and not revised. We define a recommendation as “bold” if it is different from the consensus, which is the median of all outstanding recommendations for

a stock. Otherwise, we define it as “herding”. If there is only one analyst following that firm-month, we define it as “bold”.[5] Panel C (Panel D) of Table 2.1 finds that for firm-months with low (high) analyst coverage, the number of analysts’ bold recommendations is more (less) than herding recommendations.

To grasp the nature of recommendations in our sample, Panel A of Table 2.2 tabulates the transition matrix for the *level* of analyst recommendations over time, and Panel B tabulates the transition matrix for the *change* of analyst recommendations.

Panel A of Table 2.2 finds that recommendations are generally sticky. The most commonly issued recommendation (i.e., the mode of recommendation) is a "Hold". Consistent with an optimistic bias, the median of recommendation is "Buy". The ratio of "Buy" to "Sell" recommendations is about 10 to 1, and the ratio of "Strong Buy" to "Strong Sell" is about 20 to 1. Panel B of Table 2.2 finds that upgraded firms are about five times more likely to be downgraded than upgraded in the subsequent month. Similarly, downgraded firm are about four times more likely to be upgraded than downgraded in the subsequent month.

2.3 Profitability of Recommendations

In this Section, we examine the profitability of recommendations, separately for bold and herding recommendations, and for firms with low and high analyst coverage.

[5] We define that one analyst as "bold" because no other analyst is willing to cover that firm. *Doctors Without Borders* expressed this sentiment best when they proclaimed, "*We find out where conditions are the worst – the places where others are not going – and that's where we want to be*".

2.3.1 Buy-and-Hold Return

Table 2.3 investigates our hypothesis that bold analysts have higher ability than herding analysts, but only when they are following firms with low analyst coverage. We tabulate the mean one-month buy-and-hold return, separately (a) for herding and bold recommendations, (b) for recommendations that are upgraded, downgraded, and not revised, and (c) for firms with low and high analyst coverage. To avoid look-ahead bias, the holding period for our buy-and-hold portfolio starts at the beginning of the following month after the revision of analyst recommendations. See Appendix A for an illustration of recommendation classification and trading strategy.

For low coverage firms (Panel A), we find that the hedged return (i.e., the one-month buy-and-hold return of upgraded stock minus that of downgraded stock) is highly profitable at 2.25% per month (31% per year) when based on bold recommendations. The hedged return of bold recommendations is significantly higher than that of herding recommendations (1.76% per month). Notably, most of this hedged return comes from the long side rather than the short side (1.02% per month vs 0.74% per month), which means that our trading strategy is profitable without taking any short positions.

However, for high coverage firms (Panel B), the hedged returns of both bold and herding recommendations are low (even thought they are statistically significant). More importantly, the difference in hedged return between bold and herding recommendations is insignificant.[6]

[6] As a further breakdown on analyst coverage, the hedged returns for bold recommendations is 2.75% (for the case of 1 analyst), 1.87% (2 analysts), 0.80% (3 analysts), and 0.28% (4 and more analysts).

Put together, the findings in Table 2.3 support our hypothesis that bold analysts have higher ability than herding analysts, but only when they are following firms with low coverage.

Next, Figure 1 examines how the hedged return documented in Table 2.3 varies over time. Panels A and B of Figure 1 plot the cumulative *hedged* returns (i.e., the return of upgraded stock minus that of downgraded stock) over time, separately (a) for herding and bold recommendations, and (b) for firms with low and high analyst coverage.

Panels C and D plot the cumulative buy-and-hold returns over time, separately (a) for herding and bold recommendations, (b) for recommendations that are upgraded, downgraded, and not revised, and (c) for firms with low and high analyst coverage.

Panels A and B of Figure 1 are consistent with our results in Table 2.3. For firms with low coverage, Panel A finds that the cumulative hedged return of bold recommendations is generally increasing over time. This means that the hedged return of bold recommendations, as documented in Table 2.3 (Panel A), is not earned over any particular short time period. Turning to firms with high coverage, Panel B finds no significant difference in hedged return between bold and herding recommendations. Together, these results confirm our hypothesis that bold analysts have higher ability than herding analysts, but only when they are following firms with low analyst coverage.

Panels C and D of Figure 1 provide more detailed analysis on how the hedged returns in Panels A and B are earned. Specifically, we decompose the hedged returns into returns from upgraded and downgraded recommendations. For completeness, we also illustrate the return from recommendations that are not revised.

The analysis in Panels C and D allows us to examine the possibility of whether the high hedged return of [bold, low] recommendations is due to survivorship bias. That is, the return could have been high if the sample selection criteria of I/B/E/S inadvertently exclude firms with poor future performance.

Panel C of Figure 1 suggests that a survivorship bias is unlikely. Specifically, we observe a dramatic drop in the cumulative raw return between 2007 and 2009, which corresponds to the credit crisis. If there had been a survivorship bias in I/B/E/S, we should not observe such a dramatic drop in return. Interestingly, we do not observe a dramatic drop in the hedged return (in Panel A). This means that the returns for both recommendations upgraded and downgraded suffer from huge losses in the same time period, such that the effects from the crisis "cancel out" when computing the hedged return. Finally, we observe that the cumulative hedged return of [bold, low] recommendations at the end of sample period (Panel A) is larger than the cumulative upgraded return (Panel C). This means that both long and short positions contribute to the high hedged return in Table 2.3.

2.3.2 Risk-adjusted Return

Table 2.4 investigates whether risk factors drive our finding in Table 2.3 – that bold analysts have higher ability than herding analysts, but only when they are following firms with low analyst coverage. We tabulate the mean one-month risk-adjusted return, separately (a) for herding and bold recommendations, (b) for recommendations that are

upgraded, downgraded, and not revised, and (c) for firms with low and high analyst coverage.

Risk adjustment is based on the standard four-factor model (monthly time series regression):

$$R_{pt} - R_{ft} = a_p + b_{pm}\,(R_{mt} - R_{ft}) + s_p SMB_t + h_p HML_t + m_p UMD_t + \varepsilon_{pt},$$

where excess portfolio returns ($R_{pt} - R_{ft}$), excess market returns ($R_{mt} - R_{ft}$), size factor (SMB), and book-to market factor (HML) are defined in Fama and French (1993), and momentum factor (UMD) is defined in Carhart (1997). The regression intercept, reported in the Table 2.4, represents the mean risk-adjusted returns after controlling for the four factors.

For low coverage firms (Panel A of Table 2.4), we find that the hedged return (i.e., the one-month risk-adjusted return of upgraded stock minus that of downgraded stock) is highly profitable at 2.23% per month (30% per year) when based on bold recommendations. The hedged return of bold recommendations is significantly higher than that of herding recommendations.

However, for high coverage firms (Panel B), the hedged returns of both bold and herding recommendations are statistically insignificant. The difference in hedged return between bold and herding recommendations is also insignificant.

Taken together, Panels A and B of Table 2.4 show that our main finding in Table 2.3 remains after controlling for risk, as measured by the standard four-factors.

