Advances in Accounting xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Advances in Accounting

journal homepage: www.elsevier.com/locate/adiac

Price momentum and the premium for meeting or beating analysts' forecasts of earnings☆

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ABSTRACT

This study provides a theoretical rationale and empirical support that relates the existence and magnitude of the premium for meeting/beating analysts' EPS forecasts to the existence of preannouncement price momentum. The study is based on the theoretical work that suggests that extreme levels of price momentum can cause security prices to deviate from fundamental values even in the presence of well-informed and well-financed rational arbitrageurs. Differences of opinion regarding the extent of mispricing and/or optimal exit time to exit the position allow this mispricing to persist (Abreu and Brunnermeir 2002, 2003). To correct mispricing, a news event, like an earnings announcement, is necessary to synchronize investors' exit strategy beliefs (Abreu and Brunnermeir 2002, 2003). In the case of an earnings announcement, this synchronization of beliefs triggers a price reaction of such magnitude that it cannot be explained by unexpected earnings. Instead, we hypothesize and show that the abnormal price reaction is largely captured in what empirical researchers have identified as the meet/beat market premium. Our findings provide a cohesive argument for the temporal variation in meet/beat premiums documented by Koh, Matsumoto and Rajgopal (2008).

1. Introduction

Prior research has documented the existence of a stock return premium for meeting or beating analyst forecasts of earnings[1] even after controlling for unexpected earnings (Bartov et al. 2002; Kasznik and McNichols, 2002). Despite the empirical evidence of its existence, the basis of the meet/beat premium remains a largely unexplained phenomenon in the literature. The motivation behind our paper is to extend the existing literature by providing a theoretical rationale and related empirical support for the existence and magnitude of the meet/beat premium. To that end, we relate the meet/beat premium to the degree of pre-announcement stock price momentum.[2]

The foundation of our study is based on the idea that price momentum is linked to investor disagreement[3] over the extent of temporary mispricing caused by a prior market misreaction to news about a security.[4] That is, disagreement over any such misreaction and the re-

☆ We appreciate the comments of workshop participants at the University of Alabama at Birmingham, Saint Joseph's University, and Rutgers University-Camden.
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[1] Hereafter, this is referred to as the meet/beat premium. The meet/beat premium in our context is the differential stock return for firms that just meet (beat) the consensus analyst forecast of earnings relative to firms that miss the consensus forecast.

[2] Consistent with prior research we define positive and negative momentum, respectively, on the basis of past stock market "winners" (highest returns) and "losers" (lowest returns). As discussed later, we measure momentum on a residual basis, after controlling for changes in fundamental information during the measurement period.

[3] Disagreement among investors not only manifests in abnormal trading volume but also can lead to security prices to deviate from their intrinsic values and generate price momentum. See Hong and Stein (1999) for a complete discussion of disagreement theories.

[4] Prior literature has linked market misreactions (e.g., both over- and under-reactions) to news events, to price momentum (Daniel, et al., 1998; Debondt and Thaler, 1995; Barberis, 1998; Hong Stein, 1999)

https://doi.org/10.1016/j.adiac.2018.07.003
Received 9 May 2018; Received in revised form 2 July 2018; Accepted 2 July 2018
0882-6110/ Published by Elsevier Ltd.

lated price momentum will result in the belief among a subset of investors that a security is temporarily mispriced (e.g., Barberis 1998; Hong and Stein 1999; Lee and Swaminathan 2000).[5] Differences of opinion concerning the timing of the market correction (Abreu and Brunnermeier, 2002, 2003) allow this momentum / mispricing to persist.[6] To correct any mispricing, a sufficient number of investors must be synchronized in the belief that the security is indeed mispriced. Therefore, a news event, such as an earnings announcement, is necessary to synchronize investors' beliefs (Abreu and Brunnermeier 2002, 2003). In the case of an earnings announcement, the synchronization of beliefs triggers a price reaction of such magnitude that it cannot be explained by unexpected earnings. Instead, we argue that the abnormal price reaction is largely captured in what empirical researchers have identified as the meet/beat premium. In this vein, we argue that the meet/beat premium is a consequence of resolving investor disagreement over the existence and magnitude of a prior misreaction.

