Stale Information in the Spotlight: The Effects of Attention Shocks on Equity Markets

Siyu Chen and Runjing Lu*

Abstract

Media exposure of *new* information has been shown to facilitate information incorporation into asset prices. But the causal evidence on how asset prices are affected when the media draws investor attention to *stale* information is still scarce. We exploit exogenous attention shocks generated by the announcements of a financial analyst award — award winners are featured on the front page of a high-profile financial magazine while analysts just missing the award are not. We find that the award announcement immediately causes higher market reaction to *pre-existing stale* recommendations from analysts barely winning the award than those by analysts barely missing it. However, the reaction *fully* reverses in six weeks. Evidence supports the notion that the overreaction is mainly driven by attention trading induced by public exposure of award winners rather than by ability signaling from winning the award. Suggestive evidence further shows that speculative trading based on leaked award information exacerbates the price fluctuation. To understand the longer-term consequences of the announcements, we explore how brokerages and analysts respond in the year after the award. We find that brokerages assign more resources to awardees; the awardees issue more accurate and less biased earnings forecasts, but only for stocks unaffiliated with the brokerages. Our results highlight the temporary price-destabilizing effects of media when it draws investor attention to stale information and the long-lasting effects of public recognition on sell-side research.

Keywords: Media attention, Stale information, Financial analyst

JEL classification: G14, G40, M51

*Runjing Lu (corresponding author): University of Alberta (runjing1@ualberta.ca); Siyu Chen: Jinan University (chensynus1220@gmail.com). We are deeply indebted to Gordon Dahl, Joseph Engelberg, William Mullins, Jessica Pan, Wenlan Qian, and Johan Sulaeman for their constant support and guidance. We would also like to thank Prashant Bharadwaj, Julie Cullen, Douglas Emery, Clifton Green, and participants in 2018 AFA, 2018 FMA, 2019 SWFA, and 2019 ABFE for their constructive feedback.

1. INTRODUCTION

Information is fundamental to asset prices and efficient markets. The media plays a central role in its dissemination. Several papers provide causal evidence on how the media facilitates information incorporation into asset prices when it draws investor attention to *new* information that is newly released to the public.[1] However, not all media articles contain new information. If investors fail to realize the extent to which others have already traded on the publicly available stale information, investors may overreact when the media draws their attention to stale information. Yet, it has been difficult to causally identify how asset prices are affected when the media draws investor attention to *stale* information. One challenge is to find exogenous media exposure.[2]

We overcome this challenge by exploiting a series of exogenous attention shocks generated by the announcements of a financial analyst award. Analysts who barely win the award receive front-page coverage on a high-profile financial magazine while those barely missing it do not. We find that investors overreact to award winners' *pre-existing stale* stock recommendations right after the announcement, which is driven by attention trading rather than by ability signaling. Evidence further suggests that speculative trading based on leaked award information exacerbates the price fluctuation. To understand the longer-term consequences of the announcements, we also examine brokerages' resource allocation and analysts' performance after the award.

The award we study is *New Fortune* (NF) magazine's *Best Financial Analyst* award. NF magazine is a widely subscribed financial magazine known as the Chinese analogue to *Institutional Investor* magazine and is highly influential among financial market participants in China. NF's Best Financial Analyst award is the best-known award for sell-side financial analysts in China. Each year, based on votes from directors of research and fund managers at major investment institutions, the five analysts who obtain the highest votes in each of

[1] Several recent papers examine the causal impact of media exposure of new information on retail trading (Engelberg and Parsons, 2011; Peress, 2014) and on stock prices (Fedyk, 2018; Lawrence, Ryans, Sun, and Laptev, 2018). They find little evidence of subsequent reversal in trading or in prices, suggesting that media exposure of new information enhances informational efficiency.

[2] See Lawrence et al. (2018) for a discussion on the identification issues.

approximately 30 industries are elected as "star winners".[3] They are awarded trophies in a widely publicized award ceremony and receive front-page coverage of their names and votes on NF magazine in print and online. Analysts who receive the sixth and seventh highest votes in each industry are known as the finalists of the award (hereafter, star finalists). Although their names and votes can be found on the NF website, they are in a section given much lower prominence. Information on analysts who do not make it into the finalist groups goes unpublished.

Our empirical strategy makes use of a regression discontinuity (RD) design. We use NF magazine's proprietary data to identify the analysts with a number of votes just above and just below the award cutoffs. We then compare the return of stocks with *pre-existing stale* recommendations from these two groups of analysts *after* the award announcement. The key identifying assumption is that the award designations and the front-page coverage are assigned as good as random around the award cutoffs. In other words, close to the cutoffs, which analysts win the award and receive investor attention is not perfectly predictable.[4]

Our approach has two advantages. First, while most existing studies rely on investor attention induced by endogenous media coverage, our attention shocks are based on the exogenous variation in the front-page coverage of analysts around the award cutoffs. Second, while past papers rely on reprints or recombination of stale news events whose resulting narratives or perspectives may introduce new information, our paper focuses on stale recommendations that are *exactly the same* as when they were first released.

Our first main finding is a clear discontinuity in the post-award return of stocks with pre-existing stale recommendations from analysts barely winning and barely missing the award. In the first two trading days after the award announcement, stocks with pre-existing recommendations from analysts above the winner cutoff see 66 basis points higher adjusted buy-and-hold cumulative abnormal return (adjusted BHAR) than those with recommenda-

[3]NF magazine categorizes industries with fewer than 20 competing analysts as "small industries" and only elects the three analysts with the highest votes as "star winners" in these industries. In this paper, we focus on large industries because they are more important and receive greater investor attention.

[4]Supporting the identifying assumption, we find no difference between analysts above and below the award cutoffs along almost all observable dimensions, such as demographics, characteristics of brokerages, characteristics of recommended stocks, and market reactions to stock recommendations before the award announcement.

tions from analysts below the cutoff. The difference is 1.3 times the average adjusted two-day BHAR of non-stale stock recommendations issued in the year before the award announcement. In addition, the former stocks also experience 30 percent higher cumulative abnormal turnover (CAT) than the latter. These findings are inconsistent with the semi-strong form efficient market hypothesis, under which information in stale recommendations should have been reflected in prices and the will not react to stale recommendations.

Next, we explore the mechanisms underlying the market reactions to stale recommendations. Our evidence is consistent with the notion that media exposure of star winners draws investor attention to winners' stale recommendations and changes investors' trading decisions (*attention trading*). First, the media mentions of and the search volume for the award both surge right after the award announcement. Second, the difference in the return of star winners' and non-winners' stocks is more pronounced among less-known analysts, less-known stocks, and stocks held by more retail investors. In contrast, the signal of analyst ability from winning the award (*ability signaling*) does not appear to drive our findings. First, investors do not react more to star winners' new stock recommendations issued shortly after the award announcement. Second, the difference in the return of star winners' and non-winners' stocks *fully* reverses within 20 trading days after the award.

Interestingly, investors also react differently to stocks with pre-existing stale recommendations from analysts above and below the vote cutoff for finalists. Compared to stocks previously recommended by non-finalists, the stocks by analysts who barely make it into the finalist groups experience *higher* average adjusted two-day BHAR in the week *before* the award announcement but *lower* adjusted two-day BHAR right *after* the announcement.[5] Evidence suggests that the list of finalists may be leaked and traded on by institutional investors before the award announcement. A portfolio buying stocks recommended by all finalists before the award announcement while selling stocks by *failed* finalist after the announcement earns a risk-adjusted daily return of 18 basis points over the 10 days around the announcement. The findings highlight that insider trading can exacerbate price fluctuation

[5]Star finalists are privately notified of their finalist status in the week before the award announcement (notification week), although they do not know their exact ranking or vote. In the analysis at the finalist cutoff, we only look at stock recommendations issued before the notification week.

and market inefficiency.

Our second main finding is that brokerages and analysts change their behavior in the year following the award. We find that analysts above the finalist cutoffs are assigned to larger teams and to teammates with better forecast accuracy than those below, consistent with the notion that brokerages allocate additional resources to them. These analysts also issue more profitable stock recommendations and more accurate and less biased earnings forecasts than those below. Interestingly, the improved performance is only among stocks which are *not* underwritten by the brokerages. The findings imply that public recognition can discipline sell-side research but conflicts of interest attenuate the disciplinary effect.

This paper makes several contributions. Firstly, we contribute to the burgeoning literature evaluating the impact of media and investor attention in financial markets. Several recent papers provide causal evidence on how the media affects retail trading (Engelberg and Parsons, 2011; Peress, 2014; Yuan, 2015) and stock prices (Fedyk, 2018; Lawrence, Ryans, Sun, and Laptev, 2018). Most of them focus on media coverage of *new* information and find little evidence of subsequent reversal in trading or prices, suggesting that the media can enhance informational efficiency by drawing investor attention to new information. Meanwhile, papers such as Huberman and Regev (2001), Tetlock (2011), Gilbert, Kogan, and Lochstoer (2012) and Fedyk and Hodson (2019) document a linkage between media coverage of *stale* information and market *over*-reaction.[6] A causal interpretation of these findings is hindered by the endogeneity in the media coverage.[7] Moreover, as operationalized in these studies, the "stale" information is not entirely stale, because it tends to be a recombination

[6]Huberman and Regev (2001) show that a *New York Times* article, which repeats previously published information, generates a price increase and subsequent partial reversal for the covered firm. Tetlock (2011) documents an overreaction to coverage of stale news events and a negative relationship between absolute abnormal returns and the staleness of news. Gilbert et al. (2012) find that market reactions following the publication of a macroeconomic index based on already public data reverse within one day. Fedyk and Hodson (2019) show that the relationship between absolute abnormal returns and coverage of stale news events is mainly driven by recombination of several stale news pieces.

[7]There could be unobservables simultaneously driving media coverage of stale news events and market reaction. For example, when Tesla's car batteries catch fire, media outlets may re-report Tesla's disappointing earnings announcement last quarter. Even if there is a market reaction after the coverage of the stale earnings announcement, it is unclear whether the reaction is to the battery fire or to the coverage of the stale information. It is worth pointing out that Gilbert et al. (2012) solve the endogeneity issue by focusing on pre-scheduled release of a macroeconomic index, but their time series analysis cannot control for contemporaneous common shocks and is hindered by a small sample size, as pointed out by Tetlock (2011).

of stale pieces whose resulting narratives or perspectives may contain new information. In contrast, we exploit exogenous media exposure of the authors of stale recommendations. We are thus able to provide causal evidence that the media can make prices less efficient in the short run when it draws investor attention to stale information.[8] Our paper helps to paint a more comprehensive and nuanced picture of the role of media in the market. In addition, our findings provide empirical evidence for models featuring investors who do not distinguish stale from new information (e.g., Tetlock, 2011). Investors may fail to realize the staleness of pre-existing recommendations even when the recommendations are unambiguously old.

Secondly, our paper extends the literature on the impact of awards on stock prices. Prior papers focus on product quality awards and CEO awards and explain market reactions following the award announcement by citing the role of awards in signaling quality (Hendricks and Singhal, 1996) and incentivizing performance (Ammann, Horsch, Oesch, 2016; Malmendier and Tate, 2009). By contrast, we highlight the under-studied role of awards in increasing visibility of awardees, which can attract investor attention and affect asset prices.

Thirdly, we contribute to the literature on the post-award performance of star analysts.[9] Using a RD design, we confirm past findings that star analysts perform better in earnings forecasts and are more likely to be promoted than their unranked peers (Stickel, 1992; Leone and Wu, 2007; Fang and Yasuda, 2009; Wu and Zang, 2009; Xu, Chan, Jiang, and Yi, 2013). Moreover, we provide the first piece of causal evidence that brokerages reallocate resources in response to award designations. This resource reallocation can help to explain the persistent difference in the post-award performance between star and non-star analysts documented in the literature. Our findings also highlight the impact of teammates on worker productivity and broadly relate to the literature on peer effects in the workplace (e.g., Mas

[8]For outcomes other than stock prices, Kaniel and Parham (2017) find that fund flows respond to mutual funds' appearance on the WSJ Category King list which is based on past fund performance; Phillips, Pukthuanthong and Rau (2014) show a linkage between fund flows and stale fund returns arising from horizon effects in holding period returns. Our paper differs from theirs in the timing and the main mechanisms of the market reaction. First, Kaniel and Parham (2017) document a gradual increase in fund flows starting around two weeks after the ranking announcement, while we find an immediate market reaction in just days after the award announcement. Second, fund complexes' advertisement and investors' updated beliefs regarding fund performance are the main mechanisms for the above two papers, while attention trading due to heightened media exposure of the analysts is a more plausible channel in our setting.

[9]See Bradshaw (2011) for a review on studies about star financial analysts.

and Moretti, 2009). Finally, we find that star analysts' performance improvement differs between affiliated and non-affiliated stocks. This adds to the literature on how conflicts of interests affect financial analysts' research (Ljungqvist et al., 2007; Corwin, Larocque and Stegemoller, 2017).

Taken together, this paper highlights the temporary price-destabilizing effects of media when it draws investor attention to stale information and the long-lasting effects of public recognition on sell-side research. The remainder of the paper is as follows. Section 2 describes the institutional background and the data. Section 3 outlines the empirical strategy, presents market reactions after the award, and explores the underlying mechanisms. Section 4 examines the changes among brokerages and analysts after the award. Section 5 concludes.

2. BACKGROUND AND DATA

2.1. Background

China's stock market. Our testing ground is China's stock market. China opened its Shanghai and Shenzhen stock exchanges in 1990. Following more than two decades of rapid growth, the country's stock market reached a total equity value of six trillion U.S. dollars and became the world's second largest market in 2014. Given its large size, active trading, and market features representative of many emerging markets, China's stock market has become an important subject for mainstream research in finance (Carpenter and Whitelaw, 2017). Several features of China's stock market also make it an interesting setting for our study. First, the market is dominated by retail investors who are less informed and more prone to behavioral biases. Retail investors accounted for over 98.2 percent of total investor accounts and over 42 percent of all stock holding value in 2014 (China Securities Depository and Clearing, 2014; WIND, 2014). This percentage is much larger than that in many developed countries like the U.S. (Andrade, Bian, and Burch, 2013). Second, short sale was restricted, and future and option contracts for individual stocks were not allowed during our sample period. Such restrictions hinder the ability of sophisticated investors to arbitrage away mispricing in stocks. Therefore, China's stock market is farther away from an efficient market than its U.S. counterpart, and investor behavior should play a more important role in asset pricing in such a setting.

The "Best Financial Analyst" award. Financial analysts are important information agents in financial markets (Cohen, Frazzini, and Malloy, 2010). Their opinions are among the most widely solicited, anticipated, and dissected news items in financial markets. In addition, their data are available in large quantity and relatively standardized formats. Therefore, the industry of financial analysts is a useful setting to address our research question.

The award we exploit is *New Fortune* (NF) magazine's "Best Financial Analyst" award. NF magazine is a widely subscribed monthly financial magazine known as the Chinese version of *Institutional Investor* magazine and is highly influential among financial market participants in China. The goal of the award is to identify the best sell-side financial analysts who provide original and insightful opinions about China's stock market. Since its beginning in 2003, the award has been the largest and the most important award among sell-side financial analysts in China. In 2014 alone, about 2,700 investment professionals across 870 institutions managing fund sizes of around 1.3 trillion U.S. dollars participated as voters for the award. Over 1,500 analysts at 47 brokerage houses participated as award candidates. This accounts for 50 percent of registered financial analysts and 40 percent of brokerage houses in China. The award is also crucial for financial analysts' promotion and income. Anecdotally, star winners can get an annual income boost for over one million U.S. dollars.

The timeline of the award is summarized in Figure 1. Each year in August, investment professionals register as voters for the award. In mid- to late-October, eligible voters receive ballots from NF, which includes a list of brokerage-endorsed analysts and their bios in each of approximately 30 NF industries.[10] The voters rank the top five analysts in each NF industry according to the overall quantity and quality of the analysts' reports in the past year.[11] NF then weighs the vote to each analyst based on the analyst's ranking in the vote and the

[10]NF magazine categorizes industries with fewer than 20 competing analysts as "small industries"and elects fewer "star winners" in these industries. In this paper, we focus on large industries because they are more important and receive greater investor attention. In addition, we also exclude Economics & Strategy category industry, because analysts in this industry usually do not recommend individual stocks.

[11]There are no explicit voting guidelines or rubrics. According to surveys conducted by NF, institutional investors tend to evaluate an analyst by whether or not the analyst has a solid understanding of the market, provides original and insightful opinions based on quantitative analysis, and maintains timely communication with the institutional investors.

fund size managed by the voter.[12] The resulting weighted sum of votes is known as *scores*. Within each NF industry, the analysts with top five scores are elected as the Best Financial Analysts (*star winners*), and the analysts with the sixth and seventh scores are known as the finalists of the award (*star finalists*). On a Friday or Saturday afternoon at the end of each year, NF will hold a widely-publicized award ceremony to present trophies to star winners in front of all major institutional investors. At the same time, the names and votes of the star winners are also published on the front page of NF website and the magazine. Although the names and votes of star finalists are also publicly available, they appear in a much less prominent section on the NF website. The votes of the analysts who do not make it to the finalist groups goes unpublished.[13]

It is important to note that in the week before the award announcement, namely the notification week, NF sends finalists invites to the award announcement. Notified finalists do not know their votes or rankings and are required to keep the information private until the public award announcement. An extensive internet search performed by the authors confirm that no lists of NF finalists are posted on line before the date of the award announcement between 2005 and 2014. Therefore, the general public do not know who the finalists are before the award announcement takes place.

