Does the 52-week high affect analyst recommendation revisions?

Fengfei Li* Chen Lin† Tse-Chun Lin‡

Faculty of Business and Economics, University of Hong Kong

Abstract

We explore whether the 52-week high stock price, which has been viewed as a resistant level among practitioners, serves as a reference point to the analysts. Our results show that analysts are more likely to downgrade when stock prices approaching 52-week high. The effects are stronger for firms with higher information asymmetries. We also find that star analysts, experienced analysts who work in top-tier brokerage firms, and analysts who went to Ivy League school are less affected by the 52-week high reference price possibly due to superior abilities. Overall, our findings provide a novel behavioral determinant of analyst recommendation revisions.

JEL classification: G14, G24, D82, M41

Keywords: 52-week high, reference point, resistance level, recommendation revision,

information asymmetry, star analyst

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* Email: liff@hku.hk, Tel: (852) 3917-8637, Fax: (852) 2548-1152.

† Email: chenlin1@hku.hk, Tel: (852) 3917-7793, Fax: (852) 2548-1152.

‡ Corresponding author. Email: tsechunlin@hku.hk, Tel: (852) 2857-8503, Fax: (852) 2548-1152.

1. Introduction

The 52-week high price is a readily accessible piece of information and widely reported on financial news outlets such as the Wall Street Journal, Reuters, Bloomberg, and Yahoo Finance. Previous research has shown that the 52-week high price affects decisions of various market participants, including corporate managers (Baker, Pan, and Wurgler, 2012), employees (Heath, Huddart, and Lang, 1999), options traders (Poteshman and Serbin, 2003), and stocks traders (George and Hwang, 2004). In this paper, we explore the influence of the 52-week high price on decisions of stock analysts.

Analysts have been shown to play an important role as the information intermediary and providers in the stock market (see, e.g., Lang and Lundholm, 1996; Healy and Palepu, 2001; Frankel, Kothari, and Weber, 2006). A large number of studies also suggest that analyst stock recommendations provide at least modest investment values (see, e.g., Womack, 1996; Barber, Lehavy, McNichols, and Trueman, 2001; Jegadeesh, Kim, Krische, and Lee, 2004; Green, 2006; Jegadeesh and Kim, 2006). The focus of our study is to investigate whether the 52-week high reference point price affects the recommendation revisions of the sell-side analysts.[1]

Our paper sheds light to the literature by answering the following questions. First, since the 52-week high price is often perceived by the market practitioners as a "resistant" level, does approaching the 52-week high influence the decisions of analyst recommendation revisions? Second, is this anchoring effect stronger for firms with greater information asymmetry? In other words, do analysts rely more on the 52-week high for their recommendation revisions when the stocks are more difficult to value? Third, does this effect vary among analysts? In particular, will the star analysts' recommendation revisions be less influenced by this reference price? To

[1] We focus on recommendation revisions as previous studies suggest that recommendation revisions are more informative than recommendation levels (e.g., Jegadeesh, Kim, Krische, and Lee, 2004; Boni and Womack, 2006; Jegadeesh and Kim, 2010).

the best of our knowledge, our paper offers the first attempt to establish a close connection between the 52-week high price and analyst recommendation revisions.

Using a sample of 214,691 analyst recommendation revisions from November 1993 to December 2013, we find that the approaching to the 52-week high price dummy has a significant predictive power on the analyst recommendation downgrade in the logit regressions. The dummy (*Approach52*) equals 1 when the stock price at day $t-1$ is within a 5% band below the 52-week high.[2] We also control for the known determinants of analyst recommendations as in Jegadeesh et al. (2004) and firm-specific variables as in Loh and Stulz (2011). For firms with stock prices near to 52-week high, the probability of being downgraded by the analysts is 32.7% higher than that of firms with prices not approaching 52-week high. Our finding suggests that the 52-week high price is an important reference price for the analyst recommendation decisions. That is, when stock prices approach to the 52-week high, analysts tend to anchor on this reference price and downgrade their recommendations. This might be due to the belief that the stock is not a good investment target as it is approaching the resistant level and less likely to keep on rising. Hence, firms with price approaching 52-week high have a relatively higher probability of being downgraded.

We also find that this predictability is stronger for firms with greater information asymmetries, such as firms with small size, low book-to-market ratio, low analyst coverage, young age, high idiosyncratic volatility, high probability of informed trading (PIN), and high absolute discretionary accruals. Hirshleifer (2001) argues that cognitive limitation forces the use of heuristics for making decisions, and the psychological biases increase when there is greater

[2] We perform robustness checks by using 4% and 6% bands. We also use another proxy for nearness to 52-week high based on previous studies, the ratio of price at day t−1 relative to the 52-week high (see, e.g., Lin and Yu, 2012; Baker, Pan and Wurgler, 2012), and we find consistent results as reported in Appendix. As we focus on cases where stock price is sufficiently close to the 52-week high, the advantage of approach dummy is that it can directly capture this effect, so we choose to use approach dummy for our analysis.

uncertainty. Consistent with this argument, our results indicate that analysts are more likely to be affected by the 52-week high when making recommendations for firms that are more difficult to value, characterized by the higher information asymmetry.

Furthermore, previous studies show that there exists a positive relationship between analyst reputation and research quality (see, e.g., Stickel, 1992; Leone and Wu, 2007; Fang and Yasuda, 2009; Fang and Yasuda, 2013). Hence, star analysts might be less affected by this reference price for their recommendation revision decisions. Following Liu and Ritter (2011) and Fang and Yasuda (2009), we define star analysts based on the election results of All-America star analysts from the October issue of *Institutional Investor* magazine. We find that star analysts recommendation revisions are not significantly affected by the 52-week high reference price. This result suggests that star analysts suffer less from the anchoring effect of 52-week high. It is also in line with the notion that star analysts have superior abilities as argued, for example, in Stickle (1995) and Fang and Yasuda (2013). We also consider other analyst characteristics that are positively correlated with the star analyst status, such as experienced analysts who work in top-tier brokerage firms, analysts who attended Ivy League schools, and analysts who attended Ivy League schools and also have an MBA degree. We obtain similar results using these three alternative measures.

Next, we study firms' subsequent performances and buy-and-hold abnormal returns after being downgraded. If firms whose stock prices approaching 52-week high are downgraded purely because analysts believe that the price might lose its momentum due to the resistance level, then the subsequent firm performance and abnormal returns should perform better than other downgraded firms whose prices did not approach the resistant level. On the contrary, if the downgrade decisions are based on the firm fundamental and only coincidentally related to the

52-week high, then the subsequent performance and abnormal returns after being downgraded would be similar to other downgraded firms. Our result is consistent with the former argument. Compared with firms downgraded without prices approaching 52-week high, the subsequent performance of firms with prices approaching 52-week high is better, and the market response to the downgrade news is less negative.

We also find strong evidence supporting our hypothesis based on star and non-star analyst subsample. The results show that star analysts' downgrade decisions do not have a differential predictability on the future firm performances whether a firm's stock price approaching 52-week high or not. Neither does the market response show any significant difference to star analysts' downgrade decisions whether stock prices are within or out of 52-week high band before downgrade. These findings support that star analysts' recommendation revisions are less affected by the 52-week high reference point. It also indicates the better quality of star analysts' recommendation revisions.

We perform a variety of tests as robustness checks for our main findings. We get similar results through different econometric methods such as probit model, linear probit model, OLS, and ordered logit model. We also try 4% and 6% bands for measuring the nearness to 52-week high and employ approach dummy defined based on price at day $t-3$ or any of the past three days. Besides, we also use a price ratio and a quartic term of the price ratio, which is calculated as the price at day $t-1$ divided by the 52-week high price, to replace the approach dummy in the regressions. All these tests yield consistent results that the probability of being downgraded increases with the nearness to the 52-week high stock price.

Our study contributes to the literature in three dimensions. First, numbers of studies have examined the driving forces that cause incentive bias in analyst recommendations, such as

underwriting relationships (e.g., Lin and McNichols, 1998; Michaely and Womack, 1999; O'Brien, McNichols, and Lin, 2005), commission fee pressure from institutional investors (Gu, Li, and Yang, 2013), and access to management-provided information (Chen and Matsumoto, 2006). Despite the voluminous literature on analysts' incentive bias, there is little research about the behavioral bias of analysts. We are the first study showing the influence of the 52-week high reference price on analyst recommendation revisions. In this sense, our paper is related to Jegadeesh et al. (2004) and Loh and Stulz (2011). Jegadeesh et al. (2004) use various stock characteristics to examine analyst preferences and show that analysts generally recommend glamour stocks or growth firms. Loh and Stulz (2011) find that recommendation revisions issued on growth, small, high institutional ownership, or high analyst dispersion firms are more likly to be influential. We add to this literature by showing that behavioral bias can meaningfully affect analyst decisions via the anchoring bias as described in Tversky and Kahneman (1974).

Second, we also shed light on role of the 52-week high by analyzing whether analysts anchor on this readily available reference price when making recommendation decisions. The existing research has examined the impact of 52-week high on various stock market participants. For example, George and Hwang (2004) argue that investors use the 52-week high as a reference point and are reluctant to bid the price higher when good news pushes the price close or to a new 52-week high. Huddart, Lang, and Yetman (2009) also provide evidence that 52-week highs influence investors' trading decisions. Heath, Huddart and Lang (1999) find that the exercise of employee stock option almost double when the stock price exceeds the 52-week high reference point. Poteshman and Serbin (2003) report that approaching 52-week high can trigger rational and irrational early exercise of exchange-traded stock options among the discount and full-service customers. Furthermore, Baker, Pan, and Wurgler (2012) show that the 52-week high

price serves as an anchor in mergers and acquisitions and affect the bidder's offer price decision, bidder announcement effects, deal success, and merger waves. In addition to the effects on market participants, Lin and Yu (2012) find that nearness to the Dow Jones Industrial Average 52-week high has strong predictability for the aggregate market returns. Our finding provides evidence that the 52-week high price also affects the decisions of financial analysts—an important information intermediary and provider in the stock market.

Last, we extend the literature on star analyst by exploring the relation between star analysts' recommendation revisions and the 52-week high reference price. Leone and Wu (2007) argue that star analysts have superior abilities which stem from innate talent rather than experience. Fang and Yasuda (2013) suggest that skill differences exist among analysts, and the star analysts have superior skills. Our finding is in line with their argument that the star analysts have higher expertise and thus rely less on 52-week high reference point in their recommendation decisions.

The remainder of the paper is organized as follows. Section 2 develops the hypotheses. Section 3 describes the data and provides summary statistics for the firm and analyst characteristics. Section 4 discusses empirical results for the three main hypotheses. Section 5 presents additional tests for subsequent firm performance and abnormal returns. Section 6 shows various robustness checks. Section 7 concludes.

2. Hypothesis development

2.1 The impact of 52-week high on recommendation revisions

Tversky and Kahneman (1974) show that people often rely on heuristics to predict values. Heuristics simplify the complex tasks of evaluation. However, heuristics also leads to biases in judgments under uncertainty. One of the key heuristics is anchoring that individuals often rely on irrelevant but salient anchors to form beliefs. Consistent with the anchoring theory, Brock,

Lakonishok, and LeBaron (1992) point out that technical analysts view the recent highest level of stock price as a resistance level and consider price breaking through the resistance level as a buy signal. Driessen, Lin, and Van Hemert (2012) also find that the 52-week high acts as a resistance level, and implied volatilities and stock betas decrease when approaching the 52-week high. Birru (2014) shows that approaching to the 52-week high induces a downward bias in investor and analyst expectations.

Based on the anchoring theory and the aforementioned studies, we consider whether the 52-week high price have an impact on the decisions of analyst recommendation revisions. When stock prices approach the 52-week high, the resistance level among practitioners, analysts might anchor on the 52-week high reference price and tend to downgrade their recommendations. This might be due to the analysts' belief that the stock is no longer a good investment because it is approaching the resistant level and unlikely to keep on rising. We summarize this reasoning in the following hypothesis:

H1: Since the 52-week high stock price has been viewed as a resistance level by the market practitioners, we expect that the 52-week high price serves as a reference point for analyst recommendation revisions. Analysts are more likely to downgrade when stock prices approaching 52-week high.

Our *H1* predicts that the probability of being downgraded for firms with price close to the 52-week high would be larger compared with firms with prices far from the 52-week high. Thus, our *H1* extends the existing literature by proposing that, in addition to the known determinants

for analyst recommendation revisions, the 52-week high reference point price also plays a significant role in analyst recommendation decisions.

2.2 The 52-week high reference point price and information asymmetry

If information asymmetries make it more difficult for analyst to provide adequate valuation, analyst might rely more on heuristics to make their decisions as indicated in Tversky and Kahneman (1974) and Hirshleifer (2001). We thus propose our second hypothesis as follows:

H2: When stocks are more difficult to value under higher information asymmetry, analysts would rely more on the 52-week high reference point price for their recommendation revisions. The effect of 52-week high proposed in H1 should be stronger for firms with greater information asymmetry.