2.4. Earnings Announcement

This section explores the channel in which the market learns of the news associated with the revision in analyst recommendations. Specifically, we examine the returns during earnings announcements and the earnings news (surprise).

2.4.1 Hedged Return around Earnings Announcement

Table 2.5 investigates whether the hedged return documented in Table 2.3 is related to the news released during earnings announcements. To the extent that analysts seek to predict that news, their ability should be partly revealed during earnings announcements. Given our hypothesis that bold analysts should have higher ability than the herding analysts for low coverage firms, we predict that for these firms, the difference in hedged return between bold and herding recommendations should be higher during earnings announcements, compared to periods without earnings announcements.

Panels A and B (Panels C and D) tabulate the hedged return of recommendations for firms whose actual earnings announcement dates fall (do NOT fall) in the month when the hedging strategy is applied.

Panel A finds that when a firm's actual earnings announcement date falls in the month when the hedging strategy is applied, the hedged return based on [bold, low] recommendations is significantly profitable at 2.37% per month. However, the hedged return based on [herding, low] recommendation is insignificant. Consistent with higher ability for analysts who make [bold, low] recommendations, we find that the profitability for [bold, low] recommendations is much higher than that for [herding, low] recommendations, at 2.95% per month. This difference in hedged return is much higher

than that documented in Panel A of Table 2.3 (which is 1.76% per month), suggesting that our results are partly driven by earnings announcement.

The findings in Panel A of Table 2.5 suggest that the higher ability of analysts who make [bold, low] recommendations is revealed during earnings announcements. In other words, these analysts have higher ability to predict more accurately the news released during earnings announcement.

Turning to firms with high analyst coverage (Panel B), the hedged return of bold recommendations is low and not significantly different from zero. Consistent with overconfidence for analysts who make [bold, high] recommendations, we find that the hedged return of [bold, high] recommendations is not significantly higher than that for [herding, high] recommendations.

To further ascertain that the higher ability of analysts who make [bold, low] recommendations is revealed during earnings announcements, Panels C and D of Table 2.5 tabulate the hedged return of recommendations when earnings announcement dates do NOT fall in the month when the hedging strategy is applied.

Panels C and D find that the hedged return of bold and herding recommendations is not significantly different, under both low and high coverage. Specifically, the difference in hedged return between bold and herding recommendations is insignificant in Panel C of Table 2.5 (0.50% per month), which is much lower than the corresponding difference in Panel A of Table 2.5 (2.95% per month). This provides further evidence that the higher ability of analysts who make [bold, low] recommendations is revealed during earnings announcements.

2.4.2 Hedged Earnings Surprise around Earnings Announcement

Table 2.6 investigates whether the hedged return of recommendations is related to earnings surprise. While Table 2.4 rules out risk-based explanations for the hedged return, and Table 2.5 suggests that the hedged return is related to news released during earnings announcements, it is still unclear whether the high hedged return of [bold, low] recommendations is related to earnings surprise. For example, the hedged return could arise from omitted risk factors, such as a higher perceived risk during earnings announcements (due to higher return volatility).

Panels A and B of Table 2.6 tabulates the mean earnings surprise for firms with low and high analyst coverage respectively, whose earnings announcement dates fall in the month when the hedging strategy is applied. Earnings surprise is defined as actual EPS minus individual analyst's EPS forecast, deflated by the price one day before the announcement of I/B/E/S consensus.

Consistent with the high hedged return of [bold, low] recommendations, Panel A finds a large positive hedged earnings surprise (i.e., earnings surprise of upgraded stock minus that of downgraded stock) for [bold, low] recommendations. On the other hand, the hedged surprise for [herding, low] recommendations is small and statistically insignificant. Turning to Panel B, the hedged surprise for [bold, high] recommendations is small, and it is not statistically different from that of herding.

To recap, this Section provides evidence that the hedged return of recommendations is related to earnings news. In particular, the high hedged return of

[bold, low] recommendations arises from the news released around earnings announcements.

2.5. Robustness Analyses

In this section, we rule out two alternative explanations for our findings. Subsection 5.1 considers whether our result is affected by sample selection bias, and subsection 5.2 considers whether our result arises from an initial under-reaction of the market.

2.5.1 Analysts' Selection Bias

Table 2.7 examines the alternative hypothesis that [bold, low] recommendations are highly profitable because high ability analysts are being more likely to issue bold recommendations, and to follow firms with low coverage.

To investigate whether we can rule out the alternative hypothesis, one approach is to tabulate the likelihood of [bold, low] recommendations from high ability analysts, and the likelihood of [bold, high] recommendations from low ability analysts. However, such approach works only if analyst ability can be easily and accurately observed. To circumvent the problem of measuring the analyst ability, and to mitigate the sample selection bias, we select only analysts who issue both herding and bold recommendations, and who follow both firms with low and high coverage in the same month. We then repeat the analysis in Table 2.3 using this restricted sample. Our restricted sample consists of 561,390 firm-month-analyst observations, comprising only analysts who make

all types of recommendations ([bold, low], [bold, high], [herding, low], and [herding, high]) in the same month.

Panel A of Table 2.7 finds that the hedged return of [bold, low] recommendations is similar to that in Panel A of Table 2.3, and remains both economically and statistically significant, in spite of the reduced sample size. The hedged return of [bold, low] recommendations is also significantly larger in magnitude than that of [herding, low] recommendations. Panel B of Table 2.7 finds that the hedged return of [bold, high] recommendations is economically insignificant, and is not significantly different from that of [herding, high] recommendations.

To paraphrase our results, let us consider a scenario where we observe an analyst simultaneously making both [bold, low] and [bold, high] recommendations. Our results imply that her [bold, low] recommendations will be (on average) significantly profitable, but not her [bold, high] recommendations. This is consistent with her self-assessment of higher ability (implicit in a bold recommendation) being more likely to be correct when there are few other analysts covering the firm.

2.5.2 Initial Stock Price Reaction

Table 2.8 investigates whether the hedged return in Table 2.3 can be explained by initial under-reaction in month t. While the hedged return of [bold, low] recommendations is consistent with those recommendations being more profitable, it might be due to initial under-reaction. For example, if the market assumes that boldness is the result of over-confidence, it is plausible that the stock price initially underreacts in

month t, before the market corrects itself in month t+1 (e.g., when the market learns more about the firm's fundamentals through managerial guidance and earnings news). Such price correction may result in the hedged return observed in month t+1.

To rule out this possibility, we tabulate the mean initial market reaction (RET3DAY) to the announcement of I/B/E/S consensus recommendations, separately (a) for herding and bold recommendations, (b) for recommendations that are upgraded, downgraded, and not revised, and (c) for firms with low and high analyst coverage. RET3DAY is the three-day cumulative abnormal stock return (computed as the three-day stock return of the firm around the announcement date, minus that of the market).