2.2. Data Sources

We obtain our data from three sources. The first is the proprietary vote and ranking data from NF. The data comprises a list of top 15 analysts (or teams) in each NF industry each year between 2005 and 2014 and includes analysts' names, gender, highest academic degree, and work history up till the point they last participated in the ranking.[14] We supplement this dataset with information in analysts' resumes posted on platforms such as the Security Association of China (http://www.sac.net.cn/xxgs/cyryxxgs), homepages of brokerage

[12]The voting scheme changes slightly from year to year, and we use year fixed effects to control for these.

[13]Although investors can identify these analysts' names from a publicly available list of all award candidates, they do not know the ranking or votes of these analysts.

[14]If a team rather than an individual appears on the NF ranking list, we assign the same ranking and score to all analysts in the team. If an analyst participates in more than one NF industry in a year, we keep the analyst's most-covered NF industry, i.e., the industry where she covers the largest number of companies, following Boni and Womack (2006) and Emery and Li (2009).

houses, personal websites of analysts, and financial industry job sites (*Golden Compass* http://stock.sohu.com/s2011/jlp and *Ifeng Finance* http://star.finance.ifeng.com). The data from NF is crucial, because we cannot identify the analysts who fail to make it to the finalist groups without the data, which is necessary to implement the RD design.

The second dataset is the China Stock Market Accounting Research (CSMAR) database. CSMAR is a comprehensive database on China's stock market, containing important financial information and publicly available analyst reports on all companies listed on the Shanghai and the Shenzhen Stock Exchanges. The dataset is included in Wharton Research Data Service and widely used in research on China's stock market. We obtain daily and monthly stock returns with reinvestment of cash dividends, quarterly market capitalization, quarterly institutional holdings, and annual book values for all A share companies listed in China between 2005 and 2014. We also get all stock recommendations and earnings forecasts on these companies issued between 2005 and 2014. Each stock recommendation has a report ID, stock ID, publication date, rating, rating expiration date, and the information on the authors and their brokerage houses. The rating is standardized to a five-point scale: strong sell=1, sell=2, neutral=3, buy=4, and strong buy=5. Each earnings forecast has a report ID, stock ID, publication date, earnings forecast, forecast end date, and the information on the authors and their brokerage houses. Lastly, we obtain the underwriters for initial public offering, right issue, and rationed shares occurring between 1989 and 2015.

The third dataset is the Choice Financial Terminal (Choice). Choice compiles information from mandatory filings of financial institutions in China. We obtain the annual revenue and trading commissions of brokerage houses and the annual stock holdings of mutual funds between 2005 and 2014.

2.3. Variable and Sample Construction

To answer our main research question, we need empirical proxies for market reactions. Following Loh and Stulz (2011), we measure market reactions to a stock recommendation with the adjusted two-day buy-and-hold abnormal return (BHAR):

$$BHAR_{st} = \prod_{\tau=t}^{t+1}(1 + R_{s\tau}) - \prod_{\tau=t}^{t+1}(1 + R_{s\tau}^{DGTW})$$

Day t is the day of the measurement. $R_{s\tau}$ is the return of stock s on day τ. $R_{s\tau}^{DGTW}$ is the return on a benchmark portfolio with similar size, book-to-market, and momentum characteristics as stock s on day τ (Daniel, Grinblatt, Titman, and Wermers, 1997). We assign a minus sign to BHAR if the rating in the stock recommendation is neutral, sell, or strong sell. As robustness check, we use the expected return estimated from a Fama-French five-factor model as the benchmark return for a stock (Fama and French, 2015). The detailed construction is in Appendix A.

For the regressions sample, we will include both recommendation revisions and reiterations. The reasons are as follows. First, reiterations may include new information despite having the same rating and may be viewed as a confirmation of past opinions (Dontoh, Ronen, and Sarath, 2003). Indeed, Jegadeesh and Kim (2006) find that investors still react to reiterations, although to a lesser extent than revisions. Second, the sample size for recommendations is too small if we exclude reiterations which account for 94 percent of recommendations during the sample period. Therefore, we err on the conservative side and include both reiterations and revisions in our sample.

The first step of sample construction is to link analysts across datasets and time. Since neither NF nor CSMAR assign unique ID to analysts, we follow Cohen et al. (2010) and use name and work history to identify analysts. If two analysts share the same name and work in the same brokerage house at the same time, we assume them to be the same person. Out of the 1,633 analysts in the NF ranking, we are able to identify 1,600 analysts and locate 1,588 analysts' stock recommendations or earnings forecasts in CSMAR.

We assemble two samples to analyze the immediate market reactions to stale recommendations after the award announcement. The first sample is for the award designations of star winners. We identify the last stock recommended by each NF analyst within 1-30 days before the award announcement. We focus on stocks recommended *before* the award announcement to alleviate the concern that analysts may change stock recommendations after they know the award results. We focus on the *last* stock recommended by each analyst, because attention-limited investors are likely to pay more attention to recent recommenda-

tions.[15] If an analyst covers more than one stock on their last day of recommendation before the award announcement, we keep all stocks covered on that day. If one stock is categorized as the last stock for more than one analyst, we keep all the observations unless the analysts are from the same NF team.[16] 2-day BHAR is measured on the first trading day after the award announcement. The base sample includes 1,157 analysts issuing 1,927 stock recommendations covering 717 stocks. We then calculate the IK bandwidth using the 2-day BHAR as the outcome and the centered vote share from the winner cutoff as the running variable (Imbens and Kalyanaraman, 2012).[17] In the regression, we only include stocks by analysts within the IK bandwidth to ensure comparability between analysts above and below the winner cutoff. The main RD sample at the winner cutoff consists of 1,003 analysts issuing 1,535 recommendations covering 644 stocks. The summary statistics are reported in Table 1 column (1).

The second sample is to analyze the market reactions to stale recommendations from analysts who make it into the finalist groups. Since analysts above the finalist cutoff are notified before the award announcement, analysts above and below the cutoff may change recommendation strategies discontinuously ahead of time. We thus identify the last stock recommended by each analyst within 1-30 days before the notification week rather than the award announcement. Not knowing the exact date of private notification, we use the average of 2-day BHAR on the Monday through Thursday in the notification week to proxy market reactions to stale recommendations following private notification. The base sample includes 1,249 analysts issuing 2,322 recommendations covering 767 stocks. In the regression, we only

[15] As robustness check, we study the last three, five, or all stocks recommended by each analyst within 1-30 days before the award announcement. We also look at the last stock recommended by each analyst within 31-60 days, ..., 121-150 days before the award announcement. The estimates in these samples are generally smaller than those in the main sample, implying that investors indeed pay more attention to more recent recommendations. The results can be found in Section 3.5.

[16] 20 percent of stocks in the sample are categorized as the last stock for more than one analyst. We err on the conservative side and include all observations. As long as the stock bundles of analysts above and below the award cutoffs do not perfectly overlap, our estimates will be a lower bound of the local average treatment effect. As robustness check, we drop stocks recommended by more than one analyst or keep the observation with the best NF ranking. The estimates in these samples are slightly larger than those in the main sample. The results can be found in Section 3.5.

[17] The centered vote share from the winner cutoff is the distance between an analyst' score and the score at the winner cutoff for a NF industry in a year, normalized by the total scores of top 15 analysts for that NF industry and that year.

include the stocks by analysts within the IK bandwidth which is calculated using the BHAR on the first two trading day after the award announcement as the outcome and the centered vote share from the finalist cutoff as the running variable. The main RD sample at the finalist cutoff consists of 714 analysts issuing 1,088 recommendations covering 518 stocks. The summary statistics are reported in Table 1 column (4).

To study how brokerages and analysts change behavior in the year after the award (*post-award period*), we construct two more samples. The first sample consists of stock recommendations issued by NF analysts in the post-award period. We drop recommendations if the authors have different NF rankings or are in different NF industries, which account for 9.31% of the full sample. We then remove recommendations issued during one day before and one day after the suspension period, which accounts for 2.64% of the remaining sample, to prevent our results from being driven by abnormal reaction to suspension. 2-day BHAR is measured either on the recommendation publication date or the closest subsequent trading day. The base sample consists of 1,412 analysts issuing 71,520 stock recommendations covering 1,696 stocks. In the regression, we only include recommendations issued by NF analysts within the IK bandwidth, calculated using the 2-day BHAR as the outcome and the centered vote share as the running variable. The post-award recommendation sample at the winner cutoff consists of 804 analysts issuing 50,493 stock recommendations covering 1,596 stocks, and the sample at the finalist cutoff consists of 1,025 analysts issuing 42,805 stock recommendations covering 1,585 stocks. The summary statistics are reported in Table 1 columns (2) and (5).

The second sample consists of the last earnings forecast issued by each NF analyst for each stock in the post-award period. We drop earnings forecasts if the authors have different NF rankings or are in different NF industries, which account for 7.48% of the full sample. The remaining sample includes 1,440 NF analysts issuing 46,730 earnings forecasts covering 1,772 stocks. In the regression, we only include the forecasts by NF analysts within the IK bandwidths calculated using the forecast error as the outcome and the centered vote share as the running variable. The post-award forecast sample at the winner cutoff consists of 561 analysts issuing 11,860 earnings forecasts covering 1,319 stocks, and the sample at the finalist cutoff consists of 594 analysts issuing 12,051 earnings forecasts covering 1,352 stocks.

The summary statistics are reported in Table 1 columns (3) and (6).

There are several noteworthy points. Firstly, across all regression samples, over 70% of financial analysts are male, around 90% of them have master or above degree, and their average work experience is about 3 years (Table 1). These statistics are in line with earlier studies on China's stock market (Hu, Lin, and Li, 2008). Secondly, the average stock ratings are around 4.34, and over 93% of the stock ratings are buy or strong buy. Compared to the stock ratings in the U.S. documented in Barber, Lehavy, McNichols and Trueman (2006), the stock rating in China is on average higher, suggesting that financial analysts are more positively biased in China. Finally, not all NF analysts in the raw sample appear in the base samples. There are three reasons: we do not have enough information to identify them in CSMAR, their reports are not recorded in CSMAR, or the stocks they cover do not have valid outcomes. This sample selection should not invalidate the RD design as long as the probability of analysts entering the base sample is uncorrelated with their award status. Therefore, we examine the probability of a NF analyst in the raw sample being included in the base sample in Table A1. The probability changes smoothly across the award cutoffs for all base samples. Moreover, analysts in the raw sample are similar in baseline characteristics as those in the base samples, as shown in Table A2.

3. IMMEDIATE MARKET REACTION

3.1. Empirical Strategies

We now explain the empirical strategies to examine the market reaction to stale recommendations after the award announcement. The main empirical strategy is an RD design.[18] We follow a standard specification for an RD design and include additional setting-specific

[18]We do not use a difference-in-differences (DID) design, because winners and average analysts are non-comparable in their baseline characteristics and performance, and the parallel pre-trend assumption for DID design does not hold in our setting. In addition, we do not use an RD-DID design, because the pre-existing difference in market reaction to the stocks recommended by analysts above and below the award cutoffs is economically and statistically small (see Table A3 and Figure 2). Combining an RD design with a DID design in our setting will difference out a *zero* baseline difference and will not quantitatively change the coefficient of interest.

control variables. The specification is:

$$Y_{si} = \beta_1 Win_{i(jy)} + \beta_2 f(X_{i(jy)} - C_{jy}) + \beta_3 Win_{i(jy)} f(X_{i(jy)} - C_{jy}) + \gamma_1 DayToAnnounce_{sit} + \alpha_y + \alpha_b + \alpha_j + \alpha_{j_s} + \epsilon_{si} \quad (1)$$

where Y_{si} is the outcome of interest for stock s recommended by analyst i, e.g., market reaction on the first two days after the award announcement. Stock s is in industry j_s and receives recommendation on date t. Analyst i works in brokerage b and participates in NF industry j in year y. For the sample at the winner (finalist) cutoff, $Win_{i(jy)}$ equals one if analyst i ranks top five (seven) in NF industry j in year y and zero otherwise. $X_{i(jy)}$ is analyst i's score normalized by the sum of all analysts' scores in NF industry j in year y (*vote share*). C_{jy} is the vote share at the winner (finalist) cutoff.[19] We include an interaction term between $X_{i(jy)} - C_{jy}$ and $Win_{i(jy)}$ to allow different slopes on different sides of the award cutoff. We include the number of days from the recommendation date to the date of information event ($DayToAnnounce_{sit}$) to control for the staleness of the recommendation. We also include year, brokerage, NF industry and stock industry fixed effects to control for common shocks at various levels. Standard errors are clustered by NF industry-and-year.[20] The regression is estimated using local linear regression with triangular weights and IK bandwidths (Lee and Lemieux, 2010).[21]

β_1 is the coefficient of interest, which measures the difference in the market reaction to

[19] We use vote share rather than rank or scores as the running variable for the following reasons. Firstly, vote share is continuous while rank is discrete. Secondly, vote share is better than rank and scores at accounting for the difference in the level of competition across industries. Scores do not distribute evenly across rank or across industries, so rank fifth versus sixth might be close in scores and comparable in competitive industries but far away and less comparable in non-competitive industries. In Section 3.5, we conduct robustness check using rank and scores as running variables. Estimates are within one standard deviation from the one estimated using vote share.

[20] According to Abadie, Athey, Imbens, and Wooldridge (2017), clustering should be used at the level where the probability of treatment assignment systematically differs. In our setting, the treatment assignment occurs in each NF industry each year, and the probability of winning differs systematically depending on the number of analyst candidates in each NF industry each year. Therefore, we cluster the standard errors by year-and-NF industry. We replicate the main results under various clusters, such as brokerage house, NF industry section, stock industry sector. The statistical significance remains similar. Results are in Section 3.5.

[21] We replicate the main results using various bandwidths, including those selected following Calonico, Cattaneo and Titiunik (2014). The coefficients on β_1 under various bandwidths are plotted in Figure A1. We also replicate the main results using local quadratic regression and the results refer to Section 3.5.

stale recommendations issued by analysts with a number of votes barely above and below the award cutoffs right after the award announcement. There are two threats to identification: (1) perfect manipulation over one's score; (2) discontinuous change in recommendation strategy at the winner cutoff before the award announcement. In the following section, we will provide evidence suggesting that neither threat exists.

3.2. Validity of RD Design

In this section, we examine the two core identifying assumptions of the RD design: (1) the award designations and the front-page coverage are assigned as good as random around the award cutoffs; (2) there is no discontinuous recommendation strategy change at the winner cutoff before the award announcement.

One threat to the quasi-randomness of award designations is the perfect manipulation of analysts over their scores to be above an award cutoff. However, perfect manipulation is unlikely in this setting. On average 950 analysts and 1,300 voters participated in the NF ranking each year. The large number of participants and voters make it very difficult to manipulate scores to be exactly above an award cutoff. To formally examine this, we plot the density of the vote share centered at the award cutoffs in Figure A2.[22] The density change smoothly across the corresponding cutoffs. Following McCrary (2008), we run McCrary tests on the centered vote share and cannot reject the null hypothesis that the density is continuous at the winner cutoff (p value=0.210) or the finalist cutoff (p value=0.383).

To lend further support to the quasi-randomness of award designations, we compare the baseline performance and demographics of analysts above and below the award cutoffs. Fig-

[22]The displayed density excludes the observations with centered vote share equaling zero, i.e., the analysts whose vote share is at the corresponding cutoff ranks. We do so because the density of centered vote share has a *mechanical* spike at zero due to the way we center the vote share, and McCrary test has lower power under a density with mechanical spike. To illustrate the issue, we run McCrary test on a series of simulated data. For each simulation, we generate 15 scores for each industry and each year from an industry-specific uniform distribution of scores based on the minimum and maximum scores in each industry in the actual data. We then use the simulated scores to construct centered vote share and run McCrary test on this centered vote share. The simulation and McCrary test are repeated 1,000 times. The centered vote share *including* the mechanical spike at zero passes McCrary only 0.1 percent of the times, while the centered vote share *excluding* the mechanical spike passes McCrary test over 85 percent of the times. This exercise implies that the mechanical spike at zero renders McCrary test low power, and excluding the spike improves the power of the test. Therefore, we only run McCrary test on the centered vote share excluding the mechanical zero in this paper. But observations right at the award cutoffs are included in all other figures and regressions.

ure 2 plots the 2-day BHAR of a stock on the recommendation publication date on the y-axis and the issuing analyst's margin of centered vote share on the x-axis. The return changes smoothly across the award cutoffs. Regression results reported in Table 2 column (1) tell the same story. In other words, investors do not react differently to stock recommendations from analysts above and below the award cutoffs *before* the award announcement. Moreover, Table A3 also shows that there is no discontinuity in the average 2-day BHAR in the notification week. Besides market reactions to recommendations, the quality of earnings forecasts and NF winning history are also important measures of analysts' performance. We thus examine analysts' forecast error and their probability of being star winners or finalists in the year before each award announcement. Table 2 columns (2) and (3) show that neither outcome exhibit discontinuities at the award cutoffs. We further examine analysts' characteristics, such as gender, education and work experience in Table 2 columns (4) through (6), and the characteristics of stocks recommended by them, such as market capitalization and momentum, in Table 3. All variables change smoothly across the award cutoffs. Overall, analysts are similar in baseline performance, demographics, and stock characteristics, regardless of their award status.[23]

Since brokerage houses are sometimes in a better position than individual analysts to manipulate votes, we also check the characteristics of brokerage houses which employ the analysts above and below the award cutoffs. First, if certain brokerage houses always buy votes to push their analysts above the award cutoffs, we expect a drop in the diversity of brokerage houses and a jump in the probability of winning in previous years when we move from below an award cutoff to above the cutoff. Table A4 columns (1) and (2) show that this is not the case. Neither the number of unique brokerage houses in each NF industry across years nor the probability of having at least one analyst being star winner or finalist in the last year changes significantly across the award cutoffs. In Table A4 columns (3) through (8), we examine other characteristics of the brokerage houses, such as total assets, net profit, number of analysts, number of stock recommendations, whether the brokerage house is publicly listed, and whether it is held by mutual fund. All variables change smoothly

[23]The construction of the above variables is in Appendix A.

across the award cutoffs.