Given the above arguments, we hypothesize that the magnitude of the meet/beat premium should be positively related to the magnitude of disagreement over mispricing in the preannouncement period.[7] Unfortunately, it is extremely difficult to identify the degree of disagreement over market misreactions within specific securities. Instead, we utilize preannouncement price momentum portfolios as a tangible measure to identify securities where a disagreement over a misreaction is more likely. To strengthen the measure we develop the portfolios using momentum that is adjusted for the release of any fundamental information (i.e. momentum unrelated to fundamental news released during the preannouncement period).[8]

Our findings are consistent with a strong positive association between the magnitude of the meet/beat premiums and the magnitude of the pre-announcement price momentum. For example, firms in the top decile of preannouncement price momentum have meet/beat premiums that are approximately 5 times larger than the premiums for firms in the bottom decile. Additionally, our results are consistent with the meet/beat signals varying temporally with pre-announcement price momentum, and we find larger premiums in periods of extreme pre-announcement price momentum (i.e. dot-com period and the more recent 2007–2008 financial crisis period).

We also find larger meet/beat premiums in negative momentum stocks, which we attribute to slower information diffusion rates in negative news firms. Slow rates of information diffusion have also been positively associated with market misreactions (Hong and Stein 1999). Overall, our findings are consistent with meet/beat signal resolving disagreement concerning whether a prior price movement was a misreaction.

Finally, given that momentum is an observable phenomenon, we investigate whether managers' incentive to just meet (beat by 1 cent or less) analysts' expectations increases when momentum is present. Our results are consistent with managers' being more likely to just meet in the presence of preannouncement momentum. As stated earlier, despite an extensive body of research that documents firms receive a market equity premium for meeting/beating analysts' earnings expectations,[9] the basis for the meet/beat premium remains largely unexplained. Our findings provide some insight as to why firms receive premiums (penalties) for meeting/beating (missing) market expectations even after controlling for the unexpected news in earnings.

Our study also has implications for findings reported in Koh et al. (2008) that the market premium for meeting or just beating (by one penny or less) forecasted EPS completely disappeared, and the premium for beating forecasted EPS by more than a penny greatly diminished following the accounting scandals in 2001–2002.[10]Koh et al. (2008) demonstrate empirically that the diminished premiums after the accounting scandals are not related to declining earnings quality and thus conclude that the decline was possibly the result of unwarranted skepticism of earnings reported by just meet and beat firms. We document that these premiums returned in the presence of strong pre-announcement price momentum during 2007 and 2008. Further, we show that the disappearance and reappearance of the just meet premium is strongly associated with the level of pre-announcement price momentum, suggesting an additional explanation for its disappearance.

The findings in this paper should appeal to a wide audience. The just meet and beat premiums are important given that they offer managers a strong incentive to avoid missing analysts' expectations (Graham et al. 2005). Further, scholars have suggested that the premium was the primary driver behind the accounting scandals of the early 2000s (Jensen et al. 2004). We provide evidence consistent with larger premiums in the presence of pre-announcement price momentum and managers being aware of the importance of meeting/beating expectations when these market conditions exist. Our findings should therefore be of interest to auditors, regulators, investors, academics, or anyone else interested in understanding how market conditions affect investors' reactions to earnings announcements and managers' incentives to manipulate reported accounting numbers.

Finally, our study should also appeal to academics interested in the intersection of behavioral finance theory and accounting information events. This area of research has received less attention in the academic literature as research focused on security valuation has generally operated under the assumption that accounting events provide useful information to investors from a purely fundamental perspective (i.e. predicting future earnings and assessing risk). However, given the extreme market volatility and frequency of asset bubbles in the last decade, an investigation into how mispricing can affect the interpretation of accounting events may serve as a fruitful avenue for future research.

The remainder of the paper is organized as follows. Section 2 provides background, theoretical development, and related empirical predictions. The research design related to the primary analysis is outlined in Section 3. Data and descriptive statistics are presented in Section 4. Results related to the primary analysis are presented in Section 5 with Section 6 providing a temporal analysis of the meet/beat premiums. Section 7 investigates managers' incentives to meet or just meet analysts' expectations when momentum is present. Section 8

[5] The idea of why momentum moves security prices away from their intrinsic values is expressed simply in Keynes' (1936) famed beauty contest analogy, where judges are more focused on the beliefs of the other judges than the actual beauty of the contestants. As such, the judges are most interested in picking the winner instead of the most beautiful contestant. Keynes applies this analogy to financial markets arguing that individuals do not pick a stock based on what they think it is worth, but rather on what they think other people think it is worth.