This hypothesis predicts that firms with higher information asymmetries have a relatively larger probability of being downgraded when the prices approach the 52-week high resistance level. The existing literature has shown various proxies for high information asymmetry, including small firm size (e.g., Chari, Jagannathan and Ofer, 1988), low book-to-market ratio (e.g., Barclay and Smith, 1995), low analyst coverage (e.g., Hong, Lim, and Stein, 2000), young firm age (e.g, Barry and Brown, 1985), high idiosyncratic volatility (e.g., Krishnaswami and Subramaniam, 1999), high probability of informed trading (PIN) (e.g., Easley, Hvidkjaer and O'Hara, 2002), and high absolute discretionary accruals (e.g, Bhattacharya, Ecker, Olsson and Schipper, 2012; Bhattacharya, Desai and Venkataraman, 2013). We expect that the anchoring effect of 52-week high is stronger for firms characterized by these high information asymmetry proxies.

2.3 The 52-week high reference point price and star analyst

The previous literature suggests that analysts' career concerns and individual analyst characteristics can explain some differences in earnings forecasts and stock recommendations. For example, Stickel (1992) finds that there is a positive relation between reputation and performance in terms of earnings forecasts accuracy, frequency, and market response. In addition, Stickel (1995) shows that recommendations made by the analysts from the All-America first-team have the greatest impact on stock prices. Consistently, Loh and Stulz (2011) report that recommendation changes are more likely to be influential if issued by the star analysts. Leone and Wu (2007) argue that *Institutional Investor* ranking is helpful to identify high quality analysts, and the ranked analysts have superior abilities. Fang and Yasuda (2009) find that analyst personal reputation and bank reputation are associated with higher quality forecasts and more effectiveness against conflicts of interest. Furthermore, Fang and Yasuda (2013) show that there is a significantly positive relation between star status and investment value of stock recommendations, and the outperformance is not entirely due to luck, bigger market influence, or better company connections.

These findings suggest that star analysts have superior ability in stock valuation. Hence, if the 52-week high price indeed serves as a reference point for analyst recommendation decisions, we would expect that this anchoring effect has less influence on star analyst recommendation revisions. We propose our third hypothesis:

H3: As star analysts have superior abilities, their recommendation revisions would be less affected by the 52-week high reference price.

This hypothesis predicts that firms covered by star analyst have a lower probability of being downgraded when stock prices approach 52-week high, compared with firms covered by non-star analysts.

The existing literature also proposes that there exists a positive correlation between the reputation of brokerage firm and the analyst quality. That is, brokerage firms with high reputation should be more likely to hire analysts of high ability. In addition, Cohen, Frazzini, and Malloy (2010) find that the number of school ties is a strong positive predictor of the likelihood of being a star analyst. Particularly, Ivy League schools account for 43.72% of analyst ties to senior officials and 48.51% of analyst ties to board of directors. Fang and Huang (2014) also show that Ivy League education has significant positive effect on the probability of being elected as the star analyst for women although this effect is positive insignificant for men. MBA program provides a good opportunity to build social connections. Gottesman and Morey (2006) argue that mutual fund managers who have attended a top or near top MBA program exhibit better performance. Based on these studies, we can infer that experienced analysts who work in high reputation brokerage firm, analysts who have ever attended Ivy League school, and analysts who attended Ivy League school and hold a MBA degree are likely to be elected as star analysts. We expect that the 52-week high reference point price also has less influence on the recommendation revision decisions of analysts who tend to be elected as stars.

3. Data

The analyst recommendation data is obtained from I/B/E/S detailed U.S. recommendations file. I/B/E/S assigns a numeric value for the analyst ratings: 1 for *Strong Buy*, 2 for *Buy*, 3 for *Hold*, 4 for *Underperform*, and 5 for *Sell*. We reverse the analyst rating from I/B/E/S so that

downgrade corresponds to a negative number and upgrade corresponds to a positive number. Following Loh and Stulz (2011), recommendation change is calculated as the current rating minus the prior rating issued by the same analyst, taking a value between −4 and +4. Further, we adopt the following recommendation filters. First, a recommendation is assumed to be stopped if it is not updated or confirmed in 180 days after the review date (RevDats) as indicated in I/B/E/S. Second, the recommendations should be associated with non-missing CUSIP number and analyst code, and not in the I/B/E/S stopped file. Third, since we are investigating the relation between recommendation revisions and the 52-week high stock price, a recommendation change should be made by the analyst within 12 months of the issue date. Last, following Driessen, Lin, Van Hemert (2012), we exclude cases when the 52-week high price was set within 30 days of recommendation revision date. This is to make sure that our sample only contains cases where stock price approach the 52-week high from below instead of falling from it. After the filtering, our main sample consists of 214,691 analyst recommendation changes from 10,841 analysts for 10,219 unique firms between November 1993 and December 2013.

To capture analyst quality, we use four dummy variables: *Star*, *TopExp*, *Ivy* and *IvyMBA*. All-America star analysts are elected by *Institutional Investor* magazine each year and the election result is on the October issue. *Star* equals 1 (0, otherwise) if the analyst was an all-star (top 3) in year *t−1*. Following previous studies (e.g., Hong and Kubik, 2003; Fang and Yasuda, 2009), brokerage firm reputation is measured by Carter-Manaster ranks.[3] Brokerage firms with the highest Carter-Manaster score of 9 is defined as top-tier brokerage firm. *TopExp* is a dummy for experienced analysts who work in the top-tier brokerage firms and have analyst experience above the cross-sectional median in year *t−1*. We use the analyst education information in Cohen, Frazzini, and Malloy (2010). *Ivy* is a dummy which equals 1 (0, otherwise) if the analyst

[3] Carter-Manaster ranks is obtained from Jay Ritter's website http://bear.warrington.ufl.edu/ritter/ipodata.htm

attended an Ivy League school. *IvyMBA* is a dummy which equals 1 (0, otherwise) if the analyst attended an Ivy League school and also has a MBA degree. The correlation between *Star* and *TopExp*, *Ivy*, *IvyMBA* is 0.377, 0.143, and 0.136, respectively.[4] The correlation between *Ivy* and *IvyMBA* is 0.710. All the correlations are positive and significant with *p*-value of less than 0.001.

[TABLE 1 ABOUT HERE]

Table 1 reports summary statistics of the variables used in the analyses. The variables include the recommendation change, the downgrade dummy, the approaching 52-week high dummy, the known predictive variables for analyst recommendation, the variables of information asymmetries, and the analyst quality proxies. The median of current rating is 3 (*Hold*) and the median of prior rating is 4 (*Buy*). The average recommendation change across our whole sample is −0.046, with a high standard deviation of 1.306. Recommendation downgrades constitute about 41.3% of our sample. The remaining 58.7% sample is recommendation upgrades and reiterations, i.e., recommendation change equals zero. The approaching 52-week high dummy equals 1 (0, otherwise) if the price at day $t-1$ relative to the recommendation revision date t is within a 5% band below the 52-week high, meaning (1−0.05) × 52-week high < price at day $t-1$ < 52-week high. The approach dummy is set to be 0 for firms that have stock split or dividend announcements in days (−30, −1) to exclude potential influence on the 52-week high effect. In our sample, about 4.5% recommendation changes are made after stock price at $t-1$ approaching 52-week high. The mean value of *Star*, *TopExp*, *Ivy*, and *IvyMBA* dummy is 8.2%, 12.7%, 22.9%, and 13%, respectively.

[FIGURE 1 ABOUT HERE]

[4] The correlation between top-tier brokerage firm dummy and *star* is 0.292, which is lower than the correlation of 0.377 between *Star* and *TopExp*. Thus we choose *TopExp* as a proxy for *star*. The results are similar if we only consider top-tier brokerage firm.

For illustration of our main hypothesis, Figure 1a and Figure 1b provide two examples of analyst recommendation downgrades when the stock prices at day $t-1$ approach 52-week high (within a 5% band below the 52-week high). Figure 1a shows that the stock price of PepsiCo approached the 52-week high on Apr 27, 2011, and the analyst P. Gorham downgraded the recommendation from *Buy* to *Hold* on Apr 28, 2011. Figure 1b shows that the stock price of eBay approached the 52-week high on Sep 10, 2004, and the analyst R. Becker downgraded the recommendation from *Strong Buy* to *Hold* on Sep 13, 2004.

4. Empirical Results

In this section, we investigate the relation between analyst recommendation change and the 52-week high. Our hypothesis posits that the 52-week high price acts as an important reference point for analyst recommendation revisions. When prices approach this resistance level, in the language of practitioners, analysts anchor their beliefs on the 52-week high reference price and tend to downgrade their recommendations. Hence, we test the effects of approaching 52-week high on analyst recommendation downgrade and examine how firm characteristics and analyst characteristics may alter the effect of 52-week high.

4.1 Predictability of the 52-week high on recommendation downgrade

To test the first hypothesis, we add an approaching 52-week high dummy to the logit regression as a predictor for analyst recommendation downgrade:

$$Downgrade_{i,j,t} = \beta_0 + \beta_1 Approach52_{j,t-1} + \beta_2 Runup_{j,t-5,\,t-1} + \beta_3 Runup_{j,t-21,\,t-6} + \beta_4 Runup_{j,m-6,\,m-2} + \beta_5 Runup_{j,m-12,\,m-7} + \gamma\, Controls_j + \varepsilon_{i,j,t} \quad (1)$$

where $Downgrade_{i,j,t}$ is a dummy variable for recommendation change j issued by analyst i at time t, taking a value of 1 if recommendation change is negative and 0 otherwise.

$Approach52_{j,t-1}$ is an approaching 52-week high dummy which equals 1 if stock price at day $t-1$ is within a 5% band below the 52-week high and 0 otherwise. When stock price is near its 52-week high, the firm has experienced a substantial price run-up recently. Hence, to tease out the momentum effect on downgrades, we control for four variables based on the price run-ups. $Runup_{j,t-5,\,t-1}$ is the cumulative return over the past five trading days before the recommendation revision date *t*. Similarly, $Runup_{j,t-21,\,t-6}$, $Runup_{j,m-6,\,m-2}$, and $Runup_{j,m-12,\,m-7}$ are the cumulative return from day $t-21$ to $t-6$, month −6 to −2, and month −12 to −7 preceding the recommendation revision date *t*, respectively. $Controls_j$ is a vector of control variables considered relevant to analyst recommendations. Following Jegadeesh et al. (2004), we control for earnings momentum effect by including *Earnings forecast revisions* and standardized unexpected earnings (*SUE*). We consider valuation indicators such as *Size*, book-to-market ratio (*B/M*), *Earnings to price*, *Turnover*, and two growth indicators of *Long-term growth forecast* and *Sales growth*. Furthermore, we include two accounting fundamental indicators *Accruals* and *Capital expendi*ture. These variables can predict cross-sectional returns as shown in previous studies. Besides, we also add variables that are shown to be related to analyst recommendation in Loh and Stulz (2011), including *Idiosyncratic volatility*, *Institutional ownership*, *Analyst coverage*, *Analyst dispersion*, and *Analyst experience*. All the regressions control for year and Fama-French 48 industry fixed effects as well. Standard errors are double clustered by firm and year to adjust for cross-sectional and time-series correlations (Petersen, 2009).

Previous studies point out that interpreting interaction effects in terms of marginal effects in non-linear models is difficult (see, e.g., Ai and Norton, 2003; Greene, 2010). A simpler way is to use logit regression and interpret coefficients in terms of odds ratios (exponentiated coefficients)

which are easier to interpret when the model contains interaction terms (Buis, 2010). Similar as Doidge, Karolyi, and Stulz (2013), we report regression coefficients as log of odds ratio.

[TABLE 2 ABOUT HERE]

Table 2 shows the coefficients from estimation of equation (1), along with *z*-statistics. The exponentiated coefficient for the intercept represents the baseline odds. The approaching 52-week high dummy (*Approach52*) is significantly positive, which means that analysts are more likely to downgrade when price approaching 52-week high. Its coefficient ranges from 0.254 (*z*-statistic = 4.97) in column 1 to 0.283 (*z*-statistic = 4.75) in column 4, the corresponding odds ratio ranges from 1.289 ($e^{0.254}$) to 1.327 ($e^{0.283}$). In other words, for firms with stock price approaching the 52-week high, the odds of being downgraded is about 28.9% to 32.7% higher, compared with firms not approaching the 52-week high.

The coefficients of $Runup_{t-5,\,t-1}$, $Runup_{m-6,\,m-2}$, and $Runup_{m-12,\,m-7}$ are significantly negative, and $Runup_{t-21,\,t-6}$ is negative but insignificant. For example, the coefficient of $Runup_{t-5,\,t-1}$ is −1.166 (*z*-statistic = −3.50) in column 1, then the odds ratio associated with 10% increase in $Runup_{t-5,\,t-1}$ is 0.890 ($e^{-1.166 \times 0.1}$). This means that the odds of being downgraded drop by 11% with 10% increase in return for the past five days. This result suggests that analysts tend not to downgrade firms with recent price run-ups. However, when stock price is close to its 52-week high (within a 5% band below the 52-week high), the probability of being downgraded increases considerably. Thus, the results in Table 2 provide supportive evidence to our main hypothesis that 52-week high serves as a reference point for analyst recommendation decisions.