Panels A and B of Table 2.8 find no significant difference in the hedged return between the herding and bold recommendations, for both firms with low and high analyst coverage. This suggests that investors do not, initially, discern between bold and herding recommendations. In other words, there is no evidence that the hedged return of [bold, low] recommendations in Table 2.3 is due to investor’s initial under-reaction.

2.6 Conclusion

If all analysts have access to the same public information, why would some analysts deviate from the "herd" and issue "bold" recommendations? And what is the information content conveyed by such actions? In particular, is boldness in recommendation a signal of overconfidence or higher ability?

In this paper, we hypothesize that (a) an analyst will be bold if she perceives her own ability to be higher, and (b) this self-assessment of higher relative ability, implicit in

a bold recommendation, is less (more) likely to be correct when there are many (few) other analysts covering the firm. To the extent that it is more difficult to assess relative ability when the peer group is larger, our hypothesis is motivated by prior research that overconfidence is more prevalent for more difficult tasks.

We employ a simple research design: Partition the sample into bold/herding recommendations, and recommendations for firms with low/high coverage. Then, examine the profitability of recommendations in each of the four subsets, where the profitability of recommendations is measured as the return from buying (selling) stocks in the following month after an upgrade (downgrade) of analyst recommendations.

We find that it is highly profitable to trade based on bold recommendations for low coverage firms. The risk-adjusted profitability of [bold, low] recommendations is 30% per year, based on the standard four-factor model. On the other hand, the profitability for [herding, low], [bold, high], and [herding, high] recommendations are not statistically different from zero. The profit from this trading strategy is related to the news released during earnings announcements. We show that the profitability of [bold, low] recommendations is much higher during earnings announcements, compared to periods without earnings announcements. We find that the high return profitability arises from earnings surprise.

Finally, we examine and rule out the possibility that the high hedged return of [bold, low] recommendations is due to high ability analysts being more likely to issue bold recommendations, and to follow firms with low coverage.

In conclusion, this study seeks to understand financial analysts who make bold recommendations. To do so, we draw on prior behavioral insights on overconfidence and task difficulty. Our results indicate that bold recommendation is more likely a signal of overconfidence when there are many other analysts covering the same firm, but it is more likely to signal higher ability when there are few other analysts. We find that the higher ability of analyst is partly revealed in subsequent earnings announcements.

2.7 Tables for Chapter 2

Table 2.1 Sample Selection and Data Construction Procedure

This Table describes the sample selection and data construction procedure.

We construct our data using the procedure from the Wharton Research Data Services (Glushkov, 2009), summarized as follows: Each recommendation and EPS forecast of an analyst (from I/B/E/S "detail history" file) is deemed to be included in the monthly summary measure if (1) it is issued before the date in which the I/B/E/S summary statistics (also known as "consensus") is announced, (2) it is not discontinued by I/B/E/S, and (3) it is the latest recommendation or forecast by a particular analyst. This data construction procedure is applied to both recommendations and EPS forecasts, and the two files are then merged using analyst ID, stock ticker symbol, and announcement dates of the I/B/E/S summary statistics (these dates are known as "statistical period", or STATPERS). Finally, we require each firm-month-analyst observation to have non-missing stock return in the following month and non-missing earnings announcement date.

The final sample consists of 4,106,463 firm-month-analyst observations from December 1993 to December 2013. Panel A lists the number of observations after each sample selection criteria.

Panel B tabulates the frequency and proportion of firm-months with low and high analyst coverage. We define a firm-month as “low coverage” if a firm is followed by less than three analysts in a month. Otherwise, we define it as "high coverage".

Panel C (Panel D) describes the frequency distribution of the firm-month-analysts observations under low (high) coverage, separately for bold and herding recommendations, as well as recommendations that were revised upwards, downwards, and not revised. We define a recommendation as “bold” if it is different from the consensus, which is the median of all outstanding recommendations for a stock. Otherwise, we define it as “herding”. If there is only one analyst following that firm-month, we define it as “bold”. We classify an analyst’s upward revision (e.g., Buy to Strong Buy, or Sell to Hold) in recommendation as “Upgrade”, and a downward revision in recommendation as “Downgrade” (e.g., Buy to Hold, or Sell to Strong Sell). If an analyst reiterates her recommendation, the recommendation is classified as “No Change”.

Panel A: Sample Selection

Steps	Description	Firm-month-analyst obs.
Step 1	Reconstructed Recommendation File (based on WRDS dataset ibes.recddet)	7,182,159
	Reconstructed EPS Forecast File for one-quarter ahead earnings forecast (based on WRDS dataset ibes.detu_epsus)	5,614,745
Step 2	Total number of firm-month-analyst after merging analyst recommendations and quarterly earnings forecasts.	4,528,051
Step 3	Total number of firm-month-analyst after restricting the observations with stock returns data from CRSP.	4,173,438
Step 4 Final Sample	Total number of firm-month-analyst after restricting the observations with quarterly earnings announcement date from Compustat.	4,106,463

Panel B: Number of firm-months with low and high analyst coverage

Coverage	Number of firm-months	Percentage (%)
Low (< 3 analysts)	299,999	36.75
High (≥ 3 analysts)	516,323	63.25
Total	816,315	100.00

Panel C: Frequency of analyst recommendations for firm-months with low analyst coverage (analysts < 3)

	Herding	Bold	Total
Upgrade	1,887	7,001	8,888
No Change	96,320	300,367	396,687
Downgrade	2,841	9,813	12,654
Total	101,048	317,181	418,229

Panel D: Frequency of analyst recommendations for firm-months with high analyst coverage (analysts ≥ 3)

	Herding	Bold	Total
Upgrade	36,784	52,212	88,996
No Change	1,731,265	1,757,825	3,489,090
Downgrade	53,253	56,895	110,148
Total	1,821,302	1,866,932	3,688,234

Table 2.2 Transition Matrices of Recommendations

Panel A tabulates the transition matrix for the *level* of analyst recommendations over time, and Panel B tabulates the transition matrix for the *change* of analyst recommendations.

Our sample consists of 4,106,463 firm-month-analyst recommendations from December 1993 to December 2013. See Table 2.1 for details on sample selection and variable definitions.