One final issue is that we include stock recommendations issued in the notification week for the main RD sample at the winner cutoff. One may worry that finalists who are notified in this week may change how they recommend stocks, which then causes the discontinuity in market reactions after the award announcement. This is not a problem at the winner cutoff. Note that finalists do not know their winner status in the notification week. Therefore, changes in recommendation strategy, if any, have to be continuous at the winner cutoff and hence cannot cause the discontinuity in market reactions. To corroborate this argument, we examine analysts' recommendation strategy before and during the notification week. Table A5 columns (1) and (2) show that analysts above the winner cutoff are no more likely to issue stock recommendations or initiate new stock coverage in the notification week compared to those below the cutoff. Table A5 columns (3) through (7) compare the characteristics of stocks recommended by analysts above and below the winner cutoff before and during the notification week. *Post* is one if the stock is recommended in the notification week, and zero if between the notification week and the 60 days before the award announcement. The insignificant coefficients on Win and on $Win \times Post$ suggest that analysts above and below the winner cutoff recommend similar stocks before the notification week and during the notification week.[24]

3.3. Effect at the Winner Cutoff

In this section, we discuss how investors respond differently to *stale* stock recommendations from star winners and non-winners right after the award announcement. Figure 3 plots the BHAR of stocks with pre-existing recommendations from star winners and non-winners on the first two trading days after the award announcement. There is a significant jump in the return of stocks from just below to just above the winner cutoff. In other words, the market reacts more to stocks previously recommended by star winners than to those by non-winners after the award announcement. Table 4 presents regression formalization of the above figures. Our preferred specification in column (3) shows that the stocks with

[24] As robustness check, we present the main results excluding the stocks recommended in the notification week. The estimate is within half the standard deviation from the one estimated using the main RD sample. The results are reported in Section 3.5.

stale recommendations from analysts barely winning the award experience 66 basis points higher BHAR in the first two trading days after the award announcement than those with recommendations from analysts barely missing the award. This difference amounts to 1.3 times the average two-day BHAR of non-stale stock recommendations in the year before the award. Estimates fluctuate less than half of the standard deviation when we vary the controls from column (1) to column (3).[25]

These findings suggest at the award announcement prompts some investors to react more to stale recommendations from star winners than those from non-winners. The reaction is inconsistent with the semi-strong form efficient market hypothesis, under which information in stale recommendations should have been reflected in prices and the market should not react to stale recommendations. So what could be driving the reaction? There are at least two potential explanations.

Attention trading. It is possible that the heightened media exposure of star winners attract investor attention and prompt them to search for winners' stale recommendations. To understand this channel, we first examine the existence of its necessary condition — media exposure and public attention. We collect the search volume and the daily number of news articles mentioning "New Fortune Best analyst award" on Baidu, the largest search engine and most easily accessible information source for retail investors in China. As shown in Figure 4, both media mentions and search volume surge following the award announcement. The media indeed extensively covers the award, and the public actively search for it.

If attention trading is the driving force, we expect the reaction to the award announcement to be more pronounced among less known stocks and the stocks recommended by less known analysts. This is because the stocks and analysts with lower ex-ante public exposure should gain more from the ex-post increase in exposure by winning the award. We measure how well known an analyst is by the number of media articles mentioning their name in the year before the award and by their NF winning history. We then split the stocks recommended by all analysts by whether the analyst has above- or below-median media exposure

[25]The main measurement of market reaction in this paper is BHAR calculated using a benchmark return following Daniel et al. (2020). As robustness check, we also construct the benchmark return based on Fama-French five-factor model (Fama and French, 2015). This alternative BHAR gives quantitatively similar results, as shown in Table A6.

(11 mentions) and split the stocks recommended by star winners by whether the winner is a first-time or a repeated winner. Table 5 columns (1) through (4) show that the discontinuity in market reaction is indeed driven by stocks recommended by less known analysts, i.e., analysts with less media exposure and first-time winners. In addition, we proxy how well known a stock is by the number of recommendations covering it in the 30-day period before the award. We then split the stocks by the median number of analyst coverage (six recommendations). Table 5 columns (7) and (8) show that the discontinuity in market reaction is again driven by stocks that are less known to begin with. Finally, retail investors are more subject to limited attention (Barber and Odean, 2008). Therefore, we expect the reaction to be stronger among stocks with less institutional investor holding. We thus split the stocks by whether the share of institutional holding in the mid-year before the award is above or below the sample median (6.19 percent). Table 5 columns (5) and (6) indicate that the discontinuity in market reaction is driven by stocks with below-median institutional holding. Note that the correlation between each two of the four splitting variables is between -0.04 and 0.153. Therefore, the above tests are different enough and, when taken together, provide solid evidence that attention trading is at work.

Ability signaling. It is also possible that some investors view winning the award as a signal of analyst ability. For example, investors may update beliefs about the precision of price signal in winners' stale recommendations and change their investment decisions accordingly. If ability signaling is the main mechanism, we expect investors to continue reacting more to winners' *new* stock recommendations issued shortly after the award announcement. This is because investors' beliefs about analysts' ability are unlikely to rapidly change again given that new information on analysts' ability or stock fundamentals has not yet entered the market. We thus compare the 2-day BHAR of stock recommendations newly issued by star winners and non-winners in 6-35, 36-65, 66-95 days after the award announcement.[26] Table 6 panel A shows that the market does *not* respond significantly more to the new stock

[26] We exclude recommendations issued in the first five days after the award announcement because Figure 4 suggests that media mentions of the award continue till around five days after the award. Also, we include additional day-of-week fixed effects for this exercise, because the market reaction can be measured on any weekday depending on the publication date of the new recommendations. These fixed effects are unnecessary in the main RD regression, because the market reaction is always measured on Monday.

recommendations from star winners than those from non-winners. The result remains quantitatively similar even when we restrict winners to be *repeated* winners in panel B, whose signal of ability should be stronger than first-time winners. Importantly, Table A7 shows that there is no discontinuity in the probability of issuing new recommendations between analysts above and below the winner cutoff, so differential selection in the post-award period cannot explain the lack of difference in market reaction. These findings imply that ability signaling does not persist once attention disappears, which strongly suggests that signaling is not the main mechanism.

Overall, our empirical evidence supports that attention trading is the main mechanism and ability signaling plays a limited role. Attention trading can exist *without* ability signaling, if investors search the winners not for the analysts' ability in recommending stocks but out of their curiosity generated by the analysts' frequent media appearance. The attention paid to the analysts' stale recommendations can then be a by-product of the search for the analysts, as the search engine often returns analysts' most recent recommendations as the top results. In other words, "Best *Looking* Financial Analyst" award is expected to generate similar immediate market reaction in our context, even though the award is unrelated to analyst ability.

Importantly, attention to stale recommendations can be beneficial for informational efficiency, if the information contained in the stale recommendations has *not* been fully incorporated into prices. However, the attention could lead to overreaction followed by reversal, if the information has already been reflected in the prices but some investors fail to realize it. To distinguish the two cases, we construct a time series of BHAR of stocks in the main RD sample starting at 0 from the 10^{th} trading day before the announcement and accumulating all the way to the 30^{th} trading day after the announcement. Figure 5 plots the average BHAR of stocks recommended by star winners and by non-winners in the main RD sample. The BHAR of the two groups converges around 20 trading days after the award announcement. To formalize the figure, we repeat regression 1 using BHAR during the 5-day, 10-day, ..., and 30-day period starting from the award announcement in Table A8. Panel A shows that the coefficients on Win dummy decrease in both magnitude and statistical significance as the duration increases. In panel B, we restrict stocks to be those *without* any earnings

announcements during this period, and the reversal pattern still exists. Therefore, overreaction being corrected by new fundamental information entering the market is not a leading cause for the reversal. Overall, the findings imply that the information contained in the stale recommendations is already in the prices before the award while some investors fail to realize this and overreact.

Will investors benefit from buying stocks with stale recommendations from star winners? First, investors who buy winners' stocks but do not sell them quickly enough are likely to face a loss in the short run due to the reversal. In addition, investors will not make a profit even if they keep holding the stocks. The risk-adjusted monthly return of a portfolio based on the stocks in star winners' stale recommendations from the month of the recommendation to the following 12 months is merely -1.7 basis points (p value=0.8729).[27]

There are three final points worth mentioning. Firstly, Figure A3 shows that the magnitude of the immediate market reaction to winners' stale recommendations decreases from the start of the sample period (2005-2008) to the end of it (2012-2014), although the significance level of the estimate is smaller at the beginning due to the smaller sample size. One interpretation of this pattern is that investors learn about the overreaction overtime and lower their reaction.

Secondly, we do not find increase in the search volume on the tickers of the stocks recommended by star winners. This finding is similar to Lawrence et al. (2017) which also finds no increase in information acquisition by the Yahoo Finance users who experience the promotion of earnings announcements for certain stocks. The lack of further information acquisition may indicate that investors make purchase decisions based on minimal additional research or conduct research on platforms unobservable to us.

Finally, Figure 5 shows that the return of stocks recommended by both star winners and non-winners rise in the week *before* the award announcement, but the return of stocks by non-winners decreases after the announcement. One explanation is that the list of fi-

[27]The portfolio consists of the latest stocks recommended by star winners in the 30 days before the award announcement. Stocks enter the portfolio in the month of the recommendation and remain in the portfolio for the following 12 months. The return of individual stocks is aggregated to the portfolio return using equal-weighted method. The portfolio alpha is calculated using the Fama-French five-factor model (Fama and French, 2015); the factors and the risk-free rate are from CSMAR.

nalists is leaked in the notification week, and informed investors trade in anticipation of the subsequent market overreaction. For instance, informed investors can buy stocks with stale recommendations from all finalists in the notification week but sell stocks from *failed* finalists after the award announcement. The drop in price among stocks from failed finalists after the award may then cause a panic among uninformed investors who follow suit to sell the stocks, further driving down the price. In appendix B, we construct a portfolio based on this strategy which is feasible for investors who obtain the list of finalists ahead of time. The portfolio earns a risk-adjusted daily return of 18 basis point during the 10 days around the announcement (Table 7). To understand who leaks and who trades on the information ahead of time, we now switch to the cutoff of finalist.

3.4. Effect at the Finalist Cutoff

In this section, we examine the difference in the return of stocks with stale recommendations from analysts above and below the cutoff of *finalist*. Figure 6 depicts the average 2-day BHAR on Monday through Thursday in the notification week in panel A and the 2-day BHAR on the first day after the award announcement in panel B.[28] The figure shows that the stocks recommended by analysts barely making it to the finalist groups experience significantly higher market reaction in the notification week than those who do not make it. However, the discontinuity turns negative right after the award announcement. Regressions in Table 8 formalize the findings.[29]

It is evident that information about finalists is leaked before the award announcement, but how so? One possibility is via notified finalists and their brokerages. Past literature has shown that analysts tip their institutional clients prior to releasing stock recommendations (Irvine, Lipson, and Puckett, 2012), and that analysts in brokerages who rely more on trading commission are more susceptible to biases (Cowen, Groysberg, and Healy, 2006). Therefore, brokerages relying more on the business of institutional clients (e.g., mutual funds) may have higher incentive to leak the information. We thus expect the stocks recommended

[28]NF does not record the exact date of notification. We thus err on the conservative side and use the average market reaction in the notification week as a proxy.

[29]In Section 3.5, we show that BHAR calculated using the benchmark return from a Fama-French five-factor model gives quantitatively similar results.

by analysts in these brokerages to experience higher price fluctuations before and after the award announcement. We proxy for a brokerage's reliance on institutional clients by the proportion of its operating income from mutual fund trading commission in the mid-year before the award. We then split the sample by whether the proportion is above or below the sample median (0.6 percent). Consistent with our conjecture, Table 9 columns (1) through (4) show that the price fluctuations in the notification week and on the first trading day after the announcement concentrate among the stocks recommended by analysts in brokerages that rely more on trading commission.

Institutional investors are often considered as a force for price stability and market efficiency. But here, it is possible that their speculative trading based on insider information exacerbates the price fluctuations around the award announcement. Nonetheless, investors' inability to tell stale from new information is still the root cause for the overall difference in the market reaction between star winners' stocks and non-winners' stocks.

3.5. Robustness Checks

In this section, we alter the running variable, dependent variables, inference methods, degree of polynomial, bandwidth, and sample selection to test the robustness of our main findings. We first re-estimate the main results using rank and raw scores as running variables in Table A9. The new estimates are within one standard deviation from the ones estimated using vote share as running variable. We next replicate the main results under various clusters including brokerage house, NF industry section, and stock industry sector in Table A10. The statistical significance remains similar. We also re-estimate the regression with local quadratic regression in Table A11. The new estimates are also within one standard deviation from those estimated with local linear regression. We further estimate the main results under varying bandwidths, including the bandwidths selected following Calonico et al. (2014). The estimates are stable across various bandwidths (Figure A1). In addition, we change the stock selection criteria from the last stock recommended by each analyst within 1-30 days before the award announcement (or notification week) to the last three, five, or all stocks recommended during the same period in Table A12. Lastly, we change the day range of stock selection from within 1-30 days before the award announcement (or notification week)

to 61-90, 91-120, and 121-150 days before the award announcement (or notification week) in Table A13. The estimates are smaller than the ones in the main RD sample, suggesting that investors respond more to more recent recommendations.

It is possible that stocks receive new recommendations right around the award announcement, which can bias our estimates in an unknown direction. We thus exclude stocks that receive any new recommendations between the Saturday and the Monday around the announcement in Table A14 column (3) and those that receive recommendations between the Saturday and the Monday around the notification week in Table A15 column (3). The estimates are similar to the main results. In addition, firms may issue announcements around the award announcement, which could also bias our findings. Therefore, in Table A14 column (4) and Table A15 column (4), we drop stocks that issue announcements between the Friday in the notification week and the Tuesday after the award announcement. The estimates are largely unchanged. To alleviate the concern that analysts may change recommendation strategy in the notification week, we exclude the stocks recommended in the notification week in Table A14 column (5). The estimate is within half the standard deviation from the one estimated in the main RD sample.

Finally, we examine how trading volume responds to the award announcement. We construct the daily abnormal turnover by subtracting the natural log of the daily turnover by the average of natural log of daily turnover in the previous 30 to 60 days.[30] Table A16 column (1) shows that the cumulative abnormal trading volume in the two days following the award announcement is 30 percent higher among the stocks with stale recommendations from analysts above the winner cutoff than those from analysts below the cutoff. This finding implies that the award announcement prompts investors to trade more stocks recommended by the star winners. We also examine the trading volume at the cutoff of finalist. Although the coefficients on Win dummy in Table A16 columns (2) and (3) have the same signs as expected, they are not statistically significant from zero.

[30]The construction is in Appendix A.

4. POST-AWARD EFFECT

4.1. Market Reaction

So far, we have demonstrated a clear discontinuity in market reaction to stale recommendations from analysts barely winning and those barely missing the award following the award announcement. We also show that the market does not react differently to new stock recommendations issued by winning and losing analysts shortly after the award announcement. To understand market reaction in a longer period of time, we now examine stock recommendations issued in the whole year after the award announcement. We measure market reaction to stock recommendations with the adjusted two-day BHAR following Loh and Stulz (2011). The specification is similar to that in regression 1. Besides brokerage and NF industry fixed effects, we also control for month, day-of-week, and year-and-stock-industry fixed effects.[31] We cluster standard errors by year-and-NF industry.

Table 10 column (1) reports the regression results. In the whole year after the award announcement, the market does not react differently to stock recommendations from winning and losing analysts. As a check for the validity of the RD design, we examine market reaction to stock recommendations issued in the year *before* the award announcement. Table A17 column (1) shows that no difference in market reaction exists before the announcement.

4.2. Information Production

Besides market reaction to stock recommendations, the response of brokerages and analysts themselves is also worth understanding. Since providing earnings forecasts is an essential job task for financial analysts, we now examine their forecast performance in the year after the award. Following Fang and Yasuda (2009), we measure forecast performance using forecast error, forecast bias, and forecast boldness based on the *last* earnings forecast from each analyst for each stock in a calendar year.[32] Table 10 reports the regression results. Analysts above the winner cutoff issue earnings forecasts with similar error, bias and boldness

[31] We do not control for day-of-week or year-and-stock-industry fixed effects before, because the market reaction is always measured on a Monday, and the sample size is too small to include year-and-stock industry fixed effects.

[32] Detailed construction is in Appendix A.

as those below the cutoff after the award announcement, as indicated by the insignificant estimates on $Win(t)$ dummy in panel A columns (2) to (4). However, panel B columns (2) and (3) show that analysts barely making it to the finalist groups issue more accurate and less positively biased earnings forecasts than those not making it to the groups. To ensure the validity of the RD design, we examine the earnings forecasts issued in the year before the award announcement. Table A17 columns (2) to (4) show that the earnings forecasts issued by analysts above and below either award cutoff are similar in all three dimensions before the award announcement.