As discussed in Jegadeesh et al. (2004), previous studies have documented that glamour stocks are overvalued by the market and earn lower subsequent returns. If analysts pay attention to these results, then we would expect analysts' recommendations to be more favorable to firms

with lower trading volume, lower growth, lower accruals, and lower capital expenditure. Indeed, our results show that firms with high turnover, high growth, high accruals, and high capital expenditure are more likely to be downgraded by sell-side analysts.

4.2 The effect of 52-week high under information asymmetries

Under high information asymmetry, analysts face substantial difficulties in either acquiring or interpreting information, which might impair analysts' ability to provide valuable recommendations. This could imply that analysts rely more on heuristics when providing recommendations for firms with severe information asymmetry. Our second hypothesis posits that analysts are more likely to be influenced by the 52-week high reference point price in their recommendation decisions for firms associated with greater information asymmetry.

As discussed in Section 2, we use various measures to proxy for high information asymmetry: small firm size, low B/M ratio, low analyst coverage, young age, high idiosyncratic volatility, high PIN, and high absolute discretionary accruals. Each of these dummies equals 1 if the information asymmetry is higher than the cross-sectional median. To examine whether the relation between the 52-week high price and the likelihood of being downgraded is affected by information asymmetry, we add an interaction term of approaching 52-week high dummy with high information asymmetry dummy into equation (1):

$$\begin{aligned} Downgrade_{i,j,t} = {} & \beta_0 + \beta_1 Approach52_{j,t-1} + \beta_2 Approach52_{j,t-1} \times Information\ asymmetry_j \\ & + \beta_3 Information\ asymmetry_j + \beta_4 Runup_{j,t-5,\,t-1} + \beta_5 Runup_{j,t-21,\,t-6} \\ & + \beta_6 Runup_{j,m-6,\,m-2} + \beta_7 Runup_{j,m-12,\,m-7} + \gamma\ Controls_j + \varepsilon_{i,j,t} \end{aligned} \quad (2)$$

The interaction coefficient β_2 gauges the incremental effect of approaching 52-week high on recommendation downgrade under high information asymmetry.

[TABLE 3 ABOUT HERE]

Table 3 presents the regression results based on equation (2). Consistent with Table 2, the approaching 52-week high dummy remains positive and significant. All the coefficients of interaction terms are positive and significant, which means that the 52-week high reference price is more strongly associated with analysts' downgrade decisions when firms' information asymmetry is higher. For example, in column 3, the coefficient of interaction term is 0.147 (*z*-statistic = 2.57). For firms with lower analyst coverage, when stock prices are close to 52-week high, the odds of being downgraded is 15.84% ($e^{0.147} - 1$) higher relative to firms with higher analyst coverage. This set of results provides supportive evidence to our second hypothesis.

4.3 The impact of 52-week high and analyst characteristics

While we have shown that 52-week high acts as an anchor for analyst recommendation revisions, it is intriguing to know whether the 52-week high effect vary among analysts with different characteristics like qualities and reputation. In other words, does the 52-week high reference point price affect star analysts' recommendation decisions?

To explore the connection between the 52-week high and star analysts' decisions, we add an interaction term of approaching 52-week high dummy with analyst characteristic dummy into equation (1):

$$\begin{aligned} Downgrade_{i,j,t} = {} & \beta_0 + \beta_1 Approach52_{j,t-1} + \beta_2 Approach52_{j,t-1} \times Analyst\ characteristic_{i,j} \\ & + \beta_3 Analyst\ characteristic_{i,j} + \beta_4 Runup_{j,t-5,\,t-1} + \beta_5 Runup_{j,t-21,\,t-6} \\ & + \beta_6 Runup_{j,m-6,\,m-2} + \beta_7 Runup_{j,m-12,\,m-7} + \gamma\ Controls_j + \varepsilon_{i,j,t} \end{aligned} \quad (3)$$

where $Analyst\ characteristic_{i,j}$ indicates the dummy variable capturing analyst characteristic as described in Section 3, including *Star*, *TopExp*, *Ivy*, and *IvyMBA*.

[TABLE 4 ABOUT HERE]

Table4 reports the results estimated from equation (3). The coefficient of *Star* is −0.140 (*z*-statistic = −1.94), which implies that the firm's probability of being downgraded decreases by 13% ($e^{-0.140} - 1$) if the firm is covered by analyst who was elected as an All-America star (top 3) in the previous year. One interpretation is that firms followed by star analysts generally have good performance. The coefficient of *TopExp* and *Ivy* are negative and insignificant. The coefficient of *IvyMBA* is positive and marginally significant. These coefficients of analyst characteristics indicate that recommendation decisions vary widely among analysts.

The approaching 52-week high dummy is still positive and significant in all the columns. However, all the coefficients of interaction terms are negative and significant. Star analysts are less affected by the 52-week high reference price. In column 1, the coefficient of interaction term is −0.250 (*z*-statistic = −2.91). When stock prices approach 52-week high, the probability of being downgraded is 22.1% ($e^{-0.250} - 1$) lower for firms covered by the star analysts. In addition, the results suggest that analysts who tend to be elected as star analysts also suffer less from the anchoring effect of 52-week high, such as experienced analysts who work in high reputation brokerage firm, analysts who graduated from Ivy League schools, and analysts who attended Ivy League schools and also hold a MBA degree. For example, in column 3, the coefficient of interaction term is −0.192 (*z*-statistic = −2.42). For firms covered by analysts who graduated from Ivy League schools, when stock prices approach 52-week high, the probability of being downgraded is 17.5% ($e^{-0.192} - 1$) lower compared with firms covered by analysts who did not attend the Ivy League schools.

In sum, we find that star analysts and those who tend to be elected as stat analysts are less influenced by the 52-week high reference price. Our results are consistent with previous finding that star analysts have superior expertise skills and thus rely less on the heuristics.

5. Additional tests

We have shown that analysts use 52-week high as a reference point (resistant price) for stock recommendation decisions, and firms with price approaching 52-week high have a higher probability of being downgraded. In this section, we examine firm performance and abnormal returns after being downgraded. Furthermore, we investigate the subsequent firm performance and returns based on subsamples of different analyst characteristics.

5.1 Subsequent firm performance

Firms with price approaching 52-week high before being downgraded should have experienced significant price run-ups. If analysts believe that the price loses its momentum due to the 52-week high resistance level but not due to its fundamental, then the subsequent firm performance and abnormal returns should perform better than other downgraded firms whose prices did not approach the resistant level. On the contrary, if the recommendation downgrades are based on the firm fundamentals and only coincidentally related to the 52-week high, then the firm performance and abnormal returns after being downgraded would similar to other downgraded firms.

To test the two abovementioned competing conjectures, we use *Tobin's Q* and *ROA* to measure firm performance and add an interaction term of approaching 52-week high dummy with downgrade dummy in the regression as below:

$$Firm\ performance_{j,q+1} = \beta_0 + \beta_1 Downgrade_{j,t} + \beta_2 Approach52_{j,t-1} \times Downgrade_{j,t} + \beta_3 Approach52_{j,t-1} + \gamma\ Controls_j + \varepsilon_j \quad (4)$$

where *Firm performance*$_{j,q+1}$ indicates the firm performance measured by *Tobin's Q* and *ROA* in the following quarter *q+1* after recommendation change *j*.

[TABLE 5 ABOUT HERE]

Table 5 reports the results of *Tobin's Q* and *ROA* in the following quarter after analyst recommendation revisions. Following the literature, we also control for firm-specific variables including the logarithm of total assets, sales, cash, leverage, and capital expenditure. In column 1 and 2, we also control for firm fixed effect and year fixed effect. In column 3 and 4, industry and year fixed effects are added in regressions. The coefficients of downgrade dummy are significantly negative, which means that in general firm perform poorly after being downgraded. The interaction terms are significantly positive, indicating that the subsequent performance of firms downgraded when approaching 52-week high is better than the performance of firms downgraded when not approaching 52-week high. The results suggest that firms with price approaching 52-week high are more likely to be downgraded because analysts believe the stock prices might be capped by the resistance level, instead of having poor fundamental values.

5.2 Subsequent buy-and-hold abnormal returns

Previous studies document that there exist significant negative abnormal returns following recommendation downgrades (e.g., Jegadeesh and Kim, 2010; Loh and Stulz, 2011). Although a large part of stock price response occurs on the day of the revision, stock prices continue to drift in the same direction of recommendation revisions over the next three to six months (e.g., Womack, 1996; Jegadeesh and Kim, 2010). Regarding the market response to 52-week high, George and Hwang (2004) show that investors are reluctant to push stock price higher when price approaching to 52-week high. To examine the market reaction to downgrades when

approaching 52-week high, we add an interaction term of approaching 52-week high dummy with downgrade dummy into the regressions:

$$BHARs_j = \beta_0 + \beta_1 Downgrade_{j,t} + \beta_2 Approach52_{j,t-1} \times Downgrade_{j,t} + \beta_3 Approach52_{j,t-1} + \gamma Controls_j + \varepsilon_j \quad (5)$$

where $BHARs_j$ represents the subsequent returns *BHAR(0,1), BHAR(0,4), BHAR 1month* or *BHAR 3month* following recommendation change *j*.

[TABLE 6 ABOUT HERE]

Table 6 presents *BHARs* over various horizons following recommendation revisions. We examine *BHARs* (buy-and-hold stock return subtracted by buy-and-hold CRSP value-weighted index return) for 2 days, 1 week, 1 month, and 3 months from the recommendation revision date *t*. We control for the predictive variables for future returns and firm-specific variables as the same in Table 2 except for *Analyst experience.* All the regressions include firm and year fixed effects. The coefficients of downgrade dummy are all negative and significant, ranging from −0.053 to −0.059. The coefficients of *Approach52* are significantly negative in column 1 and 2, and insignificant in column 3 and 4. This result confirms that investors are hesitant to bid the price higher when stock prices approach the 52-week high resistance level. The interaction terms are significantly positive and around 0.021 in all the regressions, which suggests that the market response to downgrade announcements for firms with prices approaching 52-week high is less negative, compared with firms whose prices do not approach 52-week high. This finding corroborates the Tobin's Q and ROA results in the previous subsection that the reason analysts

downgrade firms whose prices approach 52-week high is partially due to the nearness of the resistant level.

5.3 How does performance differ for firms covered by different characteristic analysts?

As we argue earlier, star analysts are less affected by the 52-week high reference price. Hence, we expect that star analysts' downgrade decisions do not have a differential predictability on the future firm performance whether a firm's stock price approaching 52-week high or not.

[TABLE 7 ABOUT HERE]

Table 7 reports the regression results of equation (4) based on subsamples. We classify recommendation revisions into subsamples sorted by different analyst characteristics. We use the four dummy variables of analyst characteristics from Table 4, including *Star*, *TopExp*, *Ivy*, and *IvyMBA*. Therefore, the whole sample is now divided into eight subsamples. We run the regression equation (4) separately for each subsample. Column 1, 3, 5 and 7 are regressions for subsamples of analyst characteristic dummy equal to 1, and column 2, 4, 6 and 8 are regressions for subsamples of analyst characteristic dummy equal to 0. The dependent variable is *Tobin's Q* in Panel A and *ROA* in Panel B. We find that the interaction term *Approach52* × *Downgrade* is significantly positive for subsamples of analyst characteristic dummy equal to 0, but it is insignificant for subsamples of analyst characteristic dummy equal to 1. The results are consistent with our hypothesis that star analysts and analysts who tend to be stars are less affected by the 52-week high reference price. Consequently, their downgrade decisions do not have a differential predictability on the future firm performance no matter a firm's stock price approaching 52-week high or not.

5.4 How does *BHARs* differ for firms covered by different characteristic analysts?

Since star analysts' recommendation decisions are less affected by the 52-week high, we expect that market response does not show any difference to their downgrade decisions either, irrespective of stock price within the 52-week high band before downgrade or not. Similar as Table 7, we run the regressions based on equation (5) for each subsample.

[TABLE 8 ABOUT HERE]

Table 8 presents the regression results of *BHAR(0,1)*, *BHAR(0,4)*, *BHAR 1month*, and *BHAR 3month* for subsamples sorted by different analyst characteristics. The interaction term *Approach52* × *Downgrade* is significantly positive for subsamples of analyst characteristic dummy 0 (except for *Ivy*=0 and *IvyMBA*=0 subsamples in the regression of *BHAR 3month*). Overall, all the interaction terms are not statistically significant for subsamples of analyst characteristic dummy equal to 1. The results support our previous finding that the 52-week high reference point price has an insignificant impact on decisions of star analysts and analysts who tend to be elected as stars.