Panel A: Transition matrix of analyst recommendation (REC) from month t to month t+1

REC_t	REC_{t+1}					
(Freq)	Strong Buy	Buy	Hold	Sell	Strong Sell	Total
(Row Pct)						
Strong Buy	1,031,269	21,181	35,243	780	676	1,089,149
	94.69	1.94	3.24	0.07	0.06	100.00
Buy	19,662	1,145,339	47,196	2,008	417	1,214,622
	1.62	94.3	3.89	0.17	0.03	100.00
Hold	26,292	35,897	1,535,582	10,334	4,595	1,612,700
	1.63	2.23	95.22	0.64	0.28	100.00
Sell	480	1,439	8,688	129,289	372	140,268
	0.34	1.03	6.19	92.17	0.27	100.00
Strong Sell	450	290	4,373	314	44,297	49,724
	0.9	0.58	8.79	0.63	89.09	100.00
Total	1,078,153	1,204,146	1,631,082	142,725	50,357	4,106,463
	26.26	29.32	39.72	3.48	1.23	100.00

Panel B: Transition matrix of analyst recommendation changes (ΔREC) from month t to month t+1

ΔREC_t (Freq) (Row Pct)	ΔREC_{t+1}				
	Upgrade	No Change	Downgrade	Missing	Total
Upgrade	950	89,480	5,114	2,341	97,885
	0.97	91.41	5.22	2.39	100.00
No Change	85,799	3,531,146	112,064	156,767	3,885,776
	2.21	90.87	2.88	4.03	100.00
Downgrade	7,053	109,586	1,631	4,532	122,802
	5.74	89.24	1.33	3.69	100.00
Total	93,802	3,730,212	118,809	163,640	4,106,463
	2.28	90.84	2.89	3.98	100.00

Table 2.3 Buy-and-Hold Return

This Table investigates our hypothesis that bold analysts have higher ability than herding analysts, but only when they are following firms with low analyst coverage. We tabulate the mean one-month buy-and-hold return, separately (a) for herding and bold recommendations, (b) for recommendations that are upgraded, downgraded, and not revised, and (c) for firms with low and high analyst coverage. To avoid look-ahead bias, the holding period for our buy-and-hold portfolio starts at the beginning of the following month after the revision of analyst recommendations. See Appendix A for an illustration of recommendation classification and trading strategy.

Our sample of recommendations consists of 4,106,463 firm-month-analyst observations from December 1993 to December 2013. The mean return and t-statistics reported in this Table are based on the Fama-MacBeth (1973) procedure: Compute the mean return for the recommendations each month, and report the time-series mean over the sample period (241 months). Fama-MacBeth t-statistics are reported in bracket. *, **, and *** denote significance at the 10, 5, and 1 percent significance levels, respectively. See Table 2.1 for details on sample selection and variable definitions.

Panel A: Mean one-month buy-and-hold return for firm-months with low coverage (analysts < 3)

	Herding	Bold	Bold – Herding
Upgrade	1.10*	2.12***	1.02**
	(1.77)	(4.48)	(2.02)
No Change	1.09**	1.14***	0.05
	(2.49)	(2.66)	(0.50)
Downgrade	0.61	-0.13	-0.74*
	(0.98)	(-0.29)	(-1.79)
Hedged Return	0.49	2.25***	1.76***
= Upgrade – Downgrade	(0.89)	(6.69)	(2.75)

Panel B: Mean one-month buy-and-hold return for firm-months with high coverage (analysts ≥ 3)

	Herding	Bold	Bold – Herding
Upgrade	1.22***	1.25***	0.04
	(3.08)	(3.18)	(0.35)
No Change	1.05***	1.02***	-0.03
	(2.64)	(2.65)	(-0.77)
Downgrade	0.71	0.92**	0.22*
	(1.59)	(2.12)	(1.92)
Hedged Return	0.51***	0.33***	-0.18
= Upgrade – Downgrade	(3.03)	(2.61)	(-1.06)

Table 2.4 Risk-adjusted Return

This Table investigates whether risk factors drive our finding in Table 2.3 – that bold analysts have higher ability than herding analysts, but only when they are following firms with low analyst coverage. We tabulate the mean one-month *risk-adjusted* return, separately (a) for herding and bold recommendations, (b) for recommendations that are upgraded, downgraded, and not revised, and (c) for firms with low and high analyst coverage.

Risk adjustment is based on the standard four-factor model (monthly time series regression):

$$R_{pt} - R_{ft} = a_p + b_{pm}\,(R_{mt} - R_{ft}) + s_p SMB_t + h_p HML_t + m_p UMD_t + \varepsilon_{pt},$$

where excess portfolio returns ($R_{pt} - R_{ft}$), excess market returns ($R_{mt} - R_{ft}$), size factor (SMB), and book-to market factor (HML) are defined in Fama and French (1993), and momentum factor (UMD) is defined in Carhart (1997). The regression intercept, reported in the Panels below, represents the mean risk-adjusted returns after controlling for the four factors (from WRDS dataset ff.factors_monthly).

Our sample of recommendations consists of 4,106,463 firm-month-analyst observations from December 1993 to December 2013. T-statistics are reported in bracket. *, **, and *** denote significance at the 10, 5, and 1 percent significance levels, respectively. See Table 2.1 for details on sample selection and variable definitions.

Panel A: Mean alphas ("risk-adjusted returns") for firm-months with low coverage (analysts < 3), based on the four-factor model.

	Herding	Bold	Bold – Herding
Upgrade	0.92	1.77***	0.85
	(1.46)	(3.68)	(1.07)
No Change	0.72	0.73*	0.01
	(1.63)	(1.71)	(0.02)
Downgrade	0.33	-0.46	-0.80
	(0.52)	(-1.01)	(-1.01)
Hedged Return	0.59	2.23***	1.64**
= Upgrade – Downgrade	(0.66)	(3.36)	(2.47)

Panel B: Mean alphas ("risk-adjusted returns") for firm-months with high coverage (analysts ≥ 3), based on the four-factor model.

	Herding	Bold	Bold – Herding
Upgrade	0.97**	0.97**	0.00
	(2.40)	(2.40)	(0.01)
No Change	0.76*	0.74*	-0.02
	(1.87)	(1.88)	(-0.03)
Downgrade	0.37	0.62	0.25
	(0.82)	(1.40)	(0.39)
Hedged Return	0.59	0.35	-0.25
= Upgrade – Downgrade	(0.98)	(0.57)	(-1.14)

Table 2.5 Effect of Earnings Announcement

This Table investigates whether the hedged return documented in Table 2.3 is related to the news released during earnings announcements.

Panels A and B (Panels C and D) tabulate the hedged return of recommendations for firms whose actual earnings announcement dates fall (do NOT fall) in the month when the hedging strategy is applied.

Our full sample of recommendations consists of 4,106,463 firm-month-analyst observations from December 1993 to December 2013. The mean return and t-statistics reported in this Table are based on the Fama-MacBeth (1973) procedure: Compute the mean return for the recommendations each month, and report the time-series mean over the sample period (241 months). Fama-MacBeth t-statistics are reported in bracket. *, **, and *** denote significance at the 10, 5, and 1 percent significance levels, respectively. See Table 2.1 for details on sample selection and variable definitions.