A natural question that follows is why the analysts barely making it into the finalist groups become better at earnings forecasts than those barely not making it, who are ex-ante similar to the former? One possibility is that brokerage houses allocate more resources to analysts with award designations or who are likely to become star analysts in the future.[33] To measure how favorably brokerage houses assign resources to these analysts, we construct three empirical proxies: (1) teammate quality, (2) team size, and (3) lead author status. Teammate quality for an analyst's earnings forecast is defined as the average of the baseline forecast error among the analyst's coauthors in the same forecast. For a solo-author forecast, teammate quality is defined as the average of the baseline forecast error among all coauthors of the analyst in the year after the award. Team size for an earnings forecast is the number of analysts putting their names on the report. Lead author status is an indicator of whether an analyst's name is listed the first in an earnings forecast.[34] Since we are interested in the resource allocation in the whole year after the award, we include *all* earnings forecasts issued in the period. Table 10 columns (5) through (7) report the regression results. Overall, analysts making it to the finalist groups are assigned to larger and better teams than those not making it. One top of that, analysts barely winning the award are more likely to be lead authors than those barely missing the award. As a check for the validity of the RD design, we examine the three proxies in the year before the award announcement. Table A17

[33]Brokerage houses have incentives to do so because star analysts are shown to attract a higher market share of trading volume and investment banking deal flows for their brokerage houses (Clarke, Khorana, Patel, and Rau, 2007; Niehaus and Zhang, 2010).

[34]In China, authors are listed in a descending order of hierarchy. The one listed first is usually the team leader. Lead author status is coded as missing for solo-author forecasts.

columns (5) through (7) show that all proxies change smoothly across the award cutoffs.[35]

Finally, past papers have shown that conflicts of interest play a role in sell-side research. For example, brokerages reward analysts who promote stocks (Hong and Kubik, 2003), and analysts' earnings forecasts are influenced by their desire to win investment banking business (Chan, Karceski and Lakonishok, 2007). However, given the improvement in forecast performance documented above, is it possible that star finalists manage to overcome such conflicts of interest? To understand this possibility, we examine the heterogeneity in the improvement in forecast performance by the level of conflicts of interest. In Table 11, we split earnings forecasts by whether the covered firm has ever had any underwriting relationship in initial public offering, right issue or rationed shares with the analysts' brokerages before the forecasts. Interestingly, the improvement in forecast performance among star finalists only comes from forecasts for firms that are *not* affiliated with the brokerages. Among forecasts for firms affiliated with the brokerages, coefficients on *Win(t)* dummy for forecast error and forecast bias are positive, albeit insignificant. Taken together, our findings suggest that award designations could attract favourable resources to the analysts, which improves their forecast performance. However, these analysts still have incentives to issue biased forecasts for certain firms to maintain investment banking business.

5. CONCLUSION

This paper studies the role of the media in financial markets. We exploit a series of exogenous attention shocks generated by the announcements of a financial analyst award on the front page of a high-profile financial magazine. We document a clear discontinuity in the return between the stocks with stale recommendations from analysts barely winning the award and appearing on the front page and the stocks with stale recommendations from analysts barely missing the award. However, the return fully reverses within 20 trading days. Evidence is consistent with the notion that investors are drawn to star winners' stale recommendations due to heightened media exposure. Investors' inability to tell stale from new information can be a root cause for the overreaction.

[35] All the above results are robust to dropping solo-author earnings forecasts, which account for 36.6% of the regression sample. Results are available upon request.

The documented investor behavior is generalizable to markets where information gathering is costly and investors have limited attention. However, whether the investor behavior can cause an observable price impact depends on the proportion of uninformed investors and the level of limit to arbitrage in the market. In markets which are dominated by retail investors and impose short sale restrictions, such as those in China and many developing countries, the investor behavior documented here is likely to have an observable price impact. In other words, the media can make price less efficient in the short run by drawing investor attention to stale information in these markets. Our findings paint a more comprehensive picture of the role of media in financial markets. Not only can the media facilitate information incorporation into asset prices, it can also introduce noises to the markets.

In addition, we find suggestive evidence that institutional investors' speculative trading based on leaked award information amplifies the price fluctuation around the award announcement. These findings highlight that insider trading can exacerbate price fluctuation and market inefficiency.

Finally, we find that brokerages assign awardees to larger and better teams, and these analysts issue more accurate and less biased earnings forecasts than others in the year after the award. Favourable resource allocation to analysts with award designations may contribute to the persistent difference in performance between star and non-star analysts documented in the literature. However, the better performance is only among earnings forecasts for firms not affiliated with the brokerages. Reputation and favourable resources obtained from winning the award may facilitate analysts' research, but analysts still have incentives to issue biased reports for certain firms to main investment banking business.

In conclusion, the media and its induced attention are a double-edged sword. This is especially the case when investors do not effectively distinguish stale from new information. As a potential remedy, the media is encouraged to give due credit to the initial information source to help investors gauge the staleness of the information.

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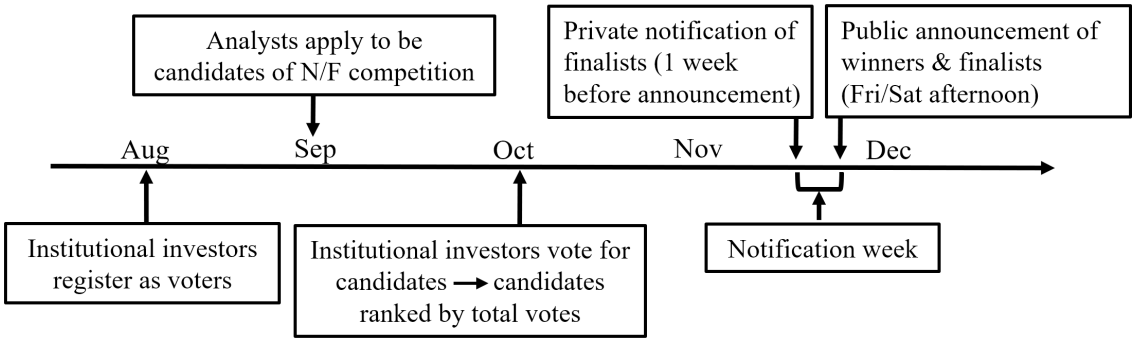
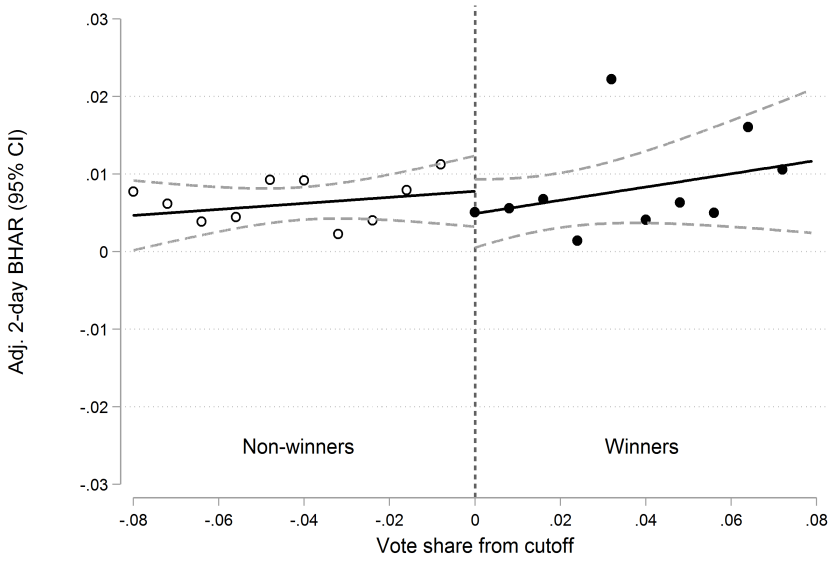
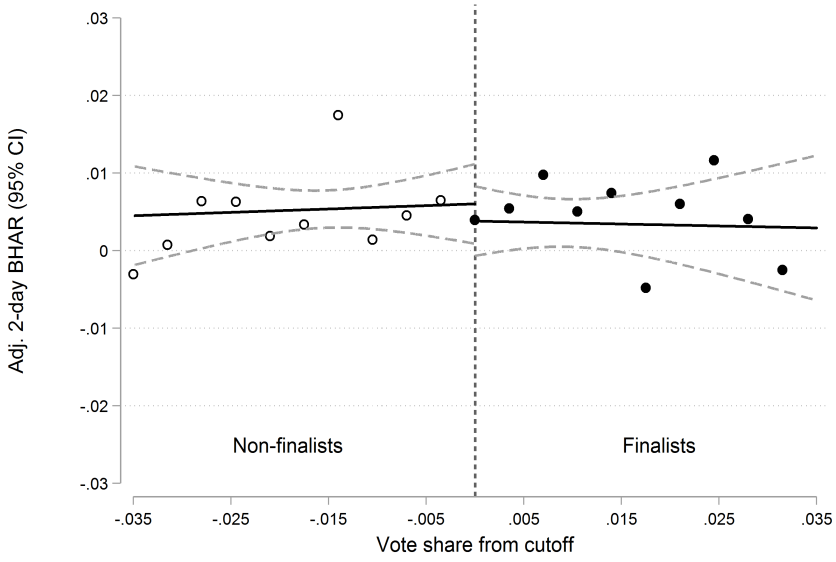


Figure 1: Timeline of New Fortune magazine's "Best Financial Analyst" Ranking



A: Winner Cutoff



B: Finalist Cutoff

Figure 2: Placebo Test – Market Reaction on Actual Recommendation Publication Date

Notes: Each observation is the average two-day BHAR on the actual recommendation publication date in a 0.008 vote share bin (panel A) or a 0.0035 vote share bin (panel B) for the last stock recommended by each analyst within 1-30 days before the award announcement (panel A) or before the notification week (panel B). Dashed vertical line denotes the vote share at the cutoff of winner (panel A) and at the cutoff of finalist (panel B) for each industry each year and is normalized to 0. The solid lines are estimated using a local linear regression with triangular weights and individual-level data. The dashed lines denote the 95% confidence interval based on the standard errors clustered by NF industry and year.

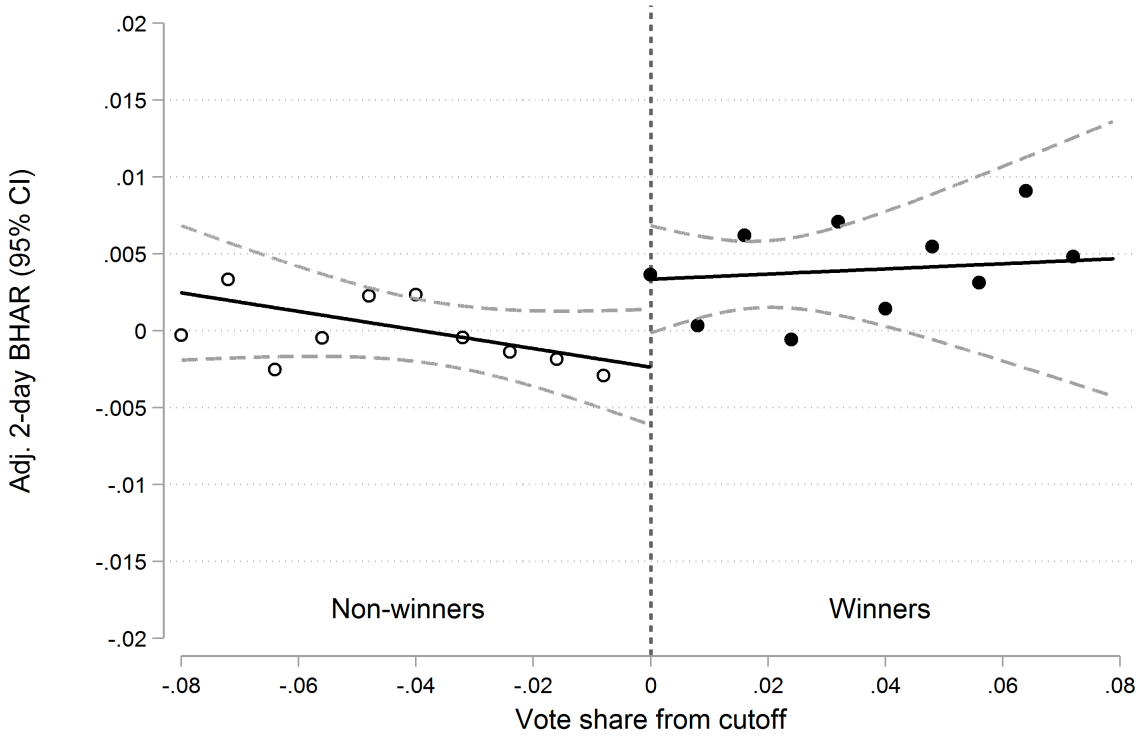


Figure 3: Main Result – Market Reaction after the Award Announcement
Winner Cutoff

Notes: Each observation is the average two-day BHAR on the first trading day after the award announcement in a 0.008 vote share bin for the last stock recommended by each analyst within 1-30 days before the award announcement. Dashed vertical line denotes the vote share at the winner cutoff for each industry each year and is normalized to 0. The solid lines are estimated using a local linear regression with triangular weights and individual-level data. The dashed lines denote the 95% confidence interval based on the standard errors clustered by NF industry and year.

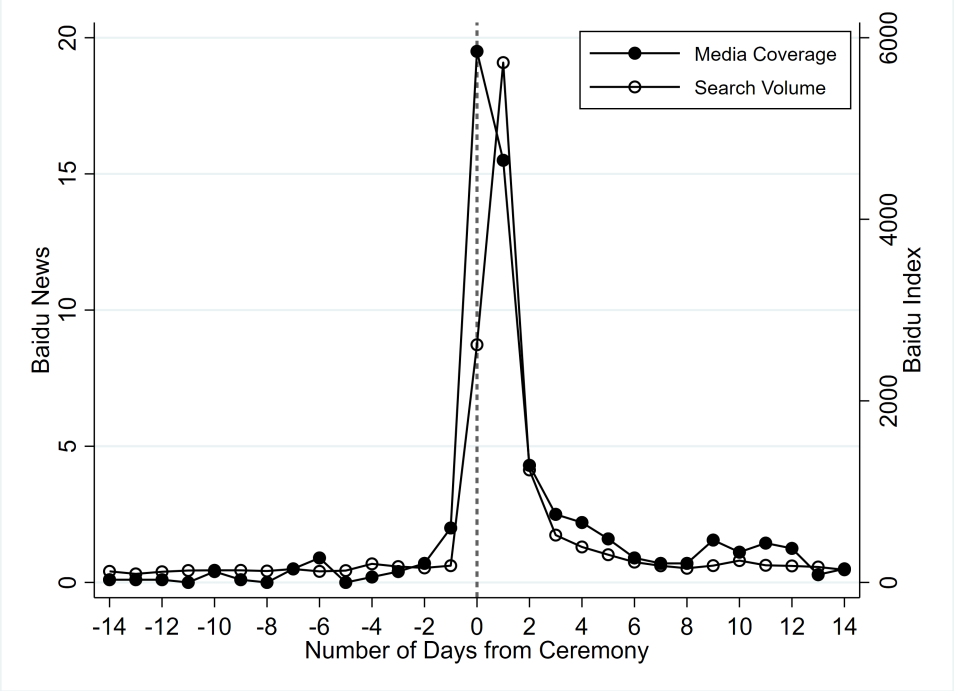


Figure 4: Media Exposure and Search Volume of Award Announcement

Notes: The dashed vertical line donates the day of award announcement. The line with solid dots and the line with hollow dots depict the average number of news articles found on Baidu and the search volume on Baidu ("Baidu Index") mentioning phrases "New Fortune Best Financial Analyst", respectively.