6. Robustness Checks

We perform a variety of tests as robustness checks for our main results. We examine the predictability of 52-week high on recommendation revisions via different econometric methods, various definitions of approach dummy, alternative measure of approaching 52-week high, and a subsample with available analyst education data.

6.1 Different econometric methods

While we have demonstrated a positive relation between 52-week high and recommendation downgrade, one might ask whether the predictability of 52-week high could be driven by the econometric model selection. To address this concern, we implement additional tests by linear

probit model with firm and year fixed effects controlled. In addition, we also adopt probit model, ordered logit and OLS regressions.

[TABLE 9 ABOUT HERE]

Table 9 reports results from different models. In Column 1 (probit model) and column 2 (linear probit model), the coefficients of *Approach52* are significantly positive. In column 3, we use OLS regression with firm and year fixed effects, the coefficient of *Approach52* is significantly negative, which means that there is an inverse relation between approaching 52-week high and recommendation revisions. In column 4 (ordered logit model), the coefficient of *Approach52* is also significantly negative. In column 5-9, we exclude firms with recommendation change equal to 0. The magnitude of the coefficient of *Approach52* becomes larger. All these tests yield consistent results and support our main hypothesis.

6.2 Different definitions of approach dummy

In our baseline case, we use 5% band for measuring nearness to 52-week high stock price. We adopt 4% and 6% bands for robustness checks. Instead of using price at day *t−1* to define approaching 52-week high, we also consider price at day *t−3* and the price in any of the past three days.

[TABLE 10 ABOUT HERE]

Table 10 presents results based on different definitions of approach dummy. In column 1 to 2, *Approach52* equals 1 if the stock price at day *t−1* is within 4% and 6% band below the 52-week high, respectively. In column 3 to 5, *Approach52* equals 1 if the stock price at day *t−3* is within 4%, 5% and 6% band below the 52-week high, respectively. In column 6 to 8, *Approach52* equals 1 if the stock price on at least one day of the past three days (*t−1*, *t−2*, or *t−3*) is within 4%, 5% and 6% band below the 52-week high, respectively. Consistently, all the

coefficients of approach dummy are positive and significant. The magnitude of the coefficient of approach dummy is largest in 4% band and smallest in 6% band. For example, in column 1, the coefficient of *Approach52* (4%) is 0.311 (*z*-statistic = 4.77), which means that the odds of being downgraded is 36.48% ($e^{0.311}-1$) higher for firms with stock price at day *t−1* within the 4% band below the 52-week high. Compared with our baseline case (5% band) in column 4 of Table 2, the odds of being downgraded increases by 3.77% ($e^{0.311} - e^{0.283}$). These results suggest that our main finding is robust to the various definition of 52-week high dummy.

6.3 Other robustness tests yield consistent results

In this subsection, we use another measure for nearness to 52-week high based on previous studies (e.g., Lin and Yu, 2012; Baker, Pan and Wurgler, 2012), the ratio of price at day *t−1* divided by the 52-week high price. We also add a square term of the price ratio into regressions to control for non-linear relationships between analyst recommendation change and the price ratio. In the OLS regression of recommendation change, *Price/52-week high* is significantly positive and the square term is significantly negative, which implies an inverted U-shaped relation between recommendation change and the price ratio. If the price ratio is below the cutoff point, then analysts tend to upgrade; if the price ratio rises above the cutoff point, analysts are more likely to downgrade. We find consistent results based on logit regressions of recommendation downgrade as reported in Appendix Table 1.

We also try a subsample to check the robustness of our findings (results are report in Appendix Table 2). Based on the subsample with available analyst education data as in Table 4, we find similar results as in Table 2.

In sum, all the robustness tests are consistent with our hypothesis that the 52-week high price acts as a reference point price for analyst recommendation revisions, and analysts tend to downgrade when firm's price approaching 52-week high.

7. Conclusion

We study the effect of the 52-week high on analyst recommendation revisions. Specifically, we propose three hypotheses. The first one posits that the 52-week high price acts a reference point; when stock prices approaching the 52-week high resistance level, analysts anchor on the 52-week high and tend to downgrade their recommendations. This might be due to the belief that the stock is no longer a good investment as it is less likely to break the resistant level. Indeed, controlling for other determinants identified by Jegadeesh et al. (2004), we find that the approaching 52-week high dummy can predict analyst recommendation downgrade. We show that the probability of being downgrade is about 32.7% higher for firms with price approaching 52-week high.

We also find evidence consistent with our second hypothesis that, for firms with severe information asymmetry, analysts rely more on the 52-week high reference point price to make their stock recommendation decisions. This hypothesis is based on the notion that, under higher information asymmetry, stocks would be more difficult to value. Heuristics such as anchoring or reference point help to facilitate analysts' decisions under uncertain environment. We find that firms with higher information asymmetries have a relatively larger probability of being downgraded when stock prices approach the 52-week high resistance level.

Our third hypothesis posits that star analysts' decisions are less influenced by the 52-week high reference price due to their superior skills. We find evidence that, when stock prices

approach 52-week high, the probability of being downgraded is much lower for firms covered by star analysts and analysts who tend to be elected as stars, such as experienced analysts who work in top-tier brokerage firm, analysts who have attended Ivy League school, or analysts who have attended Ivy League school and also hold a MBA degree. This result also confirms that skill difference exists among analysts.

Furthermore, we examine the subsequent performance and buy-and-hold abnormal returns after being downgraded. For firms with prices approaching 52-week high, the subsequent performance is better and market response is less negative compared with firms downgraded without prices approaching 52-week high. A possible explanation is that firms whose prices approaching 52-week high are downgraded largely because their prices might be capped by the resistance level and lose its rising momentum. In addition, the market response does not show any difference to star analysts' downgrade decisions no matter firm's price is within or out of 52-week high band before downgrade. Besides, star analysts' downgrade decisions do not have a differential predictability on the future firm performance whether firms' prices are close to 52-week high or not. These results support our hypothesis that star analysts' recommendation revisions are less affected by the 52-week high reference point.

In sum, we offer the first attempt (to the best of our knowledge) to examine the impact of 52-week high reference point price on analyst recommendation revision decisions. Such a new perspective toward provides the new insight to the determinants for analyst recommendations.

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Table 1
Summary Statistics

The sample consists of 214,691 analyst recommendation changes from 10,841 analysts for 10,219 unique firms during the period from November 1993 to December 2013. We reverse the analyst rating from I/B/E/S so that higher rating means more favorable recommendation. Analyst rating ranges from 1 to 5, indicating sell, underperform, hold, buy and strong buy, respectively. *Recommendation change* is calculated as the current rating minus the prior rating by the same analyst and takes a value between −4 and +4. *Downgrade dummy* equals 1 if the recommendation change is negative and 0 otherwise. The 52-week high price was set at least 30 days ago (i.e. the last breakthrough is at least 30 days ago). *Approach52* is an approaching 52-week high dummy which equals 1 if the stock price at day $t-1$ is within a 5% band below the 52-week high (i.e. (1−0.05) × 52-week high < price at $t-1$< 52-week high). *Price/52-week high* is the ratio of stock price at day $t-1$ divided by 52-week high. $Runup_{t-5,\ t-1}$ is the cumulative return in the previous week from day $t-5$ to $t-1$. $Runup_{t-21,\ t-6}$ is the cumulative return from day $t-21$ to $t-6$. $Runup_{m-6,\ m-2}$ is the 5-month cumulative return from day $t-126$ to $t-22$. $Runup_{m-12,\ m-7}$ is the 6-month cumulative return from day $t-252$ to $t-127$. The definitions of other variables are given in Appendix. Since some variables display large outliers, these variables are winsorized at the 0.25th and 99.75th percentiles including all the Run-ups, *Earnings forecast revisions, SUE, B/M, Earnings to price, Turnover, Accruals, Capital expenditure, Sales growth, Long-term growth forecast, Idiosyncratic volatility, Institutional ownership, Analyst dispersion, PIN,* and *Discretionary accruals*.

	Mean	Std.	Q1	Median	Q3	N
Current rating	3.570	0.993	3	3	4	214,691
Prior rating	3.616	0.998	3	4	4	214,691
Recommendation change	-0.046	1.306	-1	0	1	214,691
Downgrade dummy	0.413	0.492	0	0	1	214,691
Approach52	0.045	0.208	0	0	0	214,691
Price/52-week high	0.660	0.229	0.503	0.705	0.848	214,691
$Runup_{t-5,\ t-1}$	-0.007	0.103	-0.047	-0.003	0.036	214,691
$Runup_{t-21,\ t-6}$	-0.012	0.141	-0.079	-0.010	0.054	214,691
$Runup_{m-6,\ m-2}$	-0.028	0.327	-0.206	-0.034	0.122	214,691
$Runup_{m-12,\ m-7}$	0.058	0.419	-0.175	0.023	0.222	214,691
Earnings forecast revisions	-0.019	0.272	-0.009	0.000	0.007	212,621
SUE	-0.055	1.299	-0.820	0.000	0.603	205,546
Size	7.340	1.799	6.093	7.265	8.539	214,691
B/M	0.838	2.806	0.268	0.452	0.731	211,537
Earnings to price	-0.032	0.409	0.006	0.042	0.068	211,939
Turnover	0.011	0.011	0.004	0.007	0.013	214,691
Accruals	-0.003	0.070	-0.033	-0.007	0.022	181,659
Capital expenditure	0.048	0.089	0.008	0.027	0.064	203,584
Sales growth	1.326	0.983	1.005	1.115	1.301	209,250
Long-term growth forecast	17.543	11.408	10.600	15.000	21.670	204,333
Idiosyncratic volatility	0.028	0.018	0.016	0.024	0.035	214,691
Institutional ownership	0.643	0.275	0.464	0.676	0.839	214,691
Analyst coverage	9.727	7.772	4	8	14	214,691
Analyst dispersion	0.278	1.164	0.031	0.077	0.188	195,320
Analyst experience	1.554	0.709	1.099	1.609	2.079	214,691
Age	18.864	18.018	6	12	25	214,691
PIN	0.138	0.076	0.088	0.124	0.173	192,985
Discretionary accruals	0.297	1.936	0.028	0.072	0.187	178,629
Star	0.082	0.274	0	0	0	181,784
TopExp	0.127	0.333	0	0	0	214,691
Ivy	0.229	0.420	0	0	0	55,938
IvyMBA	0.130	0.336	0	0	0	55,938

Table 2
Predictability of Approaching 52-Week High on Analyst Recommendation Downgrade

This table shows the predictability of approaching 52-week high on recommendation downgrade by logit regressions. The dependent variable is a downgrade dummy which equals 1 if recommendation change is negative and 0 otherwise. *Approach52* is a dummy which equals 1 if price at trading day $t-1$ is within a 5% band below the 52-week high. The definitions of other variables are given in Appendix. All regressions control for year and Fama-French 48 industry fixed effects. Numbers in parentheses are *z*-statistics based on firm and year double clustered standard errors. ***, **, and * denote the significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)
Approach52	0.254***	0.266***	0.280***	0.283***
	(4.97)	(5.16)	(4.51)	(4.75)
$Runup_{t-5,\,t-1}$	-1.166***	-1.092***	-1.220***	-1.142***
	(-3.50)	(-3.25)	(-3.75)	(-3.46)
$Runup_{t-21,\,t-6}$	-0.070	0.009	-0.079	-0.021
	(-0.36)	(0.04)	(-0.41)	(-0.10)
$Runup_{m-6,\,m-2}$	-0.644***	-0.609***	-0.580***	-0.543***
	(-13.76)	(-12.09)	(-11.21)	(-11.53)
$Runup_{m-12,\,m-7}$	-0.135***	-0.101***	-0.119***	-0.128***
	(-5.08)	(-3.68)	(-3.35)	(-3.65)
Earnings forecast revisions		0.049**	0.075***	0.111***
		(2.38)	(3.03)	(3.79)
SUE		-0.045***	-0.039***	-0.035***
		(-7.78)	(-6.49)	(-6.02)
Size			-0.044***	-0.030***
			(-7.70)	(-2.99)
B/M			-0.005*	-0.006*
			(-1.90)	(-1.94)
Earnings to price			0.059	0.099**
			(1.45)	(2.14)
Turnover			5.265***	3.476***
			(7.39)	(5.03)
Accruals			0.655***	0.671***
			(7.28)	(7.23)
Capital expenditure			0.251***	0.213**
			(3.23)	(2.48)
Sales growth			0.038***	0.032**
			(3.47)	(2.45)
Long-term growth forecast			0.234***	0.093
			(3.13)	(1.12)
Idiosyncratic volatility				4.173***
				(3.58)
Institutional ownership				0.027
				(0.77)
Analyst coverage				0.016
				(0.11)
Analyst dispersion				0.011**
				(2.15)
Analyst experience				-0.048***
				(-2.71)
Intercept	-0.501***	-0.492***	-0.325***	-0.408***
	(-11.68)	(-8.26)	(-7.83)	(-5.35)
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Observations	214,691	203,689	162,302	152,422
Pseudo R^2	0.014	0.014	0.018	0.019