Panel A: Mean buy-and-hold return for firm-months with low coverage (analysts < 3) and actual earnings announcement dates fall in the month when hedging strategy is applied. (134,075 firm-month-analyst observations)

	Herding	Bold	Bold – Herding
Upgrade	0.23	3.42***	3.19***
	(0.19)	(3.74)	(2.70)
No Change	1.15*	1.37**	0.22
	(1.88)	(2.34)	(1.26)
Downgrade	0.80	1.04	0.24
	(0.65)	(1.19)	(0.21)
Hedged Return	-0.57	2.37***	2.95*
= Upgrade – Downgrade	(-0.42)	(2.81)	(1.77)

Panel B: Mean one-month buy-and-hold return for firm-months with high coverage (analysts ≥ 3) and actual earnings announcement dates fall in the month when hedging strategy is applied. (1,241,753 firm-month-analyst observations)

	Herding	Bold	Bold – Herding
Upgrade	1.83***	1.77***	-0.06
	(3.87)	(3.95)	(-0.17)
No Change	1.46***	1.49***	0.03
	(3.56)	(3.74)	(0.45)
Downgrade	0.94*	1.98***	1.04**
	(1.91)	(3.70)	(2.55)
Hedged Return	0.88**	-0.21	-1.10*
= Upgrade – Downgrade	(2.21)	(-0.59)	(-1.91)

Panel C: Mean one-month buy-and-hold return for firm-months with low coverage (analysts < 3) and actual earnings announcement dates do NOT fall in the month when hedging strategy is applied. (284,154 firm-month-analyst observations)

	Herding	Bold	Bold – Herding
Upgrade	1.77**	1.65***	-0.12
	(2.50)	(3.56)	(-0.19)
No Change	1.11**	1.12***	0.01
	(2.49)	(2.60)	(0.08)
Downgrade	0.56	-0.06	-0.62
	(0.86)	(-0.13)	(-1.27)
Hedged Return	1.21*	1.71***	0.50
= Upgrade – Downgrade	(1.74)	(4.27)	(0.67)

Panel D: Mean one-month buy-and-hold return for firm-months with high coverage (analysts ≥ 3) and actual earnings announcement dates do NOT fall in the month when hedging strategy is applied. (2,446,481 firm-month-analyst observations)

	Herding	Bold	Bold – Herding
Upgrade	0.91**	0.86**	-0.05
	(2.18)	(2.12)	(-0.38)
No Change	0.76*	0.77*	0.01
	(1.86)	(1.94)	(0.21)
Downgrade	0.42	0.58	0.16
	(0.88)	(1.29)	(1.19)
Hedged Return	0.49**	0.28*	-0.21
= Upgrade – Downgrade	(2.59)	(1.94)	(-1.03)

Table 2.6 Earnings Surprise

This Table investigates whether the hedged return of recommendations is related to earnings surprise.

Panels A and B of this Table tabulates the mean earnings surprise for firms with low and high analyst coverage respectively, whose earnings announcement dates fall in the month when the hedging strategy is applied. Earnings surprise is defined as actual EPS minus individual analyst's EPS forecast, deflated by the price one day before the announcement of I/B/E/S consensus.

Our full sample of recommendations consists of 4,106,463 firm-month-analyst observations from December 1993 to December 2013. The mean earnings surprise and t-statistics reported in this Table are based on the Fama-MacBeth (1973) procedure: Compute the mean earnings surprise for the recommendations each month, and report the time-series mean over the sample period (241 months). Fama-MacBeth t-statistics are reported in bracket. We winsorize the earnings surprise at the 1 percent and 99 percent levels to avoid the impact of extreme observations. *, **, and *** denote significance at the 10, 5, and 1 percent significance levels, respectively. See Table 2.1 for details on sample selection and variable definitions.

Panel A: Mean forecast error for firm-months with low coverage (< 3 analysts) when a firm's earnings announcement date falls in the month when hedging strategy is applied.

	Herding	Bold	Bold – Herding
Upgrade	-0.57***	-0.09*	0.48**
	(-2.74)	(-1.80)	(2.30)
No Change	-0.48***	-0.57***	-0.09**
	(-5.12)	(-5.52)	(-2.39)
Downgrade	-0.81***	-0.75***	0.06
	(-3.88)	(-4.75)	(0.33)
Hedged Surprise	0.24	0.66***	0.42
= Upgrade – Downgrade	(0.83)	(3.94)	(1.40)

Panel B: Mean forecast error for firm-months with high coverage (≥ 3 analysts) when a firm's earnings announcement date falls in the month when hedging strategy is applied

	Herding	Bold	Bold – Herding
Upgrade	-0.15**	-0.07***	0.08
	(-2.38)	(-3.02)	(1.23)
No Change	-0.18***	-0.11***	0.07***
	(-4.58)	(-5.03)	(3.70)
Downgrade	-0.28***	-0.21***	0.07
	(-5.04)	(-4.19)	(0.95)
Hedged Surprise	0.13**	0.14**	0.01
= Upgrade – Downgrade	(2.19)	(2.50)	(0.13)

Table 2.7 Overconfidence or Selection Bias

This Table examines the alternative hypothesis that the hedged return of [bold, low] recommendations documented in Table 2.3 is due to high ability analysts being more likely to issue bold recommendations, and to follow firms with low coverage (i.e., sample selection bias).

To investigate whether we can rule out the alternative hypothesis, one approach is to tabulate the likelihood of [bold, low] recommendations from high ability analysts, and the likelihood of [bold, high] recommendations from low ability analysts. However, such approach works only if analyst ability can be easily and accurately observed. To circumvent the problem of measuring the analyst ability, and to mitigate the sample selection bias, we select only analysts who issue both herding and bold recommendations, and who follow both firms with low and high coverage in the same month. We then repeat the analysis in Table 2.3 using this restricted sample.

Our restricted sample consists of 561,390 firm-month-analyst observations, comprising only analysts who make all types of recommendations ([bold, low], [bold, high], [herding, low], and [herding, high]) in the same month. The mean return and t-statistics reported in this Table are based on the Fama-MacBeth (1973) procedure: Compute the mean return for the recommendations each month, and report the time-series mean over the 241 months. Fama-MacBeth t-statistics are reported in bracket. *, **, and *** denote significance at the 10, 5, and 1 percent significance levels, respectively. See Table 2.1 for details on sample selection and variable definitions.

Panel A: Mean buy-and-hold return for firm-months with low coverage (< 3 analysts) based on analysts who make both bold and herding recommendations under both low and high coverage for a month.

	Herding	Bold	Bold – Herding
Upgrade	0.56	2.61***	2.06***
	(0.73)	(3.96)	(2.69)
No Change	1.44***	1.42***	-0.01
	(3.39)	(3.53)	(-0.12)
Downgrade	1.14*	0.54	-0.60
	(1.67)	(1.03)	(-1.01)
Hedged Return	-0.58	2.07***	2.65***
= Upgrade – Downgrade	(-0.83)	(3.47)	(2.99)

Panel B: Mean buy-and-hold return for firm-months with high coverage (analysts ≥ 3) based on analysts who make both bold and herding recommendations under both low and high coverage for a month.

	Herding	Bold	Bold – Herding
Upgrade	1.16**	1.46***	0.29
	(2.57)	(3.16)	(0.79)
No Change	1.01***	0.96***	-0.05
	(2.67)	(2.60)	(-0.84)
Downgrade	0.83*	0.82*	-0.02
	(1.74)	(1.72)	(-0.04)
Hedged Return	0.33	0.64*	0.31
= Upgrade – Downgrade	(1.03)	(1.93)	(0.62)

Table 2.8 Initial Stock Price Reaction

This Table investigates whether the hedged return in Table 2.3 can be explained by initial under-reaction in month t.