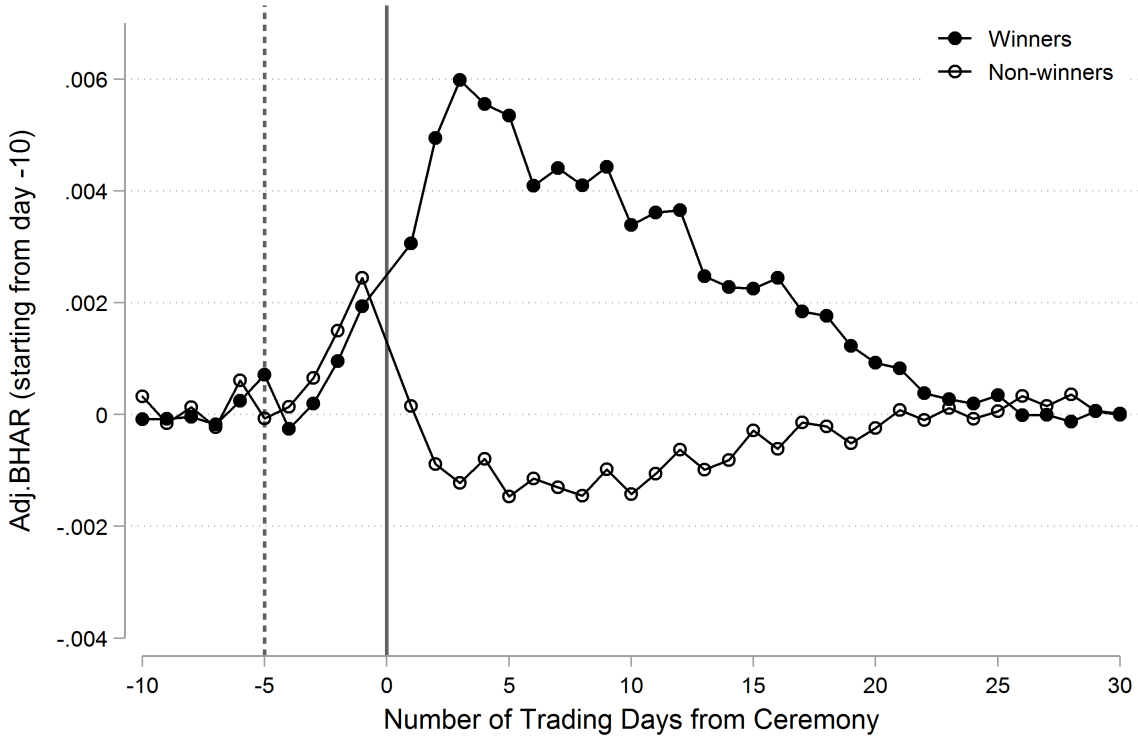
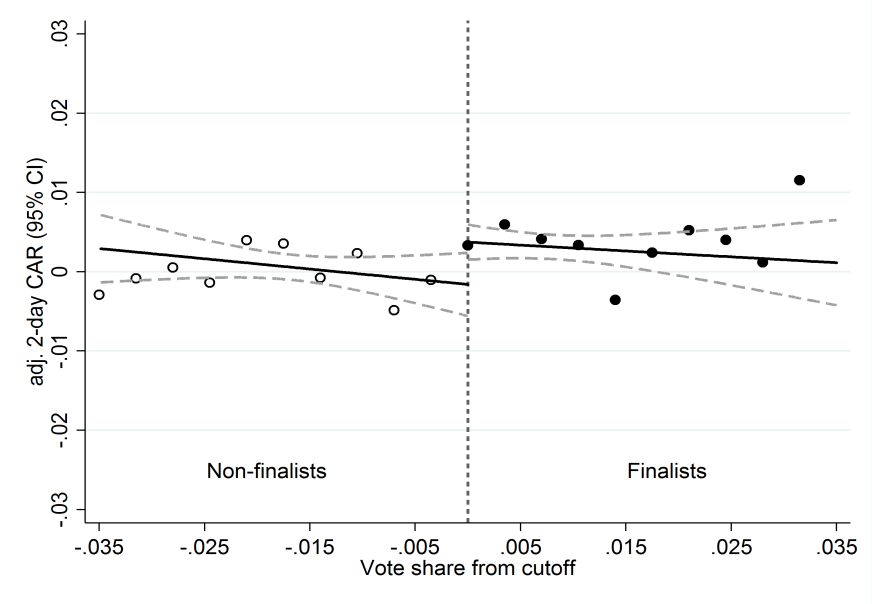
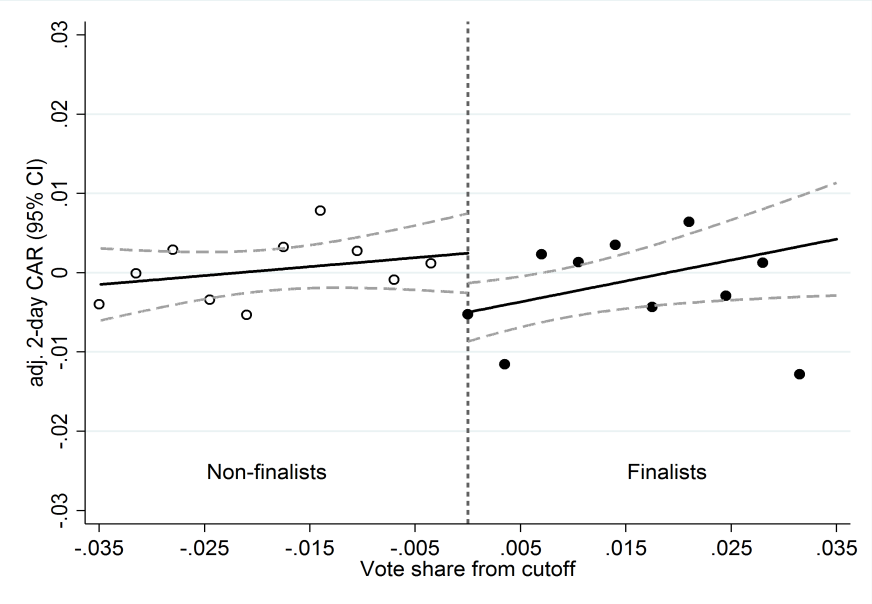


Figure 5: Buy-and-hold Abnormal Return around the Award Announcement Winner Cutoff

Notes: This figure plots the BHAR from the 10^{th} trading day before the award announcement to the 30^{th} trading day afterwards for stocks recommended by analysts in the main RD sample. The solid vertical line and the dashed vertical line mark the award announcement and the beginning of the notification week, respectively. The line with solid dots denote the average BHAR among the stocks recommended by analysts above the winner cutoff; the line with hollow dots denote the average BHAR among the stocks recommended by analysts below the cutoff.



A: In the notification week



B: After the award announcement

Figure 6: Main Result – Market Reaction in Notification Week and after Award Announcement; Finalist Cutoff

Notes: Each observation is the average two-day BHAR from Monday to Thursday in the notification week (panel A) and on the first trading day after the award announcement (panel B) in 0.0035 vote share bin for the last stock recommended by each analyst within 1-30 days before the notification week. Dashed vertical line denotes the vote share at the finalist cutoff for each industry each year and is normalized to 0. The solid lines are estimated using a local linear regression with triangular weights and individual-level data. The dashed lines denote the 95% confidence interval based on the standard errors clustered by NF industry and year.

Table 1: Summary Statistics

VARIABLES	(1)	(2) Winner cutoff	(3)	(4)	(5) Finalist cutoff	(6)
	Main RD recommendation	Post-award recommendation	Post-award forecast	Main RD recommendation	Post-award recommendation	Post-award forecast
Baseline 2-d BHAR	0.00474	0.00519	-	0.00424	0.00455	-
	(0.03492)	(0.03545)		(0.03493)	(0.03516)	
Baseline forecast error	-	-	0.03115	-	-	0.03173
			(0.03619)			(0.03626)
Vote share	0.06966	0.08234	0.08626	0.05727	0.05882	0.06368
	(0.04525)	(0.02828)	(0.01941)	(0.02561)	(0.02996)	(0.01732)
Win(t)	0.36808	0.48263	0.59444	0.50551	0.50966	0.63638
	(0.48244)	(0.49971)	(0.49102)	(0.50020)	(0.49991)	(0.48106)
Stock rating	4.33616	4.34307	-	4.25184	4.32274	-
	(0.62984)	(0.60204)		(0.63550)	(0.61884)	
Observation	1,535	34,113	11,860	1,088	42,805	12,051
Analysts						
Male	0.73354	0.73044	0.73439	0.72222	0.70999	0.72429
Master+	0.89962	0.89364	0.89416	0.89423	0.89606	0.90613
Experience	3.33908	3.32029	3.32029	3.35804	3.30420	3.16939
Win(t-1)	0.28084	0.30164	0.30164	0.35623	0.39376	0.33159
Other Stats						
Unique analysts	1,003	804	561	714	1,025	594
Unique stocks	644	1,488	1,319	518	1,585	1,352
Unique stock industries	66	76	80	62	77	79
Unique brokerages	37	38	33	34	46	35
Unique NF industries	27	27	27	27	27	27

Notes: This table reports the mean and standard error (in parentheses) for our regression samples. Columns (1) and (4) are at the analyst × stock × date level, columns (2) and (5) are at the stock recommendation level, and columns (3) and (6) are at the analyst × stock × year level. *Baseline 2-d BHAR* is the average adjusted two-day BHAR for stock recommendations issued in the year before the award announcement. *Baseline forecast error* is the average forecast error of stock forecasts issued in the year before the award announcement. *Vote share* is an analyst's score divided by the sum of scores among top 15 analysts (teams) in a NF industry in a year. *Win(t)* (or *Win(t-1)*) equals 1 if the analyst is above the winner cutoff (columns(1) to (3)) or finalist cutoff (columns (4) to (6)) in the year of (or before) an award announcement. *Stock rating* is the analyst's rating for a stock: strong sell=1, sell=2, neutral=3, buy=4, and strong buy=5. *Male* is an indicator of being male. *Master+* is an indicator of the analyst having master or above degree. *Experience* is the number of years since the analyst made his/her first recommendation till the year of the measurement.

Table 2: Validity of RD – Analyst Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline performance			Demographics		
VARIABLES	2-d BHAR(t-1)	Forecast error(t-1)	Win(t-1)	Male	Master+	Experience
Panel A: Winner Cutoff						
Win(t)	-0.00021	-0.00133	-0.04864	-0.01449	0.01640	0.07486
	(0.00103)	(0.00136)	(0.05468)	(0.03822)	(0.03237)	(0.18638)
Outcome mean	0.00474	0.03364	0.28084	0.73354	0.89962	3.2967
Observations	1,702	1,606	1,702	1,610	1,614	1,702
R-squared	0.189	0.269	0.160	0.110	0.126	0.109
Number of clusters	146	142	146	146	144	146
Bandwidth	0.080	0.080	0.080	0.080	0.080	0.080
Panel B: Finalist Cutoff						
Win(t)	0.00061	0.00299	-0.07241	0.01601	0.01911	-0.33510
	(0.00123)	(0.00198)	(0.06244)	(0.05050)	(0.04167)	(0.23876)
Outcome mean	0.00424	0.03208	0.35623	0.72222	0.89423	3.35804
Observations	1,106	1,035	1,106	1,044	1,040	1,106
R-squared	0.229	0.295	0.188	0.143	0.211	0.121
Number of clusters	143	141	143	143	143	143
Bandwidth	0.035	0.035	0.035	0.035	0.035	0.035

Notes: The data are at the analyst × year level consisting of all analysts whose margin of vote share is within 0.08 from the winner cutoff (panel A) and 0.035 from the finalist cutoff (panel B). *Win(t)* equals 1 if the analyst is above the cutoff of winner (panel A) or finalist (panel B) in year t. $t-1$ refers to the year before the award announcement. Variables are defined in the same way as in Table 1. Sample size varies due to missing dependent variables. All regressions control for year, brokerage house, and NF industry fixed effects, and are estimated using a linear RD model with triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Validity of RD – Stock Characteristics

VARIABLES	(1) Market cap	(2) Under-valued	(3) P/E ratio	(4) Beta	(5) Momentum
Panel A: Winner Cutoff					
Win(t)	-8.60010	-0.01561	18.80812	0.01528	0.00829
	(7.37266)	(0.03225)	(16.85633)	(0.02016)	(0.00995)
Outcome mean	55.92195	.41704	55.51162	1.09219	.01311
Observations	1,525	1,525	1,490	1,494	1,506
R-squared	0.519	0.500	0.167	0.570	0.601
Number of clusters	146	146	146	146	146
Bandwidth	0.080	0.080	0.080	0.080	0.080
Panel B: Finalist Cutoff					
Win(t)	3.28350	-0.02396	-9.22075	0.04156	0.00376
	(7.91492)	(0.05293)	(28.63591)	(0.03202)	(0.01532)
Outcome mean	64.853	.44196	50.14221	1.08721	.00211
Observations	1,077	1,077	1,049	1,058	1,068
R-squared	0.483	0.580	0.178	0.594	0.613
Number of clusters	143	143	142	143	143
Bandwidth	0.035	0.035	0.035	0.035	0.035

Notes: The data are at the analyst × stock × date level consisting of the last stock recommended within 1-30 days before the announcement by an analyst whose margin of vote share is within 0.08 from the winner cutoff (panel A) and 0.035 from the finalist cutoff (panel B). Sample size varies due to missing dependent variables. *Market cap* is stock's 3rd-quarter market capitalization measured in billion CNY. *Under-valued* equals 1 if stock's 3rd-quarter book-to-market ratio ≤ 1. *P/E ratio* is stock's 3rd-quarter price-to-earnings ratio. *Beta* is stock's risk factor estimated from CAPM regression using daily data in the past 250 trading days starting from October 31^{st}. *Momentum* is stock's return with cash dividend reinvestment in the month before announcement, i.e., October. *Win(t)* is 1 if analysts are above the winner cutoff (panel A) or above the finalist cutoff (panel B). All regressions control for year, brokerage, NF industry, and stock industry fixed effects and are estimated using a linear RD model with triangular weights. Standard errors in parentheses are clustered by NF industry in column (1) and by NF industry × year in columns (2) through (8). *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Main Result – Market Reaction after the Award Announcement
Winner Cutoff

VARIABLES	(1) 2-d BHAR	(2) 2-d BHAR	(3) 2-d BHAR
Win(t)	0.00591**	0.00504*	0.00659**
	(0.00290)	(0.00303)	(0.00293)
Baseline mean	0.00474	0.00474	0.00474
Observations	1,535	1,535	1,535
R-squared	0.012	0.082	0.183
Number of clusters	146	146	146
Year FE	Yes	Yes	Yes
Brokerage FE	No	Yes	Yes
NF Industry FE	No	Yes	Yes
Stock Industry FE	No	No	Yes
IK bandwidth	0.080	0.080	0.080

Notes: The data are at the analyst × stock × date level consisting of the last stock recommended within 1-30 days before the award announcement by an analyst whose margin of vote share is within 0.08 from the winner cutoff. The dependent variable is the adjusted two-day BHAR on the first trading day after the award announcement. Baseline mean refers to the average two-day BHAR for the stock issued by the analysts in the year before the award announcement. *Win(t)* equals 1 if the analyst is above the winner cutoff in the year of the award announcement. All regressions are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Mechanism: Attention Trading - Winner Cutoff

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Media exposure		Winning frequency		Analyst coverage		Institutional holding	
VARIABLES	≤ median 2-d BHAR	> median 2-d BHAR	1^{st} time 2-d BHAR	Repeated 2-d BHAR	≤ median 2-d BHAR	> median 2-d BHAR	≤ median 2-d BHAR	> median 2-d BHAR
Win(t)	0.01150***	0.00181	0.01030***	0.00515*	0.01016**	0.00608*	0.01025**	0.00463
	(0.00418)	(0.00528)	(0.00389)	(0.00307)	(0.00481)	(0.00352)	(0.00433)	(0.00408)
Baseline mean	0.00467	0.00474	0.00466	0.00473	0.00482	0.00449	0.00458	0.00477
Observations	812	723	1,119	1,386	815	720	768	767
R-squared	0.268	0.289	0.239	0.204	0.245	0.397	0.323	0.265
Number of clusters	142	133	146	144	140	142	140	138
Bandwidth	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080

Notes: The data are at the analyst × stock × date level consisting of the last stock recommended within 1-30 days before the award announcement by an analyst whose margin of vote share is within 0.08 from the winner cutoff. In columns (1) and (2), stocks are split by whether the number of news articles mentioning the issuing analysts in the 360-day period before the award announcement is below or above the sample median (11 mentions). In columns (3) and (4), stocks recommended by analysts above the winner cutoff are split by whether the analyst is a first-time or a repeated winner. In columns (5) and (6), stocks are split by whether the number of recommendations covering the stock in the 30-day period before the award announcement is below or above the sample median (6 recommendations). In columns (7) and (8), stocks are split by whether the percentage of institutional holding for the stock in the mid-year before the award announcement is below or above the sample median (6.19 percent). The dependent variable is the adjusted two-day BHAR on the first trading after the award announcement. *Win(t)* equals 1 if the analyst is above the winner cutoff in the year of the award announcement. Specifications mirror the one in Table 4 column (3). All regressions are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Mechanism: Ability Signaling - Winner Cutoff

VARIABLES	(1) 6-35 days 2-d BHAR	(2) 36-65 days 2-d BHAR	(3) 66-95 days 2-d BHAR
Panel A: Winners v.s. non-winners			
Win(t)	-0.00048	-0.00231	0.00209
	(0.00372)	(0.00319)	(0.00315)
Baseline mean 0.00474	0.00474	0.00474	
Observations	1,666	2,276	2,377
R-squared	0.155	0.117	0.132
Number of clusters	141	142	140
Bandwidth	0.080	0.080	0.080
Panel B: Repeated winners v.s. non-winners			
Win(t)	-0.00044	-0.00179	0.00205
	(0.00439)	(0.00320)	(0.00317)
Baseline mean	0.00473	0.00473	0.00473
Observations	1,479	2,253	2,371
R-squared	0.162	0.118	0.132
Number of clusters	138	141	140
Bandwidth	0.080	0.080	0.08

Notes: The data are at the recommendation level consisting of all recommendations newly issued in 6-35, 36-65, and 66-95 days after the award announcement. Panel A includes the recommendations from all winners and non-winners whose margin of vote share is within 0.08 from the winner cutoff. Panel B restrict the winners to be repeated winners. The dependent variable is the adjusted two-day BHAR on the actual recommendation publication date. *Win(t)* equals 1 if the analyst is above the winner cutoff in the year of the award announcement. Specifications mirror the one in Table 4 column (3) plus day-of-week fixed effects. All regressions are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Portfolio Return for Informed Investors

VARIABLES	(1) Equal-weighted	(2) Equal-investment	(3) Value-weighted
Alpha	0.00176**	0.00176**	0.00180**
	(0.00076)	(0.00075)	(0.00088)
Rm-Rf	0.93627***	0.93495***	0.91247***
	(0.05483)	(0.05449)	(0.06703)
SMB	0.42937***	0.44149***	-0.04054
	(0.12380)	(0.12077)	(0.22705)
HML	-0.61191***	-0.59409***	-0.43806**
	(0.16058)	(0.16024)	(0.19788)
RMW	0.39726	0.40348*	0.28947
	(0.24108)	(0.24042)	(0.29120)
CMA	0.24567	0.23487	0.16329
	(0.21065)	(0.20980)	(0.25115)
Observations	100	100	100
R-squared	0.86443	0.86502	0.77631