Table 3
Predictability of Approaching 52-Week High and Information Asymmetries on Recommendation Downgrade

This table shows the predictability of approaching 52-week high and various information asymmetry measures on recommendation downgrade by logit regressions. The dependent variable is a downgrade dummy which equals 1 if the recommendation change is negative and 0 otherwise. *Approach52* is an approaching 52-week high dummy which equals 1 if the stock price at trading day $t-1$ is within a 5% band below the 52-week high. *Approach52* × *Infor. asymmetry* is the interaction of approaching 52-week high dummy with information asymmetry dummy. *Small_Size* equals 1 if the firm's size is below the cross-sectional median and 0 otherwise. *Low_B/M* equals 1 if the firm's B/M is below the cross-sectional median. *Low_Coverage* equals 1 if the firm's analyst coverage is below the cross-sectional median. *Young_Age* equals 1 if the firm's age is below the cross-sectional median. *High_Idio.* equals 1 if the firm's idiosyncratic volatility in the past three months is above the cross-sectional median. *High_PIN* equals 1 if the firm's probability of informed trading (PIN) is above the cross-sectional median. *High_absDCA* equals 1 if the firm's absolute discretionary accrual is above the cross-sectional median. Discretionary accrual is calculated based on the modified Jones (1991) model. $Runup_{t-5,\ t-1}$, $Runup_{t-21,\ t-6}$, $Runup_{m-6,\ m-2}$, $Runup_{m-12,\ m-7}$, *Earnings forecast revisions, SUE, Size, B/M, Earnings to price, Turnover, Accruals, Capital expenditure, Sales growth, Long-term growth forecast, Idiosyncratic volatility, Institutional ownership, Analyst coverage, Analyst dispersion* and *Analyst experience* are also included as controls in each regression, and are described in Appendix. All regressions control for year and Fama-French 48 industry fixed effects. Numbers in parentheses are *z*-statistics based on firm and year double clustered standard errors. ***, **, and * denote the significance levels of 1%, 5%, and 10%, respectively.

	Dependent variable: *Downgrade dummy*						
Information asymmetry	*Small_Size*	*Low_B/M*	*Low_ Coverage*	*Young_Age*	*High_Idio.*	*High_ PIN*	*High_ absDCA*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Approach52	0.229***	0.233***	0.208***	0.201***	0.191***	0.231***	0.218***
	(3.48)	(3.33)	(3.44)	(3.45)	(3.81)	(3.07)	(3.33)
Approach52 × Infor. asymmetry	0.147**	0.102*	0.147**	0.196***	0.406***	0.136**	0.142**
	(2.34)	(1.93)	(2.57)	(2.98)	(5.00)	(2.04)	(2.24)
Information asymmetry	0.041**	-0.021*	0.026	-0.028*	0.006	-0.001	0.026*
	(2.38)	(-1.65)	(1.02)	(-1.76)	(0.23)	(-0.07)	(1.71)
Intercept	-0.523***	-0.405***	-0.451***	-0.383***	-0.417***	-0.470***	-0.423***
	(-6.05)	(-4.33)	(-6.16)	(-5.85)	(-5.35)	(-5.30)	(-5.90)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	152,422	152,422	152,422	152,422	152,422	137,270	150,453
Pseudo R^2	0.019	0.018	0.019	0.019	0.019	0.020	0.019

Table 4
Predictability of Approaching 52-Week High and Analyst Characteristics on Recommendation Downgrade

This table shows the predictability of approaching 52-week high and analyst characteristics on recommendation downgrade by logit regressions. The dependent variable is a downgrade dummy which equals 1 if the recommendation change is negative and 0 otherwise. Analyst characteristics include *Star*, *TopExp*, *Ivy* and *IvyMBA*. *Star* is a dummy variable which equals 1 (0 otherwise) if the analyst was an all-star (top3) in year $t-1$ based on the October issue of *Institutional Investor* magazine. *TopExp* is a dummy for experienced analyst from top-tier brokerage firm which equals 1 (0 otherwise) if the analyst worked in a top-tier brokerage firm with a highest Carter-Manaster rank of 9 and the analyst's experience was above cross-sectional median in year $t-1$. *Ivy* is a dummy which equals 1 if the analyst has ever attended an Ivy League school and 0 otherwise. *IvyMBA* is a dummy which equals 1 (0 otherwise) if the analyst has ever attended an Ivy League school and also has a MBA degree. *Approach52* is an approaching 52-week high dummy which equals 1 if price at day $t-1$ is within a 5% band below the 52-week high. *Approach52* × *Analyst characteristic* is the interaction of approaching 52-week high dummy with analyst characteristic dummy. $Runup_{t-5,\,t-1}$, $Runup_{t-21,\,t-6}$, $Runup_{m-6,\,m-2}$, $Runup_{m-12,\,m-7}$, *Earnings forecast revisions*, *SUE*, *Size*, *B/M*, *Earnings to price*, *Turnover*, *Accruals*, *Capital expenditure*, *Sales growth*, *Long-term growth forecast*, *Idiosyncratic volatility*, *Institutional ownership*, *Analyst coverage*, *Analyst dispersion* and *Analyst experience* are also included as controls in each regression, and are described in Appendix. All regressions control for year and Fama-French 48 industry fixed effects. Numbers in parentheses are *z*-statistics based on firm and year double clustered standard errors. ***, **, and * denote the significance levels of 1%, 5%, and 10%, respectively.

	Dependent variable: *Downgrade dummy*			
Analyst characteristic	*Star*	*TopExp*	*Ivy*	*IvyMBA*
	(1)	(2)	(3)	(4)
Approach52	0.259***	0.309***	0.346***	0.347***
	(4.36)	(4.69)	(4.00)	(3.87)
Approach52 × Analyst characteristic	-0.250***	-0.242***	-0.192**	-0.337**
	(-2.91)	(-2.61)	(-2.42)	(-2.37)
Analyst characteristic	-0.140*	-0.083	-0.011	0.039*
	(-1.94)	(-1.25)	(-0.35)	(1.65)
Intercept	-0.366***	-0.443***	-0.324**	-0.321**
	(-4.29)	(-5.52)	(-2.22)	(-2.21)
Controls	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Observations	128,756	152,422	40,194	40,194
Pseudo R^2	0.021	0.019	0.021	0.021

Table 5
Firm Performance after Recommendation Downgrade

This table shows the firm performance in the following quarter after analyst recommendation downgrade. The dependent variables are *Tobin's Q* in column 1 and 3, and *ROA* in column 2 and 4. *ROA* is return on assets in the following quarter after recommendation announcement, defined as operating income before depreciation divided by book value of total assets. *Tobin's Q* is market value of assets over book value of assets in the following quarter after recommendation announcement. *Approach52* is an approaching 52-week high dummy which equals 1 if the stock price at trading day $t-1$ is within a 5% band below the 52-week high. *Downgrade* is a dummy variable which equals 1 if the recommendation change is negative and 0 otherwise. *Approach52 × Downgrade* is the interaction of approaching 52-week high dummy with downgrade dummy. *Asset* is the natural logarithm of the total asset. *Leverage* is long-term debt plus debt in current liabilities divided by the total assets. *Cash* is the natural logarithm of cash. *Sales* is the natural logarithm of sales. *Capital Expenditure* is the ratio of capital expenditure to the total asset. *ROA* is multiplied by 100%. Firm, year and Fama-French 48 industry fixed effects are included where indicated. Numbers in parentheses are *t*-statistics based on firm and year double clustered standard errors. ***, **, and * denote the significance levels of 1%, 5%, and 10%, respectively.

Dependent variable	*Tobin's Q*	*ROA*	*Tobin's Q*	*ROA*
	(1)	(2)	(3)	(4)
Downgrade	-0.141***	-0.256***	-0.219***	-0.478***
	(-5.12)	(-6.76)	(-5.76)	(-6.83)
Approach52 × Downgrade	0.131***	0.152**	0.192***	0.431***
	(3.33)	(2.14)	(3.53)	(3.71)
Approach52	0.130***	0.304***	0.233***	0.582***
	(6.32)	(5.85)	(6.51)	(6.12)
Asset	-1.005***	-2.095***	-0.521***	-1.659***
	(-10.93)	(-14.25)	(-12.93)	(-21.90)
Leverage	-0.557***	-0.657*	-0.466***	-0.912***
	(-3.58)	(-1.69)	(-3.40)	(-3.04)
Cash	0.112***	0.052*	0.237***	-0.104***
	(6.24)	(1.93)	(9.14)	(-3.09)
Sales	0.370***	2.151***	0.247***	2.277***
	(7.65)	(13.61)	(6.76)	(24.62)
Capital Expenditure	0.806***	-1.793	1.659***	3.994**
	(3.44)	(-1.26)	(5.94)	(2.57)
Intercept	7.130***	5.778***	3.818***	2.900***
	(12.44)	(6.96)	(16.75)	(6.22)
Firm fixed effect	Yes	Yes	No	No
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	No	No	Yes	Yes
Observations	177,514	167,154	177,514	167,154
Adjusted R^2	0.593	0.627	0.225	0.244

Table 6
***BHARs* Following Recommendation Downgrade**

This table reports the buy-and-hold abnormal returns (*BHARs*) following recommendation downgrade. The dependent variables are *BHARs* of different horizons. *BHAR(0,1)* is the two-day buy-and-hold abnormal return from recommendation revision date *t* to *t+1*, subtracted by CRSP value-weighted index return. Date *t* is either the recommendation revision date or the next trading day (for recommendation revision announced between 4:00 pm and 11:59 pm or on non-trading day). *BHAR(0,4)*, *BHAR 1month* and *BHAR 3month* are the buy-and-hold abnormal returns for 1 week, 1 month and 3 months from the recommendation announcement date *t*, subtracted by CRSP value-weighted index return. *Approach52* is an approaching 52-week high dummy which equals 1 if the stock price at day *t−1* is within a 5% band below the 52-week high. *Downgrade* is a dummy variable which equals 1 if the recommendation change is negative and 0 otherwise. *Approach52* × *Downgrade* is the interaction of approaching 52-week high dummy with downgrade dummy. $Runup_{t-5,\,t-1}$, $Runup_{t-21,\,t-6}$, $Runup_{m-6,\,m-2}$, $Runup_{m-12,\,m-7}$, *Earnings forecast revisions*, *SUE*, *Size*, *B/M*, *Earnings to price*, *Turnover*, *Accruals*, *Capital expenditure*, *Sales growth*, *Long-term growth forecast*, *Idiosyncratic volatility*, *Institutional ownership*, *Analyst coverage*, and *Analyst dispersion* are also included as controls in each regression, and are described in Appendix. All regressions control for firm and year fixed effects. Numbers in parentheses are *t*-statistics based on firm and year double clustered standard errors. ***, **, and * denote the significance levels of 1%, 5%, and 10%, respectively.

Dependent variable	*BHAR(0,1)*	*BHAR(0,4)*	*BHAR 1month*	*BHAR 3month*
	(1)	(2)	(3)	(4)
Downgrade	-0.053***	-0.056***	-0.058***	-0.059***
	(-14.15)	(-14.43)	(-14.60)	(-18.12)
Approach52 × Downgrade	0.021***	0.021***	0.020***	0.022***
	(6.45)	(6.47)	(4.51)	(4.09)
Approach52	-0.008***	-0.008***	-0.001	0.009
	(-6.75)	(-5.89)	(-0.21)	(1.49)
Intercept	0.108***	0.141***	0.298***	0.745***
	(11.19)	(12.10)	(9.30)	(8.06)
Controls	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	152,364	152,359	152,233	151,655
Adjusted R^2	0.149	0.129	0.108	0.160

Table 7
Firm Performance after Recommendation Downgrade: Sorted by Analyst Characteristics

This table shows firm performance in the following quarter after recommendation downgrade based on subsamples sorted by analyst characteristics including *Star*, *TopExp*, *Ivy* and *IvyMBA*. The dependent variable is *Tobin's Q* in Panel A and *ROA* in Panel B. *Tobin's Q* is market value of assets over book value of assets in the following quarter after recommendation announcement. *ROA* is return on assets in the following quarter after recommendation announcement, defined as operating income before depreciation divided by book value of total assets. Other variables are defined the same as in Table 5. *ROA* is multiplied by 100%. Firm and year fixed effects are included where indicated. Numbers in parentheses are *t*-statistics based on firm and year double clustered standard errors. ***, **, and * denote the significance levels of 1%, 5%, and 10%, respectively.