We tabulate the mean initial market reaction (RET3DAY) to the announcement of I/B/E/S consensus recommendations, separately (a) for herding and bold recommendations, (b) for recommendations that are upgraded, downgraded, and not revised, and (c) for firms with low and high analyst coverage. RET3DAY is the three-day cumulative abnormal stock return (computed as the three-day stock return of the firm around the announcement date, minus that of the market).

Our sample of recommendations consists of 4,106,463 firm-month-analyst observations from December 1993 to December 2013. The mean return and t-statistics reported in this Table are based on the Fama-MacBeth (1973) procedure: Compute the mean initial market reaction for the recommendations each month, and report the time-series mean over the 241 months. Fama-MacBeth t-statistics are reported in bracket. *, **, and *** denote significance at the 10, 5, and 1 percent significance levels, respectively. See Table 2.1 for details on sample selection and variable definitions.

Panel A: Mean 3-day cumulative abnormal stock returns for firm-months with low coverage (< 3 analysts)

	Herding	Bold	Bold – Herding
Upgrade	0.60***	0.66***	0.06
	(3.22)	(5.67)	(0.32)
No Change	0.16**	0.17**	0.02
	(2.07)	(2.52)	(0.44)
Downgrade	-0.58***	-0.45***	0.13
	(-2.94)	(-3.70)	(0.56)
Hedged Return	1.18***	1.11***	-0.07
= Upgrade – Downgrade	(4.79)	(7.88)	(-0.23)

Panel B: Mean 3-day cumulative abnormal stock returns for firm-months with high coverage (≥ 3 analysts)

	Herding	Bold	Bold – Herding
Upgrade	0.41***	0.37***	-0.03
	(6.14)	(6.26)	(-0.72)
No Change	0.05	0.05	0.00
	(0.89)	(1.01)	(0.08)
Downgrade	-0.33***	-0.39***	-0.06
	(-3.62)	(-4.84)	(-1.07)
Hedged Return	0.74***	0.76***	0.02
= Upgrade – Downgrade	(8.46)	(12.22)	(0.28)

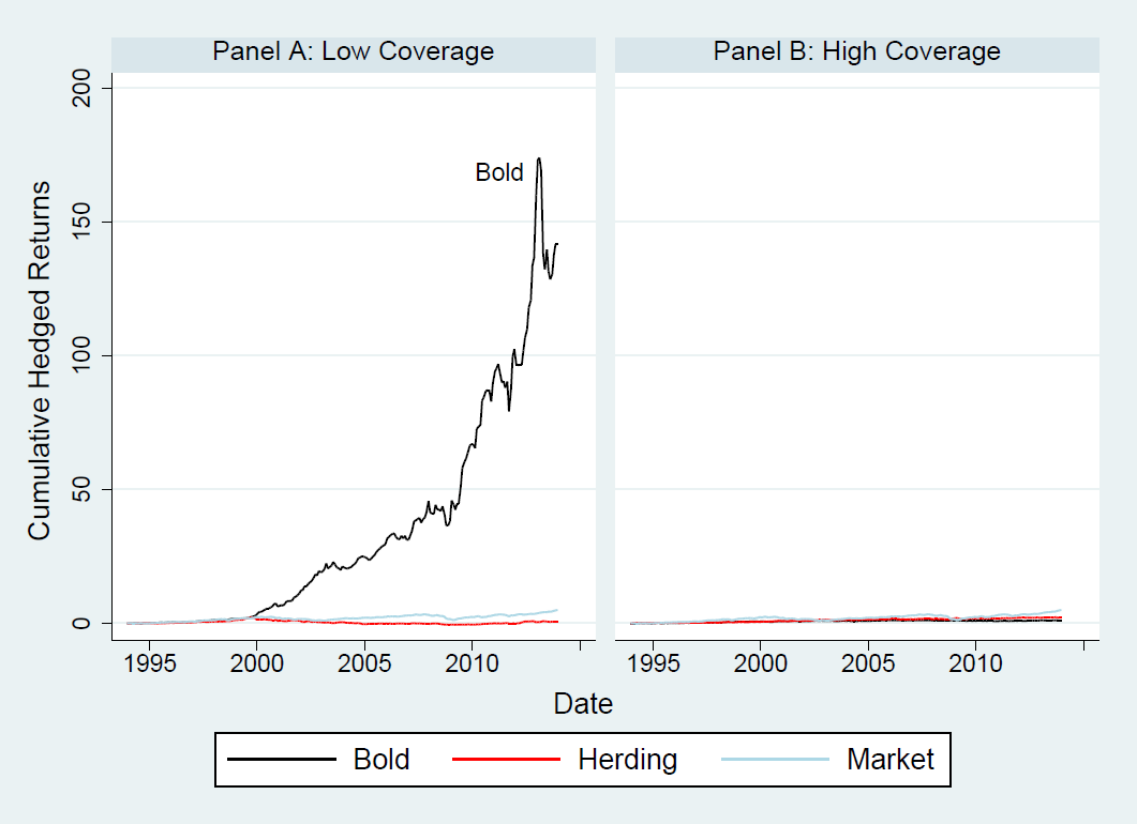
2.8 Figures for Chapter 2

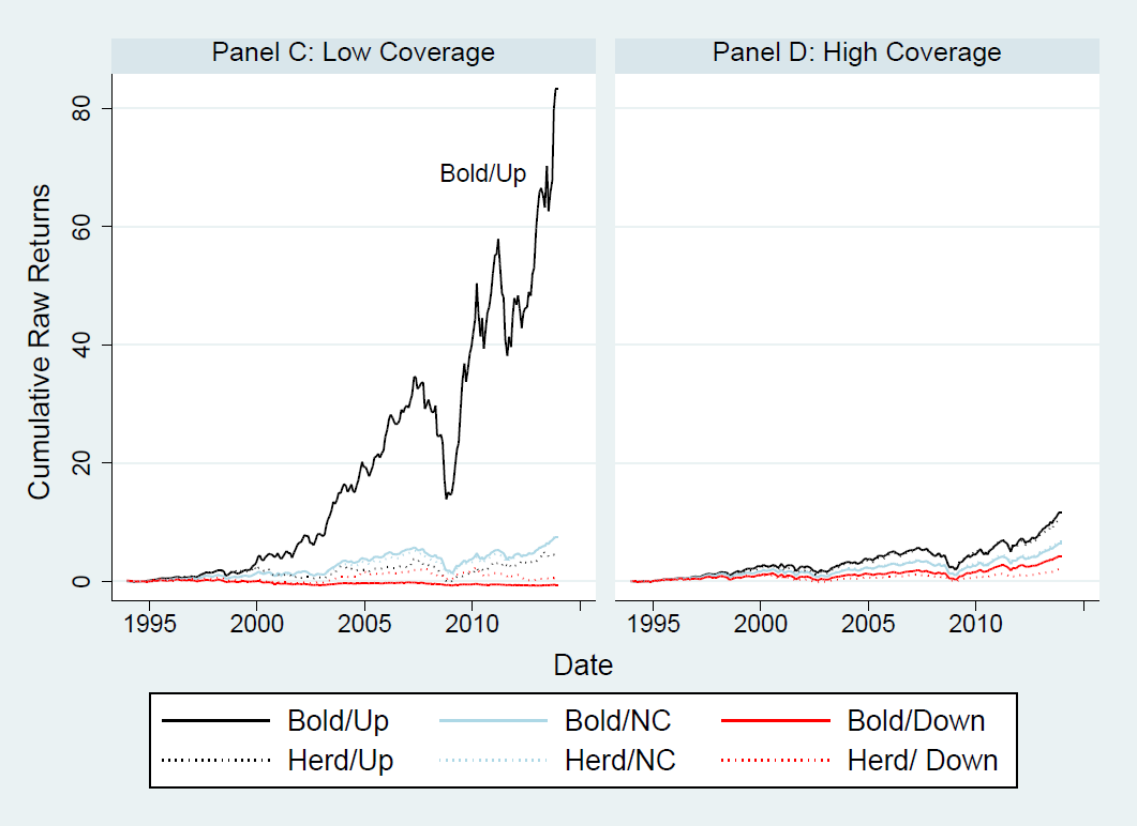
Figure 2.1: Cumulative Buy-and-Hold Return over Time