Notes: This table reports the return of the portfolio formed by informed investors estimated using the Fama-French five-factor model. The portfolio includes the last stocks with buy or strong-buy recommendations from each star winners and failed finalists within 30 days before the award announcement. All Stocks enter the portfolio on the Monday in the notification week. The stocks recommended by failed finalists exit at the opening price on the first trading day after the award announcement, while the stocks recommended by star winners exit at the closing price on the Friday after the award announcement. Individual stock returns are aggregated to the portfolio level using equal-weighted, equal-investment and value-weighted method in column (1), (2) and (3), respectively. Robust standard errors are reported in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 8: Main Result – Market Reaction in Notification Week and after Award Announcement; Finalist Cutoff

VARIABLES	(1) 2-d BHAR	(2) 2-d BHAR	(3) 2-d BHAR
Panel A: Avg.in notification week			
Win(t)	0.00576**	0.00496**	0.00432*
	(0.00226)	(0.00246)	(0.00243)
Baseline mean	0.00424	0.00424	0.00424
Observations	1,088	1,088	1,088
R-squared	0.022	0.115	0.228
Number of clusters	143	143	143
Panel B: 1^{st} trading day after award			
Win(t)	-0.00797**	-0.00958***	-0.01061***
	(0.00343)	(0.00326)	(0.00323)
Baseline mean	0.00424	0.00424	0.00424
Observations	1,088	1,088	1,088
R-squared	0.019	0.125	0.228
Number of clusters	143	143	143
Year FE	Yes	Yes	Yes
Brokerage FE	No	Yes	Yes
NF Industry FE	No	Yes	Yes
Stock Industry FE	No	No	Yes
IK bandwidth	0.035	0.035	0.035

Notes: The data are at the analyst × stock × date level consisting of the last stock recommended within 1-30 days before the notification week by analysts whose margin of vote share is within 0.035 from the finalist cutoff. Bandwidths are IK bandwidths in the corresponding sample. The dependent variable is the average adjusted two-day BHAR from Monday to Thursday in the notification week (panel A) and the adjusted two-day BHAR on the first trading after the award announcement (panel B). *Win(t)* equals 1 if the analyst is above the finalist cutoff in the year of the award announcement. All regressions are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Mechanism: Institutional Investors and Information Leakage
Finalist Cutoff

	(1)	(2)
	Trading commission from mutual fund	
VARIABLES	Above median 2-d BHAR	Below median 2-d BHAR
Panel A: Avg. in notification week		
Win(t)	0.00613**	0.00168
	(0.00312)	(0.00248)
Baseline mean	0.00385	0.00445
Observations	553	535
R-squared	0.342	0.362
Number of clusters	118	116
Bandwidth	0.035	0.035
Panel B: 1^{st} trading day after award		
Win(t)	-0.01239***	-0.00667
	(0.00396)	(0.00567)
Baseline mean	0.00385	0.00445
Observations	535	535
R-squared	0.347	0.346
Number of clusters	118	116
Bandwidth	0.035	0.035

Notes: The data are at the analyst × stock × date level consisting of the last stock recommended within 1-30 days before the notification week by analysts whose margin of vote share is within 0.035 from the finalist cutoff. We split the stocks by whether the percentage of their recommending analysts' brokerage house's mutual fund trading commission over its operating income in the mid-year before the award is above or below median (0.6 percent). The dependent variable is the average adjusted two-day BHAR from Monday to Thursday in the notification week (panel A) and the adjusted two-day BHAR on the first trading after the award announcement (panel B). *Win(t)* equals 1 if the analyst is above the finalist cutoff in the year of the award announcement. All regressions are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Post-Award Effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Market reaction	Earnings forecast			Resource allocation		
VARIABLES	2-d BHAR	Error	Bias	Boldness	Teammate error	Size	Lead author
Panel A: Winner Cutoff							
Win(t)	-0.00067	-0.00106	-0.00148	-0.00085	0.00068	0.15529*	0.07061*
	(0.00065)	(0.00186)	(0.00212)	(0.00070)	(0.00188)	(0.09189)	(0.03747)
Outcome mean	0.00461	0.03239	0.02310	0.01873	0.02838	1.91328	0.34602
Observations	34,091	11,858	11,858	11,858	30,072	30,244	30,244
R-squared	0.038	0.289	0.301	0.207	0.521	0.479	0.156
Number of clusters	146	142	142	142	140	146	146
IK bandwidth	0.042	0.02	0.02	0.02	0.02	0.02	0.02
Panel B: Finalist Cutoff							
Win(t)	0.00074	-0.00280*	-0.00370*	-0.00196	-0.00426*	0.18621**	0.03649
	(0.00070)	(0.00165)	(0.00210)	(0.00173)	(0.00232)	(0.10304)	(0.04460)
Outcome mean	0.00427	0.03314	0.02335	0.01919	0.02921	1.82289	0.32665
Observations	42,805	12,048	12,048	12,048	30,239	30,471	30,471
R-squared	0.033	0.296	0.291	0.189	0.549	0.476	0.141
Number of clusters	146	142	142	142	140	146	146
IK bandwidth	0.045	0.018	0.018	0.018	0.018	0.018	0.018

Notes: The sample for column (1) is at the recommendation level consisting of all recommendations issued within 0-365 days after the award announcement from analysts whose margin of vote share is within IK bandwidth. The dependent variable is the adjusted two-day BHAR on the recommendation publication date. The samples for columns (2) to (4) are at the analyst × stock × year level consisting of the last forecast report for each stock issued within 0-365 days after the award announcement by each analyst whose margin of vote share is within IK bandwidth in the year after the award announcement. The samples for columns (5) to (6) are at the analyst × forecast report level consisting of all forecast reports issued by each analyst whose margin of vote share is within IK bandwidth in the year after the award announcement. *Teammate error* is the leave-one-out average of coauthors' baseline forecast error excluding the analyst in question (non-solo reports) or the average baseline forecast error among all coauthors of an analyst in the post-award period (solo reports), and smaller error means better quality. *Size* is the number of teammates in each forecast report. *Lead author* equals one if an analyst being listed as the first author and zero otherwise; this variable is coded as missing for solo-author forecasts. *Win(t)* equals 1 if the analyst is above the winner cutoff (panel A) or the finalist cutoff (panel B) in the year of the award announcement. All regressions control for month, day-of-week, brokerage, NF industry, and year-by-stock industry fixed effects. All coefficients are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Heterogeneity - Post-award Effects by Affiliation

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Forecast error		Forecast bias		Boldness	
	Aff=1	Aff=0	Aff=1	Aff=0	Aff=1	Aff=0
Panel A: Winner Cutoff						
Win(t)	0.00152	-0.00085	0.00481	-0.00148	0.00315	-0.00096
	(0.00417)	(0.00223)	(0.00534)	(0.00237)	(0.00387)	(0.00072)
Outcome mean	0.02963	0.03286	0.01918	0.02376	0.01774	0.01881
Observations	1,726	10,132	1,726	10,132	1,726	10,132
R-squared	0.444	0.302	0.456	0.317	0.536	0.210
Number of clusters	135	142	135	142	135	142
IK andwidth	0.02	0.02	0.02	0.02	0.02	0.02
Panel B: Finalist Cutoff						
Win(t)	0.00316	-0.00299*	0.00047	-0.00359	0.00296	-0.00403**
	(0.00312)	(0.00162)	(0.00421)	(0.00221)	(0.00276)	(0.00186)
Outcome mean	0.02911	0.03372	0.01912	0.02396	0.01881	0.01881
Observations	1,520	10,528	1,520	10,528	1,520	10,528
R-squared	0.472	0.308	0.490	0.300	0.566	0.191
Number of clusters	135	142	135	142	134	146
IK bandwidth	0.018	0.018	0.018	0.018	0.018	0.018

Notes: Affiliation (Aff) equals 1 if the brokerage of the analyst has been a underwriter of the stock in question before the forecast report. Samples and dependent variables mirror those in Table 10 columns (2) to (4). *Win(t)* equals 1 if the analyst is above the winner cutoff (panel A) or the finalist cutoff (panel B) in the year of the award announcement. All regressions control for month, day-of-week, brokerage, NF industry, and year-by-stock industry fixed effects. All coefficients are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Appendix A. Variable Definitions

Vote share. The vote share for analyst i participating in NF industry j in year t is:

$$X_{ijt} = \frac{Score_{ijt}}{\sum_{i=1}^{15} Score_{ijt}}. \tag{2}$$

Win(t). Win(t) equals one if an analyst is a NF winner (or finalist) in year t, and zero otherwise.

Adjusted 2-day Buy-and-hold Abnormal Return.

$$BHAR_{st} = \prod_{\tau=t}^{t+1}(1 + R_{s\tau}) - \prod_{\tau=t}^{t+1}(1 + R_{s\tau}^{DGTW}), \tag{3}$$

where day τ is the day of the measurement. $R_{s\tau}$ is the return of stock s on day τ, calculated with cash dividend reinvestment. $R_{s\tau}^{DGTW}$ is the return on a benchmark portfolio with similar size, book-to-market, and momentum characteristics as stock s on day τ. We follow Daniel et al. (1997) to construct the benchmark portfolios. First, in each month, we classify the universe of A share stocks listed on the Shanghai and the Shenzhen Stock Exchanges into three quintile groups, based firm size, book-to-market ratio, and momentum (the return of the stock in the previous 12 months). Stocks in each of the 125 (5×5×5) cells form a passive stock portfolio (DGTW portfolio). We calculate the return of each DGTW portfolio using equal weights. The DGTW portfolio where stock s belongs will be the benchmark portfolio for stock s. The 2-day buy-and-hold abnormal return of stock s on day t is then the difference between the realized return R_s between day t and $t+1$ and the expected return R_s^{DGTW} between day t and $t+1$ We further assign a minus sign to the abnormal return if the associated stock rating is neutral, sell, or strong sell.

Adjusted 2-day Fama-French Buy-and-hold Abnormal Return.

$$BHAR_{st}^{FF} = \prod_{\tau=t}^{t+1}(1 + R_{s\tau}) - \prod_{\tau=t}^{t+1}(1 + R_{s\tau}^{FF}) \tag{4}$$

$$R_{s\tau}^{FF} = R_{f\tau} + \hat{\alpha_s} + \hat{\beta}_s(R_{m\tau} - R_{f\tau}) + \hat{s_s}SMB_\tau + \hat{h_s}HML_\tau + \hat{r_s}RMW_\tau + \hat{c_s}CMA_\tau, \tag{5}$$

where $R_{s\tau}$ is the raw return of stock s on day τ. $R_{s\tau}^{FF}$ is the expected return of stock s on day τ computed using the Fama-French five-factor model (Fama and French, 2015). Factor loadings for each stock s are estimated in a one-year period ending 90 days before the date of measurement τ. The 2-day buy-and-hold abnormal return of stock s on day t is then the difference between the realized return R_s between day t and $t+1$ and the expected return R_s^{FF} between day t and $t+1$. We further assign a minus sign to the abnormal return if the associated stock rating is neutral, sell, or strong sell.

2-day Cumulative Abnormal Turnover.

$$CAT_{st} = \sum_{\tau=t}^{t+1}(log(Turnover_{s\tau} + \delta) - \frac{\sum_{\tau=t-60}^{\tau=t-30} log(Turnover_{s\tau} + \delta)}{30}) \tag{6}$$

$$Turnover_{s\tau} = \frac{Trading\ Volume_{s\tau}}{Total\ Outstanding_{s\tau}}, \tag{7}$$

where trading volume$_{s\tau}$ is the number of shares traded for stock s on day τ and total outstanding$_{s\tau}$ is the total number of outstanding shares for stock s on day τ. Since the time series of daily turnover is not stationary, we follow Lo and Wang (2000) and take natural log. To avoid problems caused by zero daily trading volume, we follow Loh and Atulz (2011) and add a small constant δ (0.00000255) to the turnover before taking logs. To ensure we have enough sample to calculate the moving average between $t-60$ and $t-30$, we require the stock to have at least 15 valid daily turnovers in this period. Otherwise, we code the abnormal turnover as missing. About 5.69 percent of observations are coded as missing because of this reason.

Forecast Error.

$$Forecast\ Error_{ist} = \frac{\mid EPS\ Forecast_{ist} - Actual\ EPS_{st} \mid}{Book\ Value_{s,t-1}}, \tag{8}$$

where $EPS\ Forecast_{ist}$ is the last forecast on the year-end earnings per share for stock s in year t issued by analyst i. $Actual\ EPS_{st}$ is the realized year-end earnings per share for stock s in year t. $Book\ Value_{s,t-1}$ is the year-end book value of equity per share for stock s in year $t-1$.

Forecast Bias.

$$Forecast\ Bias_{ist} = \frac{(EPS\ Forecast_{ist} - Actual\ EPS_{st})}{Book\ Value_{s,t-1}}, \tag{9}$$

where $EPS\ Forecast_{ist}$ is the last forecast on the year-end earnings per share for stock s in year t issued by analyst i. $Actual\ EPS_{st}$ is the realized year-end earnings per share for stock s in year t. $Book\ Value_{s,t-1}$ is the year-end book value of equity per share for stock s in year $t-1$.

Forecast Boldness.

$$Forecast\ Boldness_{ist} = \frac{\mid EPS\ Forecast_{ist} - EPS\ Forecast_{-ist} \mid}{Book\ Value_{s,t-1}}, \tag{10}$$

where $EPS\ Forecast_{-ist}$ is the average forecast on the year-end earnings per share for stock s in year t issued by all analysts except analyst i. $EPS\ Forecast_{ist}$ is the last forecast on the year-end earnings per share for stock s in year t issued by analyst i. $Actual\ EPS_{st}$ is the realized year-end earnings per share for stock s in year t. $Book\ Value_{s,t-1}$ is the year-end book value of equity per share for stock s in year $t-1$. Forecast boldness measures how far

an analyst's forecast deviates from the consensus forecast of all other analysts simultaneously covering the same stock.

Teammate quality. Teammate quality for analyst i's coauthored forecast report is the average baseline forecast error among all authors *excluding* analyst i. Teammate quality for analyst i's solo-author forecast report is the average baseline forecast error among all analysts ever collaborated with analyst i in the post-award period. The baseline forecast error for each analyst is the average forecast error among all last forecast reports for each stock covered by the analyst in the year before the award.

Market capitalization (Market cap). Market cap is the total number of outstanding shares times the share price.

Book-to-market ratio (B/M ratio). B/M ratio is a stock's book value divided by its market capitalization.

Undervalued. Undervalued equals one if the 3rd-quarter B/M ratio of a stock is ≥ 1, and zero otherwise. B/M ratio ≥ 1 means that the cost to replace a firm's assets is greater than the value of its stock, implying that the stock is undervalued by the market.

Price-to-earnings ratio (P/E ratio). P/E ratio is the stock price divided by the stock's earnings per share. It represents the dollar amount an investor needs to invest in a company to receive one dollar of the company's earnings. P/E ratio is coded as missing if it is negative. Higher P/E ratio implies that investors expect higher earnings growth in the future.

Beta. Beta is estimated using a CAPM model based on the daily stock return in the 250-trading-day period before the event day. Daily return of market portfolio is the value-weighted daily return among all A-share stocks. Daily risk-free rate is calculated from fixed annual interest rate.

Appendix B. Portfolio Construction for Informed Investors

Figure 5 shows that the return of stocks recommended by both analysts just above and below the winner cutoff increases during the notification week but the return for those recommended by analysts just below the cutoff decreases right after award announcement. One story consistent with this price pattern is that the list of finalists is leaked and traded on before the announcement.

Suppose an informed investor is told that the prices for five out of seven stocks will increase on the coming Monday. A viable trading strategy is to purchase all seven stocks now and sell the two stocks whose prices do not increase on the next Monday. Informed investors' selling of the two stocks pushes down the prices, while uninformed investors extract signal from the drop in prices and follow suit, further lowering the prices.