	Panel A: *Tobin's Q* as dependent variable							
Subsamples	*Star*=1	*Star*=0	*TopExp*=1	*TopExp*=0	*Ivy*=1	*Ivy*=0	*IvyMBA*=1	*IvyMBA*=0
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Downgrade	-0.107**	-0.128***	-0.102***	-0.145***	-0.168***	-0.115***	-0.251**	-0.133***
	(-2.52)	(-5.09)	(-4.29)	(-5.21)	(-3.88)	(-4.80)	(-2.39)	(-4.63)
Approach52 × Downgrade	0.089	0.172***	0.018	0.141***	0.021	0.110*	0.029	0.114**
	(1.34)	(3.24)	(0.41)	(2.98)	(0.18)	(1.92)	(0.17)	(2.10)
Approach52	0.113**	0.088***	0.089***	0.138***	0.112	0.108***	0.092	0.113***
	(2.22)	(3.92)	(2.87)	(6.14)	(1.19)	(3.21)	(0.78)	(3.28)
Asset	-1.008***	-1.043***	-0.995***	-1.006***	-1.214***	-0.951***	-1.546***	-1.015***
	(-6.61)	(-9.51)	(-10.68)	(-10.91)	(-6.84)	(-11.28)	(-3.96)	(-8.20)
Leverage	-0.189	-0.530***	-0.583***	-0.571***	-0.905*	-0.517***	-1.895**	-0.530***
	(-0.70)	(-3.12)	(-3.79)	(-3.42)	(-1.94)	(-3.06)	(-1.98)	(-2.95)
Cash	0.103***	0.101***	0.085***	0.115***	0.142***	0.105***	0.173***	0.108***
	(3.71)	(6.52)	(4.70)	(6.17)	(3.27)	(6.36)	(2.60)	(5.58)
Sales	0.417***	0.348***	0.479***	0.364***	0.424***	0.337***	0.626***	0.317***
	(5.20)	(6.26)	(6.69)	(7.51)	(3.82)	(6.30)	(3.39)	(5.33)
Capital Expenditure	0.816**	0.559**	0.446	0.822***	0.861	0.724**	0.577	0.917***
	(2.21)	(2.50)	(1.54)	(3.27)	(1.58)	(2.53)	(0.72)	(2.98)
Intercept	6.877***	7.286***	6.549***	7.112***	8.629***	6.872***	9.711***	7.528***
	(7.49)	(10.74)	(12.41)	(12.43)	(7.52)	(13.30)	(4.01)	(9.73)
Firm fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,478	134,917	22,678	154,836	10,885	36,312	6,370	40,806
Adjusted R^2	0.663	0.605	0.664	0.593	0.619	0.653	0.457	0.610

Table 7 (continued)

	Panel B: *ROA* as dependent variable							
Subsamples	*Star*=1	*Star*=0	*TopExp*=1	*TopExp*=0	*Ivy*=1	*Ivy*=0	*IvyMBA*=1	*IvyMBA*=0
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Downgrade	-0.161***	-0.280***	-0.169***	-0.265***	-0.212**	-0.257***	-0.275***	-0.251***
	(-3.04)	(-6.43)	(-4.59)	(-6.58)	(-2.56)	(-5.34)	(-2.99)	(-5.24)
Approach52 × Downgrade	0.112	0.230**	0.071	0.151**	-0.150	0.370***	-0.139	0.312***
	(0.85)	(2.41)	(0.63)	(2.17)	(-0.61)	(2.90)	(-0.56)	(3.03)
Approach52	0.230***	0.271***	0.294***	0.320***	0.431**	0.172**	0.478**	0.206**
	(2.60)	(3.67)	(2.69)	(6.39)	(2.02)	(2.03)	(2.43)	(2.26)
Asset	-1.911***	-2.271***	-2.371***	-2.242***	-2.426***	-2.179***	-1.955***	-1.953***
	(-4.79)	(-12.50)	(-14.68)	(-14.95)	(-8.14)	(-10.34)	(-4.40)	(-9.45)
Leverage	-0.932	-0.438	-0.671**	-0.621	-0.936	-1.168*	-0.535	-1.115*
	(-1.57)	(-0.67)	(-2.52)	(-1.53)	(-1.05)	(-1.90)	(-0.43)	(-1.71)
Cash	0.070	0.024	0.066	0.059*	-0.066	0.114**	-0.073	0.079
	(1.33)	(0.57)	(1.53)	(1.88)	(-0.88)	(2.08)	(-0.58)	(1.57)
Sales	1.532***	2.322***	2.249***	2.364***	2.606***	2.473***	1.463***	2.262***
	(3.45)	(11.30)	(12.50)	(13.73)	(8.97)	(11.36)	(2.96)	(10.99)
Capital Expenditure	-1.372	-2.970	-2.444	-1.757	-2.944	-5.097	-1.581	-4.331
	(-1.54)	(-1.61)	(-1.54)	(-1.40)	(-0.90)	(-1.63)	(-1.11)	(-1.52)
Intercept	8.743***	6.048***	7.822***	5.579***	6.592***	4.694***	10.428***	4.213***
	(6.08)	(6.42)	(9.17)	(6.20)	(4.62)	(4.16)	(3.63)	(3.62)
Firm fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,648	127,912	21,196	145,958	10,266	34,795	5,950	39,012
Adjusted R^2	0.656	0.593	0.645	0.628	0.696	0.672	0.663	0.672

Table 8
BHARs Following Recommendations Downgrade: Sorted by Analyst Characteristics

This table reports the buy-and-hold abnormal returns (*BHARs*) following recommendations downgrade based on subsamples sorted by analyst characteristics including *Star, TopExp, Ivy* and *IvyMBA*. The dependent variables are *BHARs*. *BHAR(0,1)* is the two-day buy-and-hold abnormal return from recommendation revision date *t* to *t+1*, subtracted by CRSP value-weighted index return. *BHAR(0,4)*, *BHAR 1month* and *BHAR 3month* are the buy-and-hold abnormal returns for 1 week, 1 month and 3 months from the recommendation revision date *t*, subtracted by CRSP value-weighted index return. Other variables are defined the same as in Table 6. All regressions control for firm and year fixed effects. Numbers in parentheses are *t*-statistics based on firm and year double clustered standard errors. ***, **, and * denote the significance levels of 1%, 5%, and 10%, respectively.

	Panel A: *BHAR(0,1)* as dependent variable							
Subsamples	*Star*=1	*Star*=0	*TopExp*=1	*TopExp*=0	*Ivy*=1	*Ivy*=0	*IvyMBA*=1	*IvyMBA*=0
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Downgrade	-0.050***	-0.055***	-0.049***	-0.053***	-0.062***	-0.065***	-0.061***	-0.065***
	(-8.10)	(-13.41)	(-9.27)	(-14.35)	(-13.97)	(-17.98)	(-11.21)	(-18.36)
Approach52 × Downgrade	0.003	0.020***	0.009	0.023***	0.009	0.023***	0.006	0.021***
	(0.41)	(5.05)	(1.51)	(6.63)	(1.10)	(4.57)	(0.51)	(4.44)
Approach52	-0.002	-0.008***	-0.003	-0.009***	-0.006	-0.007***	-0.002	-0.007***
	(-0.51)	(-6.25)	(-1.01)	(-6.83)	(-1.43)	(-2.99)	(-0.37)	(-2.77)
Intercept	0.132***	0.115***	0.112***	0.105***	0.155***	0.125***	0.143***	0.124***
	(5.23)	(11.67)	(6.25)	(11.39)	(4.44)	(10.79)	(3.45)	(11.55)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,970	117,740	19,778	132,586	9,720	30,453	5,863	34,310
Adjusted R^2	0.238	0.152	0.213	0.147	0.204	0.195	0.233	0.195

	Panel B: *BHAR(0,4)* as dependent variable							
Subsamples	*Star*=1	*Star*=0	*TopExp*=1	*TopExp*=0	*Ivy*=1	*Ivy*=0	*IvyMBA*=1	*IvyMBA*=0
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Downgrade	-0.055***	-0.059***	-0.046***	-0.056***	-0.064***	-0.068***	-0.063***	-0.067***
	(-8.61)	(-13.99)	(-10.03)	(-14.66)	(-12.11)	(-18.43)	(-9.47)	(-18.89)
Approach52 × Downgrade	0.004	0.020***	0.008	0.022***	0.007	0.021***	0.009	0.018***
	(0.50)	(5.12)	(1.61)	(6.52)	(0.70)	(4.16)	(0.75)	(3.59)
Approach52	-0.001	-0.008***	-0.001	-0.008***	-0.007	-0.007**	-0.004	-0.007**
	(-0.13)	(-5.78)	(-0.20)	(-6.25)	(-1.18)	(-2.28)	(-0.51)	(-2.14)
Intercept	0.167***	0.155***	0.120***	0.138***	0.191***	0.164***	0.166***	0.166***
	(5.46)	(11.29)	(7.09)	(11.78)	(4.93)	(11.08)	(3.06)	(12.07)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,970	117,732	19,777	132,582	9,722	30,451	5,863	34,310
Adjusted R^2	0.219	0.131	0.161	0.128	0.171	0.177	0.184	0.176

Table 8 (continued)

	Panel C: *BHAR 1month* as dependent variable							
Subsamples	*Star*=1	*Star*=0	*TopExp*=1	*TopExp*=0	*Ivy*=1	*Ivy*=0	*IvyMBA*=1	*IvyMBA*=0
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Downgrade	-0.049***	-0.060***	-0.058***	-0.058***	-0.056***	-0.066***	-0.053***	-0.065***
	(-8.22)	(-14.39)	(-9.49)	(-15.18)	(-7.18)	(-16.45)	(-6.18)	(-16.71)
Approach52 × Downgrade	0.010	0.017***	0.009	0.021***	0.015	0.022***	0.015	0.018**
	(0.86)	(3.24)	(1.08)	(4.47)	(1.11)	(2.87)	(1.04)	(2.42)
Approach52	0.001	0.001	-0.003	-0.001	-0.005	0.001	-0.003	0.002
	(0.07)	(0.42)	(-0.68)	(-0.22)	(-0.65)	(0.25)	(-0.33)	(0.37)
Intercept	0.266***	0.358***	0.274***	0.300***	0.369***	0.355***	0.368***	0.352***
	(6.73)	(10.04)	(7.38)	(9.18)	(6.51)	(9.12)	(5.79)	(9.40)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,963	117,633	19,771	132,462	9,711	30,436	5,856	34,291
Adjusted R^2	0.132	0.114	0.140	0.109	0.136	0.132	0.138	0.135

	Panel D: *BHAR 3month* as dependent variable							
Subsamples	*Star*=1	*Star*=0	*TopExp*=1	*TopExp*=0	*Ivy*=1	*Ivy*=0	*IvyMBA*=1	*IvyMBA*=0
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Downgrade	-0.056***	-0.060***	-0.061***	-0.058***	-0.062***	-0.061***	-0.058***	-0.063***
	(-7.75)	(-18.19)	(-8.56)	(-18.99)	(-8.22)	(-13.47)	(-7.23)	(-14.89)
Approach52 × Downgrade	0.022	0.019**	0.008	0.023***	0.021	0.006	-0.007	0.009
	(1.15)	(2.49)	(0.62)	(3.66)	(0.95)	(0.54)	(-0.24)	(1.01)
Approach52	-0.002	0.012	0.004	0.009	-0.017	0.018*	-0.022	0.016*
	(-0.19)	(1.61)	(0.46)	(1.52)	(-1.52)	(1.69)	(-1.04)	(1.68)
Intercept	0.612***	0.904***	0.693***	0.752***	1.204***	0.851***	1.230***	0.879***
	(6.31)	(8.72)	(7.64)	(8.18)	(7.92)	(7.99)	(8.05)	(8.13)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,937	117,184	19,722	131,933	9,676	30,296	5,837	34,135
Adjusted R^2	0.193	0.174	0.178	0.164	0.215	0.182	0.225	0.185

Table 9
Robustness Tests by Different Methods

This table reports robustness tests by different methods including probit model, linear probit model, OLS, ordered logit model and logit model. In column 5-9, firms with recommendation change=0 are excluded. The dependent variable is downgrade dummy for probit model, linear probit model and logit model. For OLS and ordered logit model, the dependent variable is recommendation change. The definitions of variables are given in Appendix. Numbers in parentheses are *z*-statistics or *t*-statistics based on firm and year double clustered standard errors ***, **, and * denote the significance levels of 1%, 5%, and 10%, respectively.