[6] Accounts from hedge fund managers during the technology bubble clearly portray this exit-timing problem. For example, Stanley Druckenmiller, manager of George Soros's 8.2 billion Quantum fund, was asked why he didn't get out of technology stocks despite knowing that the sector was overvalued, he replied "'We thought it was the eighth inning, and it was the ninth". Mounting losses forced Druckenmiller to step down as fund manager in April 2000. However, not playing in this irrational market is not always a solution. Julian Roberts, manager of the legendary Tiger Hedge Fund, refused to invest in the technology sector because he believed that it was overvalued. The Tiger Fund was dissolved in 1999 because its returns underperformed the returns generated by dot-com stocks. New York Times, April 29, 2000, "Another Technology Victim; Top Soros Fund Manager Says He 'Overplayed' Hand."

[7] A more severe misreaction will lead to a more severe correction and thus a larger meet/beat premium.

[8] This method is discussed in Section 3.2.

[9] For examples see Barth et al. (1999); DeFond and Park (2001); Bartov et al. (2002), Givoly, and Hayn (2002); Kasznik and McNichols (2002); Lopez and Rees (2002), Skinner and Sloan (2002).

[10] Examples of major accounting scandals during this period include Enron, WorldCom, Adelphia, HealthSouth, McKesson, Tyco, and Qwest.

describes sensitivity and robustness checks related to all of the analyses. Finally, a summary and conclusions are provided in Section 9.

2. Background, theoretical development, and empirical predictions

2.1. Background

An extensive body of accounting literature documents the importance of meeting or beating analysts' operating earnings expectations (EPS). Degeorge et al. (1999) document that managers attempt to meet or beat analysts' earnings forecasts. Brown and Caylor (2005) use a more recent time frame and provide evidence that managers are most concerned with avoiding negative earnings surprises compared to avoiding earnings decreases or losses. Multiple other studies report a market equity premium for meeting analysts' forecast of earnings (Barth et al. 1999; Defond and Park 2001; Bartov et al. 2002; Kasznik and McNichols 2002; Lopez and Rees 2002, Skinner and Sloan 2002).[11] Additionally, Graham et al. (2005) survey managers and report a significant concern regarding negative market reactions associated with missing analysts' earnings forecast.

The prior literature presents two psychological explanations for why investors focus so much attention on meeting/beating analysts' forecasts. One explanation is that investors utilize analysts' forecasts as a heuristic to reduce information processing costs. It is difficult and costly for investors to retrieve and process all of a firm's financial disclosures and make timely investment decisions. Using heuristic benchmarks is beneficial because it demands less cognitive effort than systematic processing (Uleman and Bargh 1989). To reduce costs, some investors rely on analysts to process information and provide a forecast of future earnings (Burgstahler and Dichev 1997; Degeorge et al., 1999).

Information processing theory explains why investors rely on heuristics but it does not necessarily explain why there is a premium for meeting/beating a heuristic target. To explain the premium most studies have relied on Prospect Theory which asserts that people evaluate risky alternatives from a reference point and are more sensitive to losses than gains (Kahneman and Tversky 1979). Analysts' forecasts are a dividing line indicating whether firms met or missed the benchmark. Investors view missing analysts' forecasts as a relative loss whereas meeting or beating the forecasts is interpreted as a gain. This asymmetric gain/loss reaction creates a differential reaction between meet/beat and miss firms and thus creates a premium (penalty) for meeting/beating (missing) analysts' earnings expectations even after controlling for unexpected earnings.

A limitation of Prospect Theory as a complete explanation for the meet/beat premium is that it provides little guidance as to why the premiums persist. Prospect Theory operates under the assumption that the market overreacts to losses (i.e. missing expectation). For this theory to hold, some reversal of abnormal returns should occur subsequent to the earnings announcement. However, Bartov et al. (2002) investigate abnormal returns of meet/beat firms subsequent to the earnings announcement and find no evidence of a reversal over the following quarter, one, two, or three years. This finding is inconsistent with investors overreacting to a perceived loss.

Prospect Theory is also unable to explain why meet/beat premiums vary temporally. Evidence reported in Koh et al. (2008) indicates the market premium for meeting or just beating (by one penny or less) forecasted EPS completely disappeared, and the premium for beating forecasted EPS by more than a penny greatly diminished following the accounting scandals in 2001–2002.[12] In Section 8 of this study, we will demonstrate that these premiums returned in 2007 and 2008. Under prospect theory, this temporal variation would suggest that investors became rational after the accounting scandals and no longer displayed an aversion to losses only to regain their loss aversion a few years later. This explanation is unlikely given that loss aversion is an unconscious systematic reaction (Kahneman and Tversky 1979).