To quantify the gain for this trading strategy, we construct a calendar portfolio consisting of the last stocks with buy or strong buy recommendations from both winners and failed finalists within 30 days before the award announcement. All stocks enter the portfolio on the Monday in the notification week. The stocks recommended by failed finalists exit at the opening price on the Monday after the award announcement and those recommended by winners exit at the closing price on the Friday after the award announcement. The individual stock returns are then aggregated to the portfolio return using equal-weighted, equal-investment, or value-weighted method.[36]

The portfolio return is measured using Fama and French (2015) five-factor model,

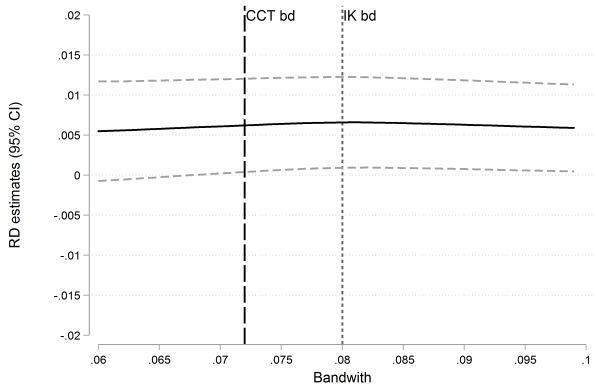
$$R_{jt} - R_{ft} = \alpha_j + \beta_j(R_{mt} - R_{ft}) + s_j SMB_t + h_j HML_t + r_j RMW_t + c_j CMA_t + \epsilon_{jt}, \quad (11)$$

where the dependent variable is the daily return on a portfolio j of recommendations less the risk-free rate on day t, and the right-hand-side variables are the return on the value-weighed market index less the risk-free rate ($R_{mt} - R_{ft}$), the daily return on a portfolio of small-cap stocks less the return on a portfolio of large-cap stocks (SMB_t), the daily return on a portfolio of high book-to-market stocks less the return on a portfolio of low book-to-market stocks (HML_t), the daily return on a robust operating profitability portfolio less the return on a weak operating profitability portfolio (RMW_t), and the daily return on a conservative investment portfolio less the return on a weak operating profitability portfolio (CMA_t). The factors and the risk-free interest rate are from CSMAR. The average daily portfolio return is measured by the intercept ($\hat{\alpha}$). As shown in Table 7, the portfolio earns a significant average daily return of 18 basis point in the 10 days around the award announcement.[37]

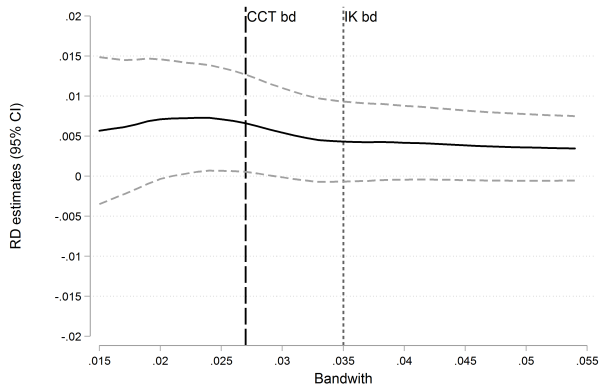
[36] Under equal-weighted, the weight for the return of each stock is one over the total number stocks in the portfolio. Under equal-investment, the weight is the compounded return for each stock since the beginning of the portfolio till the day before. Under value-weighted, the weight is market capitalization of the stock on the same day.

[37] There is short-sell restriction in China, so we do not present the return for the Sell portfolio.

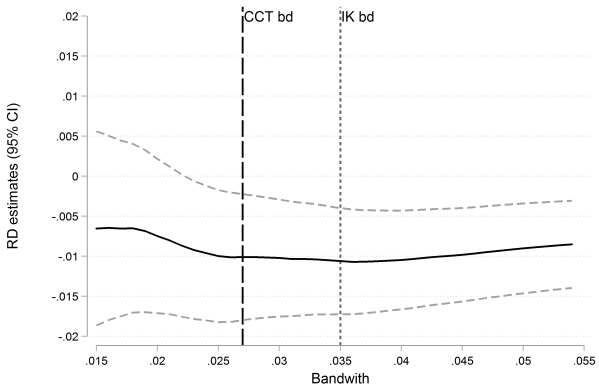
Appendix C. Additional Figures & Tables



A: Winner, 1^{st} trading day after award



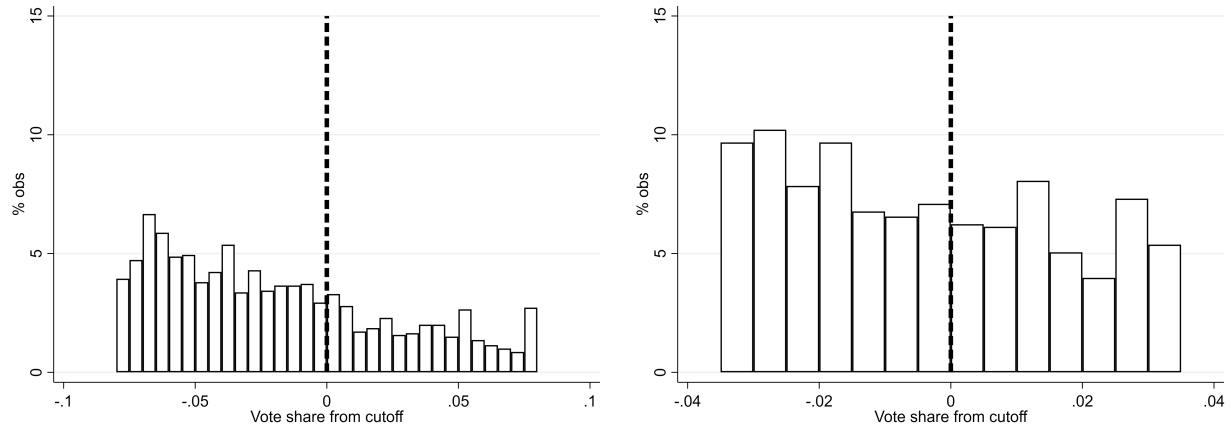
B: Finalist, notification week



C: Finalist, 1^{st} trading day after award

Figure A1: Robustness Check – Main Results under Various Bandwidths

Notes: The figure plots the estimates of coefficients on $Win(t)$ and their 95% confidence intervals for regressions in Table 4 column (3) (panel A), Table 7 panel A column (3) (panel B) and Table 7 panel B column (3) (panel C) under various bandwidths. The vertical long-dashed linse denote the CCT bandwidths (0.072 for the winner cutoff and 0.027 for the finalist cutoff); the vertical short-dashed lines denote the IK bandwidths (0.08 for the winner cutoff of and 0.035 for the finalist cutoff). All specifications and regression methods mirror the ones in the corresponding tables.



A: Winner Cutoff **B:** Finalist Cutoff

Figure A2: Validity of RD - Density of Centered Vote Share

Notes: The figure plots the density of centered vote share for the analysts in the main RD samples at the winner cutoff (panel A) and at the finalist cutoff (panel B). The dashed vertical lines denote the centered vote share at rank fifth (panel A) and rank seventh (panel B) in each industry each year. The distribution excludes the observations with centered vote share equaling zero, because the way we center the vote share creates a mechanical spike at zero. Refer to section 3.2 for a detailed discussion.

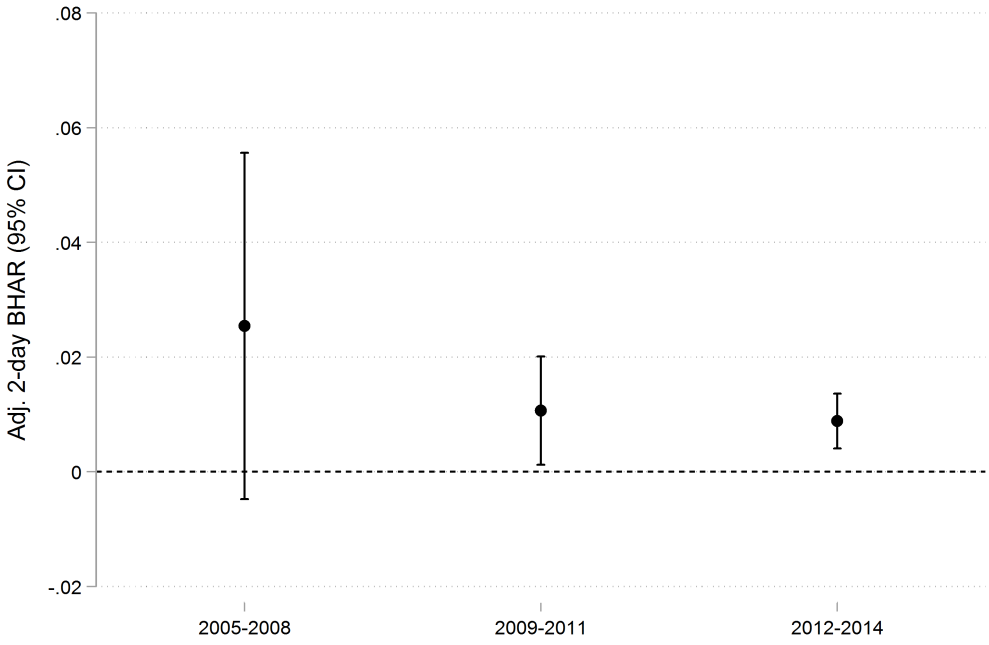


Figure A3: Heterogeneity – Main Results by Sample Period
Winner Cutoff

Notes: The figure plots the coefficients on $Win(t)$ and 95% confidence intervals from the regressions mirroring that in Table 4 column (3) but based on stock recommendations issued in three sub-periods of the whole sample period, i.e., 2005-2008, 2009-2011 and 2012-2014.

Table A1: Sample Selection - Probability of Entering Base Samples from Raw Sample

VARIABLES	(1) Sample with valid analyst ID	(2) Main RD recommendation	(3) Post-award recommendation	(4) Post-award forecast
Panel A: Winner Cutoff				
Win(t)	-0.01646	-0.01362	-0.01663	0.00956
	(0.01159)	(0.04438)	(0.02148)	(0.02224)
% Raw sample	0.97	0.57	0.85	0.85
Observations	2,992	2,992	2,992	2,992
R-squared	0.134	0.123	0.055	0.141
Number of clusters	146	146	146	146
Bandwidth	0.080	0.080	0.08	0.08
Panel B: Finalist Cutoff				
Win(t)	0.00466	0.00929	0.01239	0.03875
	(0.01432)	(0.06184)	(0.03276)	(0.02995)
% of Raw sample	97	64	85	85
Observations	1,748	1,748	1,748	1,748
R-squared	0.124	0.156	0.086	0.169
Number of clusters	146	146	146	146
Bandwidth	0.035	0.035	0.035	0.035

Notes: The data are at the analyst × year level consisting of analysts whose margin of vote share is within 0.08 from the winner cutoff (panel A) or within 0.035 from the finalist cutoff (panel B). Dependent variables are the probability of an analyst × year pair entering different regression samples. *Win(t)* equals 1 if the analyst is above the winner cutoff (panel A) or the finalist cutoff (panel B) in the year of the award announcement. *% of Raw sample* refers to the proportion of analyst × year pairs entering a certain regression sample from the raw sample. All regressions control for year, brokerage house, and NF industry fixed effects and are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table A2: Sample Selection - Summary Statistics in Raw and Base Samples

VARIABLES	(1) Raw sample	(2) Sample with valid analyst ID	(3) Main RD rec winner cutoff	(4) Main RD rec finalist cutoff	(5) Post base recommendation	(6) Post base forecast
Male	0.72371	0.72277	0.72128	0.72490	0.72069	0.72004
	(0.44722)	(0.44770)	(0.44848)	(0.44666)	(0.44873)	(0.44905)
		[0.9296]	[0.8446]	[0.9201]	[0.7842]	[0.7389]
Master/above	0.90626	0.90805	0.92052	0.91820	0.91542	0.91159
	(0.29151)	(0.28900)	(0.27056)	(0.27412)	(0.27830)	(0.28393)
		[0.7988]	[0.0732]	[0.1197]	[0.1974]	[0.4556]
Experience	3.19461	3.18954	3.26222	3.26335	3.19239	3.20429
	(2.3922)	(2.40058)	(2.41758)	(2.41685)	(2.38763)	(2.38539)
		[0.9281]	[0.3015]	[0.2747]	[0.9695]	[0.8672]
Win(t-1)	0.27471	0.27378	0.294173	0.28530	0.27979	0.28236
	(0.44643)	(0.44596)	(0.45578)	(0.45165)	(0.44896)	(0.45021)
		[0.9281]	[0.1110]	[0.3656]	[0.6382]	[0.4782]
Finalist(t-1)	0.37570	0.37521	0.39286	0.38385	0.38541	0.38774
	(0.48437)	(0.48424)	(0.48850)	(0.48642)	(0.48677)	(0.48731)
		[0.9651]	[0.1932]	[0.5196]	[0.4064]	[0.3029]
Ttoal obs	3,753	3,638	2,128	2,415	3,181	3,198
Unique analyst	1,633	1,600	1,157	1,249	1,412	1,423

Notes: The data are at the analyst × year level consisting of all analysts regardless of their margin of vote share. Variables are defined the same as those in Table 1. Standard errors are in the parentheses. P values for the difference in means between the raw sample and other samples are reported in the square brackets.

Table A3: Placebo Test – Market Reaction in the Notification Week
Winner Cutoff

	(1) Avg. 2-d BHAR	(2) Avg. 2-d BHAR	(3) Avg. 2-d BHAR
Win(t)	-0.00004	-0.00099	0.00029
	(0.00225)	(0.00242)	(0.00238)
Baseline mean	0.00474	0.00474	0.00474
Observations	1,535	1,535	1,535
R-squared	0.024	0.101	0.200
Number of clusters	146	146	146
Year FE	Yes	Yes	Yes
Brokerage FE	No	Yes	Yes
NF industry FE	No	Yes	Yes
Stock industry FE	No	No	Yes
Bandwidth	0.080	0.080	0.080

Notes: This table reports the placebo tests for the main results. Samples, dependent variables and specifications correspond to the ones in Table 4 column (3). The only difference is that the dependent variable is now the average adjusted two-day BHAR between Monday and Thursday in the notification week. Standard errors in parentheses are clustered by NF industry × year.

Table A4: Validity of RD – Brokerage Characteristics

VARIABLES	(1) Diversity	(2) Win(t-1)	(3) Total asset	(4) Net profit	(5) Listed	(6) Number of analysts	(7) Held by mutual fund
Panel A: Winner Cutoff							
Win(t)	0.04390	-0.04170	5.04647	0.32280	0.00734	2.05625	0.02388
	(0.03948)	(0.05721)	(4.56138)	(0.32944)	(0.05911)	(2.75858)	(0.05628)
Outcome mean	0.82915	0.25000	38.53665	1.84330	0.40823	49.82209	0.33146
Observations	234	1,068	932	931	1,068	1,068	1,068
R-squared	0.407	0.175	0.099	0.100	0.098	0.167	0.151
Number of clusters	26	146	146	146	146	146	146
Bandwidth	4.34 (rank)	0.080	0.080	0.080	0.080	0.080	0.080
Panel B: Finalist Cutoff							
Win(t)	-0.01856	-0.10190	-2.10261	-0.36321	0.02575	-3.79834	-0.09037
	(0.04577)	(0.07464)	(4.40056)	(0.33779)	(0.07288)	(2.79356)	(0.05999)
Outcome mean	0.87521	0.33284	36.26664	1.67445	0.37810	48.75328	0.30364
Observations	182	685	596	596	685	685	685
R-squared	0.393	0.184	0.135	0.126	0.119	0.210	0.172
Number of clusters	26	143	142	142	143	143	143
Bandwidth	3.81 (rank)	0.035	0.035	0.035	0.035	0.035	0.035

Notes: The data are at the NF industry × rank level in column (1) and at the brokerage × NF industry × year level in columns (2) through (8) for brokerage houses with analysts whose margin of vote share is within 0.08 from the cutoff of winner (panel A) and 0.035 from the cutoff of finalist (panel B). Sample size varies due to missing dependent variables. *Diversity* for a rank in a NF industry is the number of distinct brokerages divided by the number of occurrence for that rank in that industry across years (the lower the value, the less variety in brokerages at the rank). *Win(t-1)* is one if a brokerage has at least one analysts above the corresponding cutoff in the same NF industry in the year before the award announcement. *Total asset* is the total asset of a brokerage at the end of the year before the award announcement (in billion CNY). *Net profit* is the net profit of a brokerage at the end of the year before the award announcement (in billion CNY). *Listed* is one if a brokerage is publicly listed. *Number of analysts* is the number of analysts employed by a brokerage. *Held by fund* is one if a brokerage has mutual funds as its shareholders. All variables are measured in year of the award announcement, unless noted otherwise. *Win(t)* is one if the analysts are above the winner cutoff (panel A) or the finalist cutoff (panel B). Regressions control for NF industry fixed effects in column (1) and year and NF industry fixed effects in columns (2) through (8) and are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry in column (1) and by NF industry × year in columns (2) through (8). *** p<0.01, ** p<0.05, * p<0.1.