	Probit	Linear Probit	OLS	Ordered Logit	Logit	Probit	Linear Probit	OLS	Ordered Logit
Dependent variable	Downgrade		Recommendation change			Downgrade		Recommendation change	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Approach52	0.172***	0.067***	-0.194***	-0.269***	0.351***	0.218***	0.085***	-0.246***	-0.299***
	(4.66)	(4.89)	(-4.81)	(-4.69)	(4.71)	(4.68)	(4.69)	(-4.80)	(-4.60)
$Runup_{t-5, t-1}$	-0.685***	-0.233***	0.491**	0.835***	-1.134***	-0.701***	-0.225**	0.567**	0.783***
	(-3.47)	(-2.97)	(2.40)	(2.83)	(-2.97)	(-3.01)	(-2.56)	(2.34)	(2.65)
$Runup_{t-21, t-6}$	-0.012	0.030	-0.166	-0.089	0.187	0.111	0.091*	-0.238*	-0.134
	(-0.10)	(0.60)	(-1.42)	(-0.55)	(0.84)	(0.82)	(1.68)	(-1.68)	(-0.85)
$Runup_{m-6, m-2}$	-0.320***	-0.130***	0.331***	0.444***	-0.632***	-0.389***	-0.154***	0.411***	0.466***
	(-11.63)	(-11.67)	(12.16)	(12.52)	(-11.17)	(-11.28)	(-12.00)	(11.80)	(11.57)
$Runup_{m-12, m-7}$	-0.071***	-0.040***	0.081***	0.081***	-0.123***	-0.075***	-0.038***	0.098***	0.085***
	(-3.61)	(-4.30)	(3.15)	(2.92)	(-3.13)	(-3.06)	(-3.19)	(3.01)	(2.97)
Earnings forecast revisions	0.021***	0.008***	-0.017**	-0.024**	0.038**	0.023**	0.007**	-0.019**	-0.023*
	(3.23)	(2.60)	(-2.45)	(-2.29)	(2.48)	(2.51)	(1.97)	(-2.21)	(-1.95)
SUE	-0.021***	-0.007***	0.011***	0.022***	-0.028***	-0.018***	-0.005***	0.014***	0.024***
	(-5.79)	(-4.64)	(3.78)	(6.02)	(-4.56)	(-4.53)	(-2.95)	(3.27)	(5.00)
Size	-0.019***	0.025***	-0.062***	0.012*	-0.018**	-0.012**	0.027***	-0.076***	0.015**
	(-3.06)	(3.89)	(-3.52)	(1.87)	(-2.08)	(-2.16)	(3.38)	(-3.32)	(2.20)
B/M	-0.004**	-0.001	0.001	0.004*	-0.004	-0.003	-0.001	0.001	0.003
	(-2.01)	(-0.84)	(0.29)	(1.95)	(-1.59)	(-1.59)	(-0.47)	(0.17)	(1.36)
Earnings to price	0.042*	0.012*	-0.036**	-0.051**	0.052	0.030	0.012*	-0.042**	-0.054**
	(1.92)	(1.67)	(-2.40)	(-2.30)	(1.55)	(1.45)	(1.91)	(-2.30)	(-2.52)
Turnover	2.014***	1.106***	-2.052**	-2.136***	1.550**	0.985**	0.777**	-2.388**	-2.298***
	(4.56)	(3.71)	(-2.45)	(-3.07)	(2.05)	(2.13)	(2.43)	(-2.38)	(-3.17)
Accruals	0.413***	0.153***	-0.383***	-0.577***	0.734***	0.457***	0.183***	-0.471***	-0.610***
	(7.10)	(5.54)	(-4.85)	(-6.92)	(6.73)	(6.72)	(5.31)	(-4.46)	(-6.60)
Capital expenditure	0.087**	0.012	-0.028	-0.083	0.109	0.067	0.011	-0.018	-0.071
	(2.40)	(0.62)	(-0.55)	(-1.57)	(1.45)	(1.44)	(0.46)	(-0.28)	(-1.20)
Sales growth	0.015**	0.002	-0.008	-0.022***	0.035***	0.021***	0.002	-0.009	-0.021***
	(2.27)	(0.84)	(-1.39)	(-3.48)	(2.81)	(2.88)	(0.70)	(-1.16)	(-3.51)
Long-term growth forecast	0.001	0.000	-0.002***	-0.002**	0.002**	0.002**	0.001**	-0.002**	-0.002**
	(1.48)	(1.62)	(-2.62)	(-2.43)	(2.12)	(2.17)	(2.28)	(-2.55)	(-2.52)
Idiosyncratic volatility	2.577***	0.955***	-2.230***	-3.468***	4.874***	2.940***	0.967***	-2.745***	-3.789***
	(3.68)	(2.94)	(-3.00)	(-3.74)	(4.38)	(4.36)	(3.56)	(-3.42)	(-4.36)
Institutional ownership	0.014	0.055***	-0.090***	0.040	-0.045	-0.030	0.040***	-0.111**	0.039
	(0.64)	(3.90)	(-2.60)	(1.58)	(-1.26)	(-1.31)	(2.64)	(-2.56)	(1.40)
Analyst coverage	0.000	-0.000	-0.001	0.001	-0.000	-0.000	0.001	-0.002	0.001
	(0.28)	(-0.02)	(-1.01)	(0.92)	(-0.28)	(-0.25)	(0.93)	(-0.93)	(0.64)
Analyst dispersion	0.002**	-0.002	0.007**	-0.002	0.003	0.002	-0.003**	0.010***	-0.001
	(2.40)	(-1.57)	(2.55)	(-1.35)	(1.63)	(1.62)	(-2.38)	(2.63)	(-0.96)
Analyst experience	-0.030***	-0.013***	0.010	0.015	-0.015	-0.009	-0.003	0.013	0.022**
	(-2.78)	(-3.05)	(1.32)	(1.59)	(-0.92)	(-0.91)	(-0.65)	(1.29)	(2.23)
Intercept	-0.242***	0.124**	0.650***		-0.054	-0.027	0.217***	0.788***	
	(-5.00)	(2.54)	(4.57)		(-0.76)	(-0.60)	(3.50)	(4.40)	
Firm fixed effect	No	Yes	Yes	No	No	No	Yes	Yes	No
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	No	No	Yes	Yes	Yes	No	No	Yes
Observations	152,422	152,422	152,422	152,422	121,158	121,158	121,158	121,158	121,158
Pseudo R^2/Adjusted R^2	0.018	0.022	0.015	0.007	0.026	0.026	0.027	0.020	0.010

Table 10
Robustness Tests by Different Definitions of Approaching 52-Week High

This table reports robustness tests by different definitions of approaching 52-week high based on logit regression. The dependent variable is a downgrade dummy which equals 1 if the recommendation change is negative and 0 otherwise. In column 1 to 2, *Approach52* is a dummy which equals 1 if the stock price at day *t−1* is within 4% and 6% band below the 52-week high, respectively. In column 3 to 5, *Approach52* is a dummy which equals 1 if the stock price at trading day *t−3* is within 4%, 5% and 6% band below the 52-week high, respectively. In column 6 to 8, *Approach52* is a dummy which equals 1 if the stock price on at least one day of the past three trading days (*t−1, t−2* and *t−3*) is within 4%, 5% and 6% band below the 52-week high, respectively. $Runup_{t-5,\,t-1}$, $Runup_{t-21,\,t-6}$, $Runup_{m-6,\,m-2}$, $Runup_{m-12,\,m-7}$, *Earnings forecast revisions*, *SUE*, *Size*, *B/M*, *Earnings to price*, *Turnover*, *Accruals*, *Capital expenditure*, *Sales growth*, *Long-term growth forecast*, *Idiosyncratic volatility*, *Institutional ownership*, *Analyst coverage*, *Analyst dispersion* and *Analyst experience* are also included as controls in every regression, and are described in Appendix. All regressions control for year and Fama-French 48 industry fixed effects. Numbers in parentheses are *z*-statistics based on firm and year double clustered standard errors. ***, **, and * denote the significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Approach52 (4%)	0.311***		0.334***			0.346***		
	(4.77)		(6.19)			(6.27)		
Approach52 (5%)				0.294***			0.310***	
				(5.82)			(5.92)	
Approach52 (6%)		0.273***			0.260***			0.282***
		(5.01)			(5.38)			(6.01)
Intercept	-0.402***	-0.414***	-0.398***	-0.404***	-0.408***	-0.414***	-0.418***	-0.422***
	(-5.30)	(-5.46)	(-5.26)	(-5.36)	(-5.44)	(-5.55)	(-5.58)	(-5.62)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	152,422	152,422	152,334	152,334	152,334	152,453	152,453	152,453
Pseudo R^2	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019

Figure 1a. Stock Price of PepsiCo Inc. and Analyst Recommendation Changes

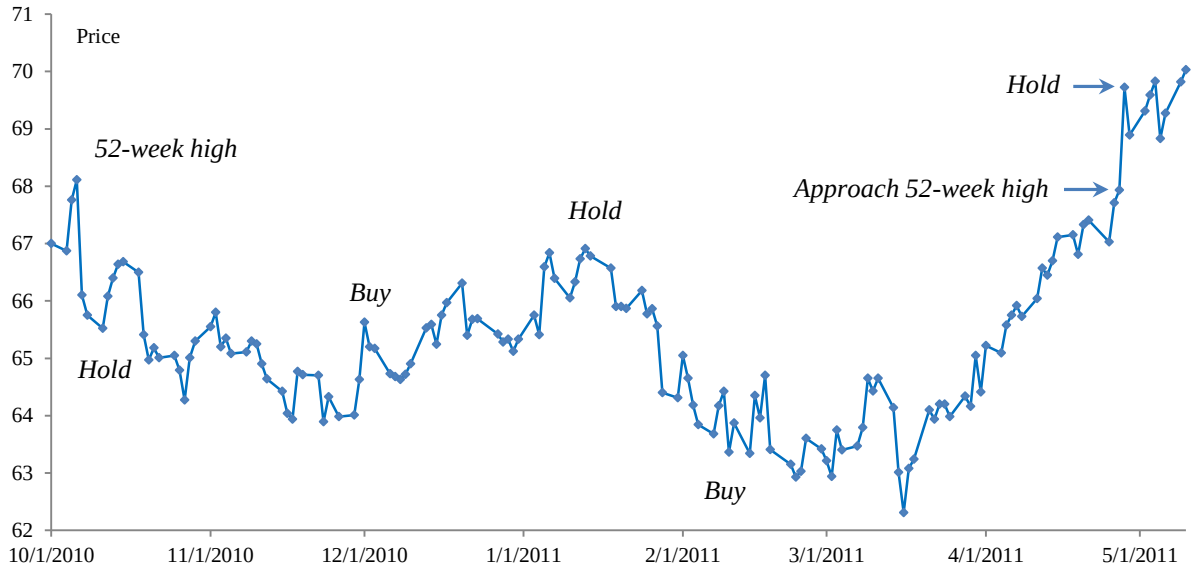

Fig. 1a. This figure shows the stock price of PepsiCo Inc. from Oct 1, 2010 to May 10, 2011 and analyst recommendation changes. The 52-week high price is $ 68.11 on Oct 6, 2010. Analyst P. Gorham (non-star analyst) issued a *Hold* recommendation on Oct 7, 2010, a *Buy* recommendation on Dec 2, 2010, a *Hold* recommendation on Jan 12, 2011, and a *Buy* recommendation on Feb 10, 2011. After the stock price ($67.93) approached the 52-week high on Apr 27, 2011, P. Gorham downgraded the recommendation to *Hold* on Apr 28, 2011.

Figure 1b. Stock Price of eBay Inc. and Analyst Recommendation Changes

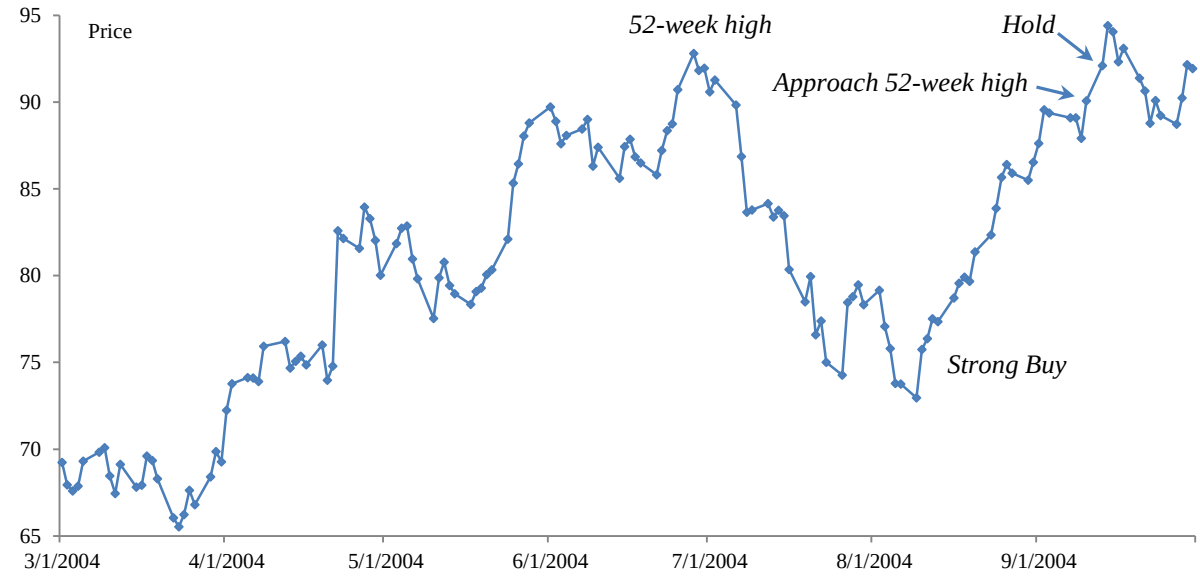

Fig. 1b. This figure shows the stock price of eBay Inc. from Mar 1, 2004 to Sep 30, 2004 and analyst recommendation changes. The 52-week high price is $ 92.81 on Jun 28, 2004. Analyst R. Becker (non-star analyst) issued a *Hold* recommendation on Jan 23, 2004 and a *Strong Buy* recommendation on Aug 11, 2004. After stock price ($90.07) approached the 52-week high on Sep 10, 2004, R. Becker downgraded the recommendation to *Hold* on Sep 13, 2004.