This Figure examines how the hedged return documented in Table 2.3 varies over time.

Panels A and B plot the cumulative *hedged* returns (i.e., the return of upgraded stock minus that of downgraded stock) over time, separately (a) for herding and bold recommendations, and (b) for firms with low and high analyst coverage. Panels C and D plot the cumulative buy-and-hold returns over time, separately (a) for herding and bold recommendations, (b) for recommendations that are upgraded, downgraded, and not revised, and (c) for firms with low and high analyst coverage.

Panels C and D provide more detailed analysis on how the hedged returns in Panels A and B are earned. Specifically, we decompose the hedged returns into returns from upgraded and downgraded recommendations. For completeness, we also illustrate the return from recommendations that are not revised.




Panel C: Low Coverage
Panel D: High Coverage
Bold/Up
Cumulative Raw Returns
0
20
40
60
80
1995
2000
2005
2010
Date
Bold/Up
Herd/Up
Bold/NC
Herd/NC
Bold/Down
Herd/ Down

2.9 Appendix for Chapter 2

2.9.1 Illustration of Recommendation Classification and Trading Strategy

This Appendix illustrates how recommendations are classified as "Bold" or "Herding", and how the trading strategy corresponds to the upgrade/downgrade in the recommendation.

The following example is based on a firm followed by two analysts (Panels A and B). In January, both analysts issue a "Buy" recommendation. We classify both recommendations as "Herding". In February, analyst #1 upgrades her recommendation to a "Strong Buy" while analyst #2 reiterates her previous recommendation of "Buy". We classify both recommendations as "Bold" because they differ from the consensus median recommendation. In March, analyst #1 reiterates her previous recommendation of "Strong Buy", while analyst #2 upgrades her recommendation to a "Strong Buy". Here, we classify both recommendations as "Herding" because they are now the same as the consensus median recommendation. Finally, in April, both analysts downgrade their recommendations to a "Buy", and we classify both as "Herding".

Our classification system (for bold versus herding recommendations) is intuitive. We define both recommendations as "Bold" when the deviation between the analysts increases in February. When the recommendations converge in March, we classify them as "Herding". Finally, we continue to classify both recommendations as "Herding" in April as their revision/downgrade appears to be simply a reaction to some wider economic news.

Our trading strategy is based on Jegadeesh, Kim, Krishe, and Lee (2004) – namely, buy (sell) stocks in the following month after an upgrade (downgrade) of analyst recommendations. For example, we take long position in March based on analyst #1’s upgraded recommendation from January to February. Likewise, we take short position in April based on the downgraded recommendation by analyst #1 from March to April.

Panel A: Example of a firm followed by two analysts

Month	Analyst #1	Analyst #2
Jan	Buy	Buy
Feb	Strong Buy	Buy
Mar	Strong Buy	Strong Buy
Apr	Buy	Buy

Panel B: Classification of their recommendations

Month	Analyst #1	Analyst #2
Jan	Buy (Herding)	Buy (Herding)
Feb	Strong Buy (Bold)	Buy (Bold)
Mar	Strong Buy (Herding)	Strong Buy (Herding)
Apr	Buy (Herding)	Buy (Herding)

Panel C: Trading strategy in month t+1 after analyst's recommendation revision in month t

Month	Analyst #1	Analyst #2
Mar	Long	No Action
Apr	No Action	Long
May	Short	Short

2.9.2 Comparison with Prior Related Literature

In this Appendix, we consider a list of related papers, all of which partition their sample into bold and herding analysts.

To contrast the literature with our research hypothesis and objective, we first provide an overview of the prior research as follows: Hong, Kubik, and Solomon (2000), Clement and Tse (2005), and Cooper, Day, and Lewis (2001) examine whether analysts' herding behavior is associated with characteristics such as experience, career concern, brokerage size, portfolio complexity, and forecast timeliness. Chen and Jiang (2006) and Zitzewitz (2001) hypothesize that bold analysts are overconfident and place excessive weight on their private information. Gleason and Lee (2003) and Clement and Tse (2005) document market reaction to herding recommendation and examine whether market can discern analysts' herding behavior. Jegadeesh and Kim (2010) find that the market reaction to herding recommendations is weaker than that of bold recommendations.

Our research is different on several key aspects. In the panel below, we list some distinctive characteristics of our paper. For example, few prior research studies relate overconfidence with bold recommendations, and explain the circumstances where bold recommendations are not overconfident (and reflect high ability). In particular, none of these papers partition their sample into firms with low and high analyst coverage. Furthermore, few papers show a feasible trading strategy (without look-ahead bias) with large magnitude of returns. In addition, this paper explores the channel (earnings announcement) in which the market learns about the news associated with the recommendations. Finally, we consider, and rule out, two alternative explanations for our findings.

Key characteristics	**This Paper**	Jegadeesh and Kim (2010)	Clement and Tse (2005)	Gleason and Lee (2003)	Hong, Kubik, and Solomon (2000)	Cooper, Day, and Lewis (2001)	Chen and Jiang (2006)
Bold vs Herding classification	✓	✓	✓	✓	✓	✓	✓
Relate to over-confidence	✓	x	x	x	x	x	✓
Interaction with Low vs High coverage	✓	x	x	?	x	x	x
Recommendation (and not EPS forecast)	✓	✓	x	x	x	x	x
Change in recommendation (not level)	✓	✓	x	x	x	x	x
No look ahead bias in trading strategy	✓	x	x	x	x	x	x
Large magnitude of return (Tables 2.3 and 2.4)	✓	x	x	x	x	x	x
Earnings news/surprise (Tables 2.5 and 2.6)	✓	x	x	✓	x	x	x
Rule out sample selection bias (Table 2.7)	✓	x	x	x	x	x	x
Rule out initial under-reaction (Table 2.8)	✓	?	x	x	x	x	x

Note: Prior research studies have different research objectives and hypotheses from this paper, and this matrix is not intended to be critical of them.