An alternate theory for the existence of the meet/beat premium is that meeting or beating expectations is a way for managers to signal future operating performance (Bartov et al. 2002; Lev 2003). However, empirical findings are not consistent with the magnitude of the premium being driven by the quality of the meet/beat signal. In fact, Koh et al. (2008) report that after the accounting scandals in the early 2000s meeting/beating was a better predictor of future operating performance (i.e. increase in the quality of the signal) but investors were rewarding less for meeting/beating expectations (i.e. decrease in premium). This finding is inconsistent with investors viewing the meet/beat signal as a fundamental indicator of future operating performance.

Koh et al. (2008) interpreted the decline in the meet/beat premiums as evidence that investors became skeptical of accounting earnings following the scandals, and began to view meeting/beating forecasted EPS as a signal of managerial intervention by means of earnings or expectations management.[13] However, while Koh et al. (2008) document lower meet/beat premiums following the accounting scandals they also document an increase in the quality of earnings (higher earnings response coefficients) over this same period. In an untabulated analysis, we investigated changes in the ERC for JustMeet firms (i.e. firms that met or just beat their analyst's forecasts by 1 cent or less) and found that not only did the aggregate ERC increase after the accounting scandals but so too did the ERC for JustMeet firms. Thus, there is conflicting evidence on whether investors' perception of accounting quality decreased after the accounting scandals. On one hand, the meet/beat premiums declined, but on the other hand, ERCs increased. Further, this theory of time varying investor confidence in accounting earnings is unable to explain why the premiums returned in 2007 and 2008 as it is difficult to identify an event around that time that would have restored investors' confidence in accounting earnings.

2.2. Theoretical development

Prior research has assumed that both ERCs and meet/beat signals provide a fundamental signal to investors concerning the firm's future earnings potential (Bartov et al. 2002; Lev 2003; Collins and Kothari 1989; Kormendi and Lipe 1987). However, the fact that ERCs increased and meet/beat premiums declined following the accounting scandals in the early 2000s is inconsistent with these two signals telling the same story. To explain this inconsistency, we presume that meeting/beating or missing not only provides investors with information concerning future operating performance but also provides a signal concerning the validity of prior price movements.

Investors question whether price movements, especially in extreme cases, are a result of a market misreaction.[14] Even if a well informed and well financed rational investor knows that a security is mispriced, limits to arbitrage can delay a price correction. For example, betting against mispricing is risky given that the mispricing may worsen and the timing of the correction is unknown (DeLong, Shleifer, Summers, and Waldmann, 1990; Shleifer and Summers, 1990). This risk is further exacerbated by the fact that most sophisticated would-be arbitragers

[11] Jiang (2008) shows the meet/beat premium also exists in debt markets.

[12] Examples of major accounting scandals during this period include Enron, WorldCom, Adelphia, HealthSouth, McKesson, Tyco, and Qwest.

[13] Koh et al. (2008) actually attribute the decline to 'unwarranted skepticism' in the quality of accounting information disclosed by meet/beat firms. 'Unwarranted' since the quality of the meet/beat signal improved after the accounting scandals.

[14] For examples see Daniel, Hirshleifer, and Subrahmanyam (1998); Hirshleifer (2001), Odean (1998), Shiller (2000), Shleifer (2000); Lee and Swaminathan (2000); Barberis (1998); Hong and Stein (1999); Abreu and Brunnermeier (2003); and Brunnermeir and Nagel (2004)

are also professional asset managers who must also focus on short-run performance to prevent clients from withdrawing funds. A withdrawal of funds can lead to a liquidity constraint thus limiting the manager's ability to hold the arbitraged position until the market correction occurs (Shleifer and Vishny 1997).

Not only is there risk in correcting mispricing but there are rewards to be earned for holding mispriced securities. Abreu and Brunnermeir (2002 and 2003) model a market state where extreme price momentum moves an asset price above its fundamental value. Under this condition, rational investors may know that a security is overvalued but choose not to sell because they do not believe that a sufficient number of other investors share in this belief. Instead, the rational investor chooses to 'ride' the momentum in order to earn abnormal returns. In doing so, the investor is again faced with a market-timing problem of knowing when to exit the position. For a variety of reasons, investors come up with different ways of handling this timing problem leading to a lack of synchronization in their exit strategies and thus allowing the mispricing to persist.[15]