Table A5: Robustness Check - Stock Recommendation Strategy
Winner Cutoff

VARIABLES	(1) Within7	(2) Newly covered	(3) Market cap	(4) Under-valued	(5) P/E ratio	(6) Beta
Win(t)	-0.06077	-0.00300	0.97136	0.01133	2.04316	-0.01295
	(0.05124)	(0.00624)	(0.88331)	(0.01791)	(8.44354)	(0.01200)
Win(t)× Post			0.08015	-0.00090	4.19924	0.00311
			(0.41655)	(0.01480)	(6.56172)	(0.00749)
Post			-1.16314	-0.01283	-14.09577	0.00604
			(0.69429)	(0.02539)	(9.91485)	(0.01327)
Outcome mean	0.29318	0.00470	4.41855	0.40371	53.58179	1.11793
Observations	1,702	1,702	1,702	1,702	1,702	1,702
R-squared	0.133	0.051	0.643	0.697	0.153	0.754
Number of clusters	146	146	146	146	146	146
Bandwidth	0.080	0.080	0.080	0.080	0.080	0.080

Notes: The data are at the analyst × year level in columns (1) and (2) and at the analyst × year × period level in columns (3) through (6). $Within7$ equals 1 if an analyst makes any recommendations within 1-7 days before the announcement. *Newly covered* equals 1 if the stock recommended within 1-7 days before the announcement was not recommended by the analyst before. *Market cap* is stock's 3rd-quarter market capitalization measured in billion CNY. *Under-valued* equals 1 if stock's 3rd-quarter book-to-market ratio ≥ 1. *P/E ratio* is stock's 3rd-quarter price-to-earnings ratio. *Beta* is stock's risk factor estimated from CAPM regression using daily data in the past 250 trading days starting from October 31^{st}. *Return* is stock's return with cash dividend reinvestment in October. *post* equals 1 if the stock is recommended within 1-7 days before the announcement, or 0 if 8-60 days before the announcement. *Win(t)* equals 1 if the analyst is above the winner cutoff. All regressions control for year, brokerage house, NF industry fixed effects and are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table A6: Robustness Check – BHAR based on Fama-French Five-factor model

VARIABLES	(1) 2-d BHAR	(2) 2-d BHAR
Panel A: Winner, 1st trading day after award		
Win(t)	0.00722**	0.00709**
	(0.00330)	(0.00347)
Baseline mean	0.00492	0.00507
Observations	1,535	1,329
R-squared	0.207	0.221
Number of clusters	146	145
Bandwidth	0.080	0.069 (IK)
Panel B: Finalist, Avg. in notification week		
Win(t)	0.00517*	0.00413*
	(0.00281)	(0.00222)
Baseline mean	0.00469	0.00453
Observations	1,088	1,614
R-squared	0.250	0.203
Number of clusters	143	143
Bandwidth	0.035	0.043 (IK)
Panel C: Finalist, 1st trading day after award		
Win(t)	-0.01032***	-0.00961***
	(0.00375)	(0.00284)
Baseline mean	0.00469	0.00453
Observations	1,088	1,614
R-squared	0.237	0.194
Number of clusters	143	145
Bandwidth	0.035	0.043 (IK)

Notes: This table reports the main results estimated using the adjusted 2-day BHAR calculated from a Fama-French five-factor model as the outcome. Panel A corresponds to column (3) in Table 4, panel B corresponds to panel A column (3) in Table 8, and panel C corresponds to panel B column (3) in Table 8. Column (1) uses the same bandwidth as the main regressions while column (2) uses the IK bandwidth calculated using the new BHAR. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table A7: Mechanism: Signaling - Probability of Issuing New Recommendations Winner Cutoff

VARIABLES	(1) 6-35 days	(2) 36-65 days	(3) 66-95 days
Panel A: All winners			
Win(t)	-0.05622	-0.03904	-0.01506
	(0.05079)	(0.04861)	(0.04604)
Outcome mean	0.55005	0.62779	0.63545
Observations	1,698	1,698	1,698
R-squared	0.108	0.134	0.149
Number of clusters	146	146	146
Bandwidth	0.080	0.080	0.080
Panel B: Repeated winners			
Win(t)	0.00707	0.04710	0.06539
	(0.05835)	(0.05049)	(0.05166)
Outcome mean	0.55081	0.63255	0.64036
Observations	1,407	1,407	1,407
R-squared	0.110	0.131	0.153
Number of clusters	144	144	144
Bandwidth	0.080	0.080	0.08

Notes: The data are at the analyst × year level. Panel A includes recommendations from all winners and non-winners whose margin of vote share is within 0.08 from the winner cutoff. Panel B restrict winners' recommendations to those from repeated winners. The dependent variable is an indicator of whether an analyst issues any new recommendations within 6-20, 6-35, 36-65, and 66-95 days after the award announcement. *Win(t)* equals 1 if the analyst is above the winner cutoff in the year of the award announcement. All regressions control for year, NF industry, and brokerage fixed effects, and are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table A8: BHAR Reversal – Winner Cutoff

VARIABLES	(1) 5-d BHAR	(2) 10-d BHAR	(3) 15-d BHAR	(4) 20-d BHAR	(5) 25-d BHAR	(6) 30-d BHAR
Panel A: All stocks						
Win(t)	0.01297***	0.01130***	0.00568	0.00320	0.00191	0.00228
	(0.00283)	(0.00399)	(0.00524)	(0.00548)	(0.00574)	(0.00552)
Observations	1,535	1,535	1,535	1,535	1,535	1,535
R-squared	0.189	0.197	0.216	0.196	0.188	0.200
Number of clusters	146	146	146	146	146	146
IK bandwidth	0.080	0.080	0.080	0.080	0.080	0.080
Panel B: Stocks w/o firm news						
Win(t)	0.01199***	0.01280***	0.00681	0.00381	0.00066	0.00107
	(0.00325)	(0.00419)	(0.00583)	(0.00621)	(0.00682)	(0.00693)
Observations	1,177	1,177	1,177	1,177	1,177	1,177
R-squared	0.192	0.215	0.205	0.195	0.193	0.216
Number of clusters	146	146	146	146	146	146
IK bandwidth	0.080	0.080	0.080	0.080	0.080	0.080

Notes: The data are at the analyst × stock × date level. Panel A consists of the last stock recommended within 1-30 days before the award announcement by each analyst whose margin of vote share is within 0.08 from the winner cutoff. Panel B excludes the stocks have any earnings announcements within the 30 days after the award announcement. Dependent variables are BHARs of varying length starting from the first trading day after the award announcement. *Win(t)* equals 1 if an analyst is above the winner cutoff in the year of award announcement. Specifications mirror the one in Table 4 column (3). Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table A9: Robustness Check – Alternative Running Variables

VARIABLES	(1) Rank 2-d BHAR	(2) Scores 2-d BHAR
Panel A: Winner, 1st trading day after award		
Win(t)	0.00493*	0.00745**
	(0.00282)	(0.00333)
Baseline mean	0.00474	0.00474
Observations	1,117	1,101
R-squared	0.173	0.225
Number of clusters	146	145
Bandwidth	4.54	1719.12
Panel B: Finalist, Avg. in notification week		
Win(t)	0.00509*	0.00514*
	(0.00272)	(0.00278)
Baseline mean	0.00424	0.00424
Observations	1,117	1,101
R-squared	0.197	0.198
Number of clusters	146	145
IK bandwidth	3.88	1242.487
Panel C: Finalist, 1st trading day after award		
Win(t)	-0.01013**	-0.00978***
	(0.00411)	(0.00296)
Baseline mean	0.00424	0.00424
Observations	1,117	1,101
R-squared	0.184	0.212
Number of clusters	146	145
IK bandwidth	3.88	1242.487

Notes: This table reports the main results estimated using rank (column (1)) and raw scores (column (2)) as running variables. Panel A corresponds to column (3) in Table 4, panel B corresponds to panel A column (3) in Table 8, and panel C corresponds to panel B column (3) in Table 8. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table A10: Robustness Check - Alternative Inference Methods

VARIABLES	(1) Winner 1^{st} trading day after award 2-d BHAR	(2) Finalist Avg. in notif week 2-d BHAR	(3) Finalist 1^{st} trading day after award 2-d BHAR
Win(t)	0.00659	0.00432	-0.01061
-Brokerage clusters	(0.00227)***	(0.00238)*	(0.00354)***
-NF industry clusters	(0.00272)**	(0.00254)*	(0.00400)**
-Stock industry clusters	(0.00285)**	(0.00207)**	(0.00388)***

Notes: This table reports the main results under various inference methods. The coefficients on $Win(t)$ in columns (1), (2), and (3) correspond to those in Table 4 column (3), Table 8 panel A column (3), and Table 8 panel B column (3), respectively. Standard errors under various inference methods are reported in parenthesises. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A11: Robustness Check – Local Quadratic Regression

	(1) Winner cutoff	(2) Finalist cutoff	(3) Finalist cutoff
VARIABLES	1^{st} trading day after announcement 2-d BHAR	Average in notification week 2-d BHAR	1^{st} trading day after announcement 2-d BHAR
Win(t)	0.00548*	0.00778**	-0.00964**
	(0.00319)	(0.00351)	(0.00465)
Baseline mean	0.00474	0.00424	0.00424
Observations	1,535	1,088	1,088
R-squared	0.184	0.233	0.228
Number of clusters	146	143	143
Bandwidth	0.080	0.035	0.035

Notes: This table reports the main results estimated using local quadratic regression. The coefficients on $Win(t)$ in columns (1), (2), and (3) correspond to those in Table 4 column (3), Table 8 panel A column (3), and Table 8 panel B column (3), respectively. Standard errors in parentheses are clustered by NF industry $\times$ year. *** p<0.01, ** p<0.05, * p<0.1.

Table A12: Robustness Check – Samples based on Alternative Number of Last Stocks

VARIABLES	(1) Last 3 stocks 2-d BHAR	(2) Last 5 stocks 2-d BHAR	(3) All stocks 2-d BHAR
Panel A: Winner, 1st trading day after award			
Win(t)	0.00339*	0.00240	0.00251
	(0.00198)	(0.00166)	(0.00161)
Baseline mean	0.00474	0.00474	0.00474
Observations	3,559	4,711	6,284
R-squared	0.132	0.105	0.099
Number of clusters	146	146	146
Bandwidth	0.080	0.080	0.080
Panel B: Finalist, Avg. in notification week			
Win(t)	0.00108	-0.00013	0.00009
	(0.00139)	(0.00128)	(0.00109)
Baseline mean	0.00424	0.00424	0.00424
Observations	2,564	3,560	5,095
R-squared	0.127	0.107	0.093
Number of clusters	143	144	144
Bandwidth	0.035	0.035	0.035
Panel C: Finalist, 1st trading day after award			
Win(t)	-0.00581**	-0.00503**	-0.00424*
	(0.00271)	(0.00236)	(0.00210)
Baseline mean	0.00424	0.00424	0.00424
Observations	2,564	3,560	5,095
R-squared	0.143	0.130	0.095
Number of clusters	143	144	144
Bandwidth	0.035	0.035	0.035

Notes: This table reports the main results estimated using alternative samples. The samples in column (1), (2), and (3) consist of the last three, five or all stocks recommended by each analyst within 1-30 days before the award announcement or notification week. Results in panels A, B, and C correspond to those in Table 4 column (3), Table 8 panel A column (3), and Table 8 panel B column (3), respectively. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table A13: Robustness Check – Samples based on Alternative Pre-award Day Range

VARIABLES	(1) 31-60d 2-d BHAR	(2) 61-90d 2-d BHAR	(3) 91-120d 2-d BHAR	(4) 121-150d 2-d BHAR
Panel A: Winner, 1st trading day after award				
Win(t)	-0.00204	0.00300	0.00040	0.00193
	(0.00276)	(0.00243)	(0.00207)	(0.00257)
Baseline mean	0.00490	0.00487	0.00485	0.00501
Observations	3,262	1,608	5,273	1,783
R-squared	0.117	0.181	0.089	0.124
Number of clusters	139	140	145	143
Bandwidth	0.080	0.080	0.080	0.080
Panel B: Finalist, Avg. in notification week				
Win(t)	-0.00071	-0.00203	-0.00382	0.00395
	(0.00262)	(0.00274)	(0.00300)	(0.00682)
Baseline mean	0.00447	0.00486	0.00464	0.00517
Observations	567	842	964	207
R-squared	0.326	0.260	0.222	0.700
Number of clusters	119	132	132	86
Bandwidth	0.035	0.035	0.035	0.035
Panel C: Finalist, 1st trading day after award				
Win(t)	0.00671	-0.00148	-0.00412	-0.00385
	(0.00432)	(0.00315)	(0.00406)	(0.00863)
Baseline mean	0.00447	0.00486	0.00464	0.00517
Observations	567	842	964	207
R-squared	0.364	0.244	0.235	0.763
Number of clusters	119	132	132	86

Notes: This table reports the main results estimated using alternative samples. The samples in column (1), (2), (3), and (4) consist of the last stock recommended by each analyst within 31-60 days, 61-90 days, 91-120 days and 121-150 days before the award announcement or notification week. Results in panels A, B, and C correspond to those in Table 4 column (3), Table 8 panel A column (3), and Table 8 panel B column (3), respectively. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table A14: Robustness Check – Various Sample Selection
Winner Cutoff

VARIABLES	(1) Drop by>1 analysts 2-d BHAR	(2) Keep top rank 2-d BHAR	(3) Drop new information 2-d BHAR	(4) Drop notification 2-d BHAR
Win(t)	0.01282***	0.00784***	0.00709**	0.00529*
	(0.00404)	(0.00364)	(0.00306)	(0.00312)
Baseline mean	0.0048	0.00467	0.00456	0.00422
Observations	1,227	1,381	1,264	1,223
R-squared	0.282	0.203	0.198	0.215
Number of clusters	143	146	146	146
Bandwidth	0.08	0.08	0.08	0.08

Notes: This table reports the main results estimated using alternative samples. These robustness checks are for results in Table 4 column (3). *Drop by>1 analysts* excludes the stocks from the main RD sample if they are coded as "last stock" by more than one analysts. *Keep top rank* only keeps the analysts with the best rank for stocks which are coded as "last stock" by more than one analysts. *Drop new information* excludes stocks that receive recommendations from other analysts or issue firms news between the Friday in the notification week and the Tuesday after the award announcement. *Drop notification* excludes the stocks recommended by the analysts in the notification week. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table A15: Robustness Check – Various Sample Restrictions
Finalist Cutoff

VARIABLES	(1) Drop by >1 analysts 2-d BHAR	(2) Keep top rank 2-d BHAR	(3) Drop new information 2-d BHAR
Panel A: Avg. in notification week			
Win(t)	0.00494*	0.00561*	0.00672**
	(0.00241)	(0.00320)	(0.00292)
Baseline mean	0.00443	0.00437	0.00410
Observations	870	979	869
R-squared	0.261	0.234	0.254
Number of clusters	141	143	141
Panel B: 1st trading day after award			
Win(t)	-0.01121***	-0.01132***	-0.01014***
	(0.00386)	(0.00321)	(0.00344)
Baseline mean	0.00443	0.00437	0.00410
Observations	870	979	936
R-squared	0.282	0.236	0.234
Number of clusters	141	143	139
Bandwidth	0.035	0.035	0.035

Notes: This table reports the main results estimated using alternative samples. The robustness checks in panels A and B are for the results in Table 8 column (3) panels A and B, respectively. *Drop by>1 analysts* excludes the stocks from the main RD sample if they are coded as "last stock" by more than one analysts. *Keep top rank* only keeps the analysts with the best rank for stocks which are coded as "last stock" by more than one analysts. *Drop new information* excludes stocks that receive recommendations from other analysts or issue firms news between the Monday and the Thursday in the notification week in panel A or between the Friday in the notification week and the Tuesday after the award announcement for panel B. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table A16: Cumulative Abnormal Turnover

	(1)	(2)	(3)
	Winner cutoff	Finalist cutoff	
	1^{st} trading day after announcement	Average in notification week	1^{st} trading day after announcement
VARIABLES	2-d CAT	2-d CAT	2-d CAT
Win(t)	0.30177*	0.13437	-0.11242
	(0.16505)	(0.14839)	(0.14910)
Baseline mean	0.39656	0.37357	0.37357
Observations	833	1,035	1,033
R-squared	0.369	0.417	0.405
Year FE	Yes	Yes	Yes
Brokerage FE	Yes	Yes	Yes
NF Industry FE	Yes	Yes	Yes
Stock Industry FE	Yes	Yes	Yes
Number of clusters	146	143	143
IK Bandwidth	0.045	0.035	0.035

Notes: The data are at the analyst × stock × date level consisting of the last stock recommended within 1-30 days before the announcement by an analyst whose margin of vote share is within 0.045 from the winner cutoff (column (1)) and 0.035 from the finalist cutoff (columns (2) and (3)). The dependent variable is two-day cumulative abnormal turnover measured in percentage point. Baseline mean is the average two-day CAT for stock recommendations from the analysts in the year before the award announcement. *Win(t)* equals 1 if the analyst is above the cutoff in the year of the award announcement. All regressions are estimated using a linear RD model and triangular weights. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.

Table A17: Placebo Test - Post-Award Effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Market reaction	Earnings forecast			Resource allocation		
VARIABLES	2-d BHAR	Error	Bias	Boldness	Teammate error	Size	Lead author
Panel A: Winner Cutoff							
Win(t)	-0.00070	0.00046	0.00059	0.00031	0.00179	0.09160	0.04340
	(0.00062)	(0.00131)	(0.00172)	(0.00185)	(0.00089)	(0.12162)	(0.04078)
Outcome mean	0.00425	0.03115	0.02150	0.01757	0.02979	1.88767	0.32058
Observations	32,643	10,994	10,994	10,994	28,070	28,166	28,166
R-squared	0.035	0.325	0.305	0.256	0.648	0.467	0.135
Number of clusters	146	140	140	140	140	145	145
Bandwidth	0.042	0.020	0.020	0.020	0.020	0.020	0.020
Panel B: Finalist Cutoff							
Win(t)	0.00015	0.00010	0.00018	0.00127	-0.00109	0.10692	0.03362
	(0.00060)	(0.00176)	(0.00195)	(0.00094)	(0.00288)	(0.09675)	(0.04136)
Outcome mean	0.00411	0.03173	0.02168	0.01825	0.03011	1.77869	0.29060
Observations	41,489	11,076	11,076	10,649	28,164	28,293	28,293
R-squared	0.396	0.327	0.306	0.231	0.555	0.457	0.117
Number of clusters	146	140	140	140	140	146	146
Bandwidth	0.045	0.018	0.018	0.018	0.018	0.018	0.018

Notes: This table reports the placebo tests for the post-award effects. Samples, dependent variables and specifications correspond to the ones in Table 9. The only difference is that the variables are now measured in the year *before* the award announcement. *Win(t)* equals 1 if the analyst is above the winner cutoff (panel A) or the finalist cutoff (panel B) in the year of the award announcement. Standard errors in parentheses are clustered by NF industry × year. *** p<0.01, ** p<0.05, * p<0.1.