Appendix
Variable Definitions

Variable	Definition
Downgrade dummy	dummy equals 1 for recommendation change<0; dummy equals 0 for recommendation change>=0
Recommendation change	analyst recommendation change, computed as the current rating minus the prior rating by the same analyst. By construction, recommendation change ranges between −4 and +4. (Analyst rating ranges from 1 to 5, indicating *Sell, Underperform, Hold, Buy* And *Strong Buy*, respectively.)
$Runup_{t-5,\,t-1}$	cumulative return from day *t−1* to *t−5* before recommendation revision date *t*
$Runup_{t-21,\,t-6}$	cumulative return from day *t−6* to *t−21*
$Runup_{m-6,\,m-2}$	cumulative return from month −2 to −6 (day *t−22* to *t−126*)
$Runup_{m-12,\,m-7}$	cumulative return from month −7 to −12 (day *t−127* to *t−252*)
Size	the natural logarithm of market value at day *t−22*
B/M	book-to-market ratio, book value of equity divided by market value of equity
52-week high	52-week high price was set at least 30 days ago (i.e. the last breakthrough is at least 30 days ago), excluding observations with price breaking through 52-week high during days (−30, −1).
Approach52	approaching 52-week high dummy, equals 1 if stock price at day *t−1* is within a 5% band below the 52-week high (i.e. (1−0.05) × 52-week high < price at day *t−1* <52-week high) and 0 otherwise
Price/52-week high	stock price at day *t−1* divided by 52-week high
Square of price/52-week high	square of price/52-week high
Sales growth	rolling sum of sales for preceding four quarters / rolling sum of sales for second preceding set of four quarters as in Jegadeesh et al. (2004)
Accruals	total accruals to total assets, calculated as the change in non-cash current assets less the change in current liabilities excluding the change in debt included in current liabilities and the change in income taxes payable, minus depreciation and amortization expense, and scaled by average total assets
Capital expenditure	capital expenditures to total assets, calculated as rolling sum of four quarters of capital expenditure scaled by average total assets
Earnings to price	rolling sum of earnings per share before extraordinary items for preceding four quarters, deflated by price at the end of the quarter
Turnover	average daily turnover in previous three months
Idiosyncratic volatility	the standard deviation of the residuals of the Fama-French 3-factor model estimated using the daily stock returns in past three month
Institutional ownership	a firm's shares held by institutions from Thomson Reuters scaled by shares outstanding from CRSP
Analyst coverage	the number of I/B/E/S analysts who provide one-year earnings forecasts in prior three months (divided by 100 in regressions)
Analyst dispersion	the standard deviation across earnings forecasts in prior three months
SUE	standardized unexpected earnings, unexpected earnings divided by the standard deviation of unexpected earnings over eight preceding quarters, unexpected earnings is calculated as earnings at quarter *t* minus earnings at quarter *t−4*.
Earnings forecast revisions	analyst earnings forecast revisions to price, rolling sum of preceding six months revisions to price ratios, using mean consensus analyst FY1 forecast from I/B/E/S
Long-term growth forecast	most recent mean consensus long-term growth forecast from I/B/E/S (divided by 100 in regressions)
Analyst experience	the natural logarithm of number of years that the analyst exists in I/B/E/S

Star	a dummy variable which equals 1 (0 otherwise) if the analyst is an all-star (top3) in year *t−1* based on the October issue of *Institutional Investor* magazine
TopExp	a dummy for experienced analyst working in top-tier brokerage firm which equals 1 (0 otherwise) if the analyst worked in a top-tier brokerage firm with a highest Carter-Manaster rank of 9 and the analyst's experience was above cross-sectional median in year *t−1*.
Ivy	a dummy which equals 1 if the analyst has ever attended an Ivy League school and 0 otherwise
IvyMBA	a dummy which equals 1 (0 otherwise) if the analyst has ever attended an Ivy League school and also has a MBA degree
ROA	return on assets, defined as operating income before depreciation divided by book value of total assets
Tobin's Q	market value of assets over book value of assets.
Discretionary accrual	absolute value of discretionary accrual calculated based on modified Jones (1991) model
PIN	probability of informed trading, calculated based on Venter and DeJong (2006) model, data is obtained from Professor Stephen Brown's website http://www.rhsmith.umd.edu/faculty/sbrown/pinsdata.html
Age	the natural logarithm of firm age, calculate as recommendation announcement year minus the first year that the firm appears in CRSP plus one year
Leverage	the total debt (debt in current liabilities plus long-term debt) divided by total assets

Appendix Table 1
Predictability of Approaching 52-Week High on Analyst Recommendation Downgrade

This table shows the predictability of approaching 52-week high on recommendation downgrade. The dependent variable is *recommendation change* in OLS regression (Panel A) and *downgrade dummy* in logit regression (Panel B). *Price/52-week high* is the ratio of stock price at day $t-1$ divided by 52-week high. *Square of price/52-week high* is the square of *Price/52-week high.* The definitions of other variables are given in Appendix. Numbers in parentheses are *t*-statistics or *z*-statistics based on firm and year double clustered standard errors. ***, **, and * denote the significance levels of 1%, 5%, and 10%, respectively.

Panel A: OLS regression, *recommendation change* as dependent variable				
	(1)	(2)	(3)	(4)
Price/52-week high	0.850***	0.863***	0.899***	0.768***
	(3.69)	(3.79)	(3.63)	(3.05)
Square of price/52-week high	-0.728***	-0.751***	-0.792***	-0.702***
	(-3.52)	(-3.57)	(-3.52)	(-3.09)
$Runup_{t-5,\ t-1}$	0.472**	0.447**	0.524**	0.490**
	(2.21)	(2.03)	(2.54)	(2.35)
$Runup_{t-21,\ t-6}$	-0.184	-0.212*	-0.166	-0.183
	(-1.61)	(-1.82)	(-1.40)	(-1.55)
$Runup_{m-6,\ m-2}$	0.314***	0.314***	0.348***	0.343***
	(11.20)	(10.88)	(11.15)	(10.44)
$Runup_{m-12,\ m-7}$	0.052**	0.042*	0.077***	0.085***
	(2.53)	(1.94)	(2.75)	(2.97)
Earnings forecast revisions		-0.076***	-0.064***	-0.063***
		(-4.79)	(-3.40)	(-2.85)
SUE		0.018***	0.015***	0.013***
		(4.45)	(3.55)	(3.29)
Size			-0.062***	-0.061***
			(-4.24)	(-3.56)
B/M			-0.001	0.001
			(-0.28)	(0.32)
Earnings to price			-0.052***	-0.062***
			(-2.69)	(-3.00)
Turnover			-3.722***	-2.669***
			(-4.76)	(-3.02)
Accruals			-0.408***	-0.400***
			(-5.93)	(-5.16)
Capital expenditure			-0.100	-0.067
			(-1.43)	(-0.90)
Sales growth			-0.007	-0.007
			(-1.00)	(-0.91)
Long-term growth forecast			-0.182***	-0.175**
			(-3.23)	(-2.57)
Idiosyncratic volatility				-1.873***
				(-2.68)
Institutional ownership				-0.093**
				(-2.55)
Analyst coverage				-0.101
				(-0.84)
Analyst dispersion				0.017*
				(1.89)
Analyst experience				0.009
				(1.27)
Intercept	-0.203***	-0.199***	0.360***	0.464***
	(-3.35)	(-3.55)	(2.88)	(3.27)
Firm fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	214,691	203,689	162,302	152,422
Adjusted R^2	0.010	0.010	0.014	0.016

Appendix Table 1 (continued)

Panel B: logit regression, *downgrade dummy* as dependent variable				
	(1)	(2)	(3)	(4)
Price/52-week high	-1.487***	-1.442***	-1.221***	-0.914***
	(-5.24)	(-5.12)	(-4.06)	(-3.27)
Square of price/52-week high	0.977***	0.992***	1.000***	0.820***
	(3.75)	(3.83)	(3.41)	(2.87)
$Runup_{t-5,\ t-1}$	-0.955***	-0.913***	-1.147***	-1.111***
	(-2.84)	(-2.65)	(-3.48)	(-3.33)
$Runup_{t-21,\ t-6}$	0.123	0.172	-0.009	0.007
	(0.64)	(0.86)	(-0.05)	(0.04)
$Runup_{m-6,\ m-2}$	-0.484***	-0.479***	-0.532***	-0.530***
	(-12.52)	(-11.60)	(-11.63)	(-11.70)
$Runup_{m-12,\ m-7}$	-0.089***	-0.064**	-0.104***	-0.122***
	(-2.90)	(-2.11)	(-2.81)	(-3.38)
Earnings forecast revisions		0.076***	0.084***	0.115***
		(3.13)	(3.16)	(3.80)
SUE		-0.038***	-0.038***	-0.035***
		(-5.71)	(-4.97)	(-4.94)
Size			-0.044***	-0.033***
			(-6.67)	(-3.22)
B/M			-0.005**	-0.007**
			(-2.01)	(-2.16)
Earnings to price			0.094**	0.117**
			(2.24)	(2.43)
Turnover			4.901***	3.691***
			(5.70)	(4.50)
Accruals			0.671***	0.689***
			(7.74)	(7.83)
Capital expenditure			0.242***	0.210**
			(3.12)	(2.46)
Sales growth			0.031***	0.027**
			(2.81)	(2.12)
Long-term growth forecast			0.188**	0.085
			(2.39)	(1.01)
Idiosyncratic volatility				3.671***
				(3.02)
Institutional ownership				0.029
				(0.82)
Analyst coverage				0.010
				(0.07)
Analyst dispersion				0.011**
				(2.16)
Analyst experience				-0.047***
				(-2.67)
Intercept	0.058	0.031	0.050	-0.144
	(0.66)	(0.31)	(0.52)	(-1.45)
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Observations	214,691	203,689	162,302	152,422
Pseudo R^2	0.015	0.014	0.018	0.018

Appendix Table 2
Predictability of Approaching 52-Week High on Analyst Recommendation Downgrade

This table shows the predictability of approaching 52-week high on recommendation downgrade based on the subsample with available analyst education data. The dependent variable is a downgrade dummy. *Approach52* is a dummy which equals 1 if price at day $t-1$ is within a 5% band below the 52-week high. The definitions of other variables are given in Appendix. All regressions control for year and Fama-French 48 industry fixed effects. Numbers in parentheses are z-statistics based on firm and year double clustered standard errors. ***, **, and * denote the significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)
Approach52	0.299***	0.303***	0.300***	0.306***
	(4.38)	(4.20)	(3.10)	(3.23)
$Runup_{t-5,\ t-1}$	-1.124***	-1.002***	-0.997***	-0.955***
	(-3.28)	(-3.01)	(-3.00)	(-2.78)
$Runup_{t-21,\ t-6}$	-0.006	0.067	-0.028	0.003
	(-0.03)	(0.30)	(-0.12)	(0.01)
$Runup_{m-6,\ m-2}$	-0.645***	-0.617***	-0.567***	-0.559***
	(-10.50)	(-9.35)	(-9.36)	(-8.86)
$Runup_{m-12,\ m-7}$	-0.118***	-0.079***	-0.114***	-0.143***
	(-4.28)	(-2.79)	(-3.22)	(-4.13)
Earnings forecast revisions		0.054	0.063	0.090*
		(1.34)	(1.24)	(1.88)
SUE		-0.049***	-0.044***	-0.043***
		(-5.33)	(-4.49)	(-4.67)
Size			-0.060***	-0.047***
			(-6.90)	(-3.36)
B/M			-0.012	-0.012
			(-1.29)	(-1.20)
Earnings to price			0.068	0.080
			(1.48)	(1.29)
Turnover			6.417***	6.287***
			(6.91)	(7.27)
Accruals			0.675***	0.665***
			(4.09)	(4.14)
Capital expenditure			0.222*	0.179
			(1.90)	(1.38)
Sales growth			0.057***	0.055***
			(3.69)	(2.97)
Long-term growth forecast			0.003**	0.002
			(2.30)	(1.52)
Idiosyncratic volatility				1.722
				(1.17)
Institutional ownership				0.062
				(1.58)
Analyst coverage				-0.003
				(-1.33)
Analyst dispersion				0.005
				(0.84)
Analyst experience				-0.035
				(-1.37)
Intercept	-0.325***	-0.358***	-0.167*	-0.326**
	(-4.59)	(-3.97)	(-1.68)	(-2.24)
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Observations	55,938	53,405	42,821	40,194
Pseudo R^2	0.016	0.016	0.021	0.021