Bibliography

Asquith, P., M. B. Mikhail, and A. S. Au. 2005. Information content of equity analyst reports. *Journal of Financial Economics* 75 (2):245-282.

Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *The Quarterly Journal of Economics*, *116*(1), 261-292.

Barber, B., Lehavy, R., McNichols, M., & Trueman, B. (2001). Can investors profit from the prophets? Security analyst recommendations and stock returns. *The Journal of Finance*, 56(2), 531-563.

Bhushan, R. 1989. Firm characteristics and analyst following. *Journal of Accounting and Economics* 11 (2):255-274.

Bird, R., A. D. Hall, Momentè, F. and F. Reggiani (2007). What corporate social responsibility activities are valued by the market?. *Journal of Business Ethics* 76 (2): 189-206.

Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of Finance*, *52*(1), 57-82.

Chen, Q., & Jiang, W. (2006). Analysts' weighting of private and public information. *Review of Financial Studies*, *19*(1), 319-355.

Chen, X., Q. Cheng, and K. Lo. 2010. On the relationship between analyst reports and corporate disclosures: Exploring the roles of information discovery and interpretation. *Journal of Accounting and Economics* 49 (3):206-226.

Clement, M. B. 1999. Analyst forecast accuracy: Do ability, resources, and portfolio complexity matter? *Journal of Accounting and Economics* 27 (3):285-303.

Clement, M. B., & Tse, S. Y. (2005). Financial analyst characteristics and herding behavior in forecasting. *The Journal of Finance*, *60*(1), 307-341.

Clement, M. B., and S. Y. Tse. 2005. Financial analyst characteristics and herding behavior in forecasting. *The Journal of finance* 60 (1):307-341.

Cooper, R. A., Day, T. E., & Lewis, C. M. (2001). Following the leader:: a study of individual analysts' earnings forecasts. *Journal of Financial Economics, 61*(3), 383-416.

Dhaliwal, D. S., O. Z. Li, A. Tsang, and Y. G. Yang. 2011. Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review* 86 (1):59-100.

Dhaliwal, D. S., S. Radhakrishnan, A. Tsang, and Y. G. Yang. 2012. Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. *The Accounting Review* 87 (3):723-759.

Fama, E. F. 1998. Market efficiency, long-term returns, and behavioral finance. *Journal of Financial Economics* 49 (3):283-306.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, *33*(1), 3-56.

Fama, E. F., & MacBeth, J. D. (1973). Risk, return, and equilibrium: Empirical tests. *The Journal of Political Economy*, *81*(3) 607-636.

Francis, J. and L. Soffer. 1997. The relative informativeness of analysts' stock recommendations and earnings forecast revisions. *Journal of Accounting Research* 35 (2): 193-211.

Francis, J., & Soffer, L. (1997). The relative informativeness of analysts' stock recommendations and earnings forecast revisions. *Journal of Accounting Research*, 193-211.

Gelb, D. S., and J. A. Strawser. 2001. Corporate social responsibility and financial disclosures: an alternative explanation for increased disclosure. *Journal of Business Ethics*, *33*(1), 1-13.

Gleason, C. A., & Lee, C. M. (2003). Analyst forecast revisions and market price discovery. *The Accounting Review*, *78*(1), 193-225.

Glushkov, D. (2009). Overview of IBES on WRDS: research and data issues. December 2009. <https://wrds-web.wharton.upenn.edu/wrds/E-Learning/_000Course%20Materials/Overview%20of%20Thomson%20IBES.pdf.cfm>.

Hong, H., Kubik, J. D., & Solomon, A. (2000). Security analysts' career concerns and herding of earnings forecasts. *The Rand Journal of Economics*, 121-144.

Ioannou, I., and G. Serafeim. 2010. The impact of corporate social responsibility on investment recommendations. *Harvard Business School Accounting & Management Unit Working Paper* (1507874).

James, C., and J. Karceski. 2006. Strength of analyst coverage following IPOs. *Journal of Financial Economics* 82 (1):1-34.

Jegadeesh, N., & Kim, W. (2009). Do analysts herd? An analysis of recommendations and market reactions. *Review of Financial Studies*, hhp093.

Jegadeesh, N., Kim, J., Krische, S. D., & Lee, C. (2004). Analyzing the analysts: When do recommendations add value?. *The Journal of Finance*, *59*(3), 1083-1124.

Johnson, R. A., and D. W. Greening. 1999. The effect of corporate governance and institutional ownership types of corporate social performance. *Academy of Management Journal* 42 (5):564-576.

Kim, Y., M. S. Park, and B. Wier. Is earnings quality associated with corporate social responsibility? *The Accounting Review* 87 (3):761-796.

Loh, R. K., & Mian, G. M. (2006). Do accurate earnings forecasts facilitate superior investment recommendations?. *Journal of Financial Economics*, *80*(2), 455-483.

Luo, X., Wang, H., Raithel, S., & Zheng, Q. 2014. Corporate social performance, analyst stock recommendations, and firm future returns. *Strategic Management Journal*.

Lys, T., & Sohn, S. (1990). The association between revisions of financial analysts' earnings forecasts and security-price changes. *Journal of Accounting and Economics*, 13(4), 341-363.

Malkiel, B. G. (2007). A random walk down Wall Street: including a life-cycle guide to personal investing. WW Norton & Company.

McNichols, M., & O'Brien, P. C. (1997). Self-selection and analyst coverage. *Journal of Accounting Research*, 167-199.

MSCI ESG STATS (2013). User Guide & ESG Ratings Definition.

Palmon, D., and A. Yezegel. 2010. R&D Intensity and the Value of Analysts Recommendations. *Contemporary Accounting Research* 29 (2):621-654.

Ramnath, S., Rock, S., & Shane, P. (2008). The financial analyst forecasting literature: A taxonomy with suggestions for further research. *International Journal of Forecasting*, *24*(1), 34-75.

Sloan, R. G. 1996. Do stock prices fully reflect information in accruals and cash flows about future earnings? *Accounting Review* 71 (3):289-315.

Svenson, O. (1981). Are we all less risky and more skillful than our fellow drivers?.*Acta Psychologica*,*47*(2), 143-148.

Waddock, S. A., and S. B. Graves. 1997. The corporate social performance. *Strategic management journal* 8 (4):303-319.

Curriculum Vita

Changhee Lee

EDUCATION

Duksung Women's University, Seoul, South Korea
BE, Computer Science, 2003
BS, Library and Information Science, 2003

Yonsei University, Seoul, South Korea
MBA, Accounting, 2007

Michigan State University, Michigan
MS, Applied Statistics, 2010

Rutgers Business School, Rutgers University, New Jersey
PhD, Accounting, 2014

RESEARCH

Interests: Financial analyst forecast and recommendation, Market inefficiency, and Corporate social responsibility.