Under all of these scenarios, investors face a timing problem of knowing when the price correction will occur. In order to solve this timing problem, and thus correct the misreaction, a news event must synchronize investors' exit strategy beliefs (Abreu and Brunnermeir 2002). As shown in Abreu and Brunnermeir (2002) an information event that corrects prior mispricing will have disproportionate impact relative to the event's intrinsic informational content. We argue that an earnings announcement serves as a 'synchronizing event' and that the meet/beat premium is a result of a correction of a prior misreaction. For example, investors may have different opinions as to whether the market has overreacted when a security experiences a rapid increase in price (i.e. strong momentum). In this context, if a firm were to report good news (i.e. meet/beat expectations) this disagreement and thus price momentum may persist. However, a bad news report (i.e. miss expectations) will "synchronize" investors' beliefs that the prior price movement was perhaps a misreaction thus creating a strong enough consensus for the correction to occur. This correction of a prior misreaction creates a differential return between good news (i.e. meet/beat) and bad news (i.e. miss) firms thus resulting in the empirical anomaly researchers have identified as the meet/beat premium.[16]

The idea that the meet/beat premium is a correction of prior mispricing fits well with many empirical findings. First, as this study will demonstrate in Section 6, it explains why the meet/beat premiums vary temporally as the extent to which securities are perceived to be mispriced also tends to vary over time (i.e. asset bubbles). The theory also fits well with the empirical findings that meet/beat premiums are persistent, as a reversal would not be expected if the premium were a correction of prior mispricing.

2.3. Empirical predictions

The theory that meet/beat premiums are the result of a correction of mispricing leads to several testable empirical predictions. First, the magnitude of the premium should be positively related to the magnitude of the misreaction in the preannouncement. Unfortunately, it is very difficult to determine ex-ante which specific stocks are subject to a price misreaction (i.e. mispriced) in the preannouncement period. However, an extensive body of work does relate momentum to mispricing. Jegadeesh and Titman (1993) were the first to formally document that price momentum could be used to predict stock returns. The three-factor model of Fama and French (1996) cannot explain short-run momentum and concern over data-snooping bias seems small given that abnormal returns from momentum strategies have been documented in foreign markets (Rouwenhorst 1998) and across different time periods (Jegadeesh and Titman 2001). Eugene Fama, founder of the efficient markets hypothesis, has said that momentum remains one of the strongest challenges to efficient markets theory (Fama 1998). Thus, we use momentum as a proxy for potential mispricing in the pre-announcement period. To strengthen the proxy we use a measure of momentum adjusted for any news released in the preannouncement period.[17] The stronger the preannouncement price momentum, unrelated to the release of fundamental news, the larger the possible misreaction and thus subsequent correction. Therefore, we predict larger meet/beat premiums in the presence of preannouncement momentum; unconditional of whether that momentum is positive or negative. Or more formally, the first hypothesis is stated in alternative form as follows:

H1. : Ceteris Paribus, magnitude of the Meet/Beat premiums will be positively associated with the absolute level of preannouncement price momentum.

We next turn our attention to examining whether the direction of momentum (e.g., positive vs. negative) has an effect on the relation between momentum and the meet/beat premium. In an empirical application of the Hong and Stein (1999) information diffusion model, Hong et al. (2000) show that negative information diffuses at a slower rate than positive information; possibly because analysts are less inclined to disseminate bad news about poorly performing firms or cease coverage of such firms altogether. The implication of these findings to this study is that positive vs. negative momentum can be considered a proxy for the rate of (non-earnings) information diffusion. To the extent that this is true, it is likely that, on average, the aggregate belief of the market that negative momentum firms are undervalued will be diffused more slowly than the belief that positive momentum firms are overvalued. The result of the asymmetric information diffusion is that the introduction of earnings news will result in greater synchronization, and hence greater meet/beat premiums, for negative momentum firms. It is therefore our expectation that meet/beat premiums will be larger when negative momentum precedes the earnings announcement. This hypothesis is stated formally in alternative form as follows:

H2. : Negative preannouncement momentum will have a stronger impact on the Meet/Beat Premiums than positive preannouncement momentum.

Given that prior price momentum and the subsequent reaction to meeting/beating analyst forecasts of earnings are both observable by managers, and that managers have some degree of control over meeting/beating forecasted earnings (e.g., via earnings or expectations management), we posit that the existence of pre-announcement price momentum is a determining factor in the likelihood of meeting/beating analyst forecasts. Further, to the extent that *H1* is true and the meet/beat premium is positively related to momentum, we expect a positive relation between pre-announcement momentum and the likelihood of meeting/beating analyst forecasts. This hypothesis is stated formally in alternative form as follows:

H3. : The probability of a firm meeting or just beating (beating by 1 cent) analyst expectations increases when momentum precedes the earnings announcement.

[15] See footnote 4 for an anecdotal example from hedge fund managers.

[16] The same would be true in the case of negative price momentum; however, in this context meeting or beating expectations would likely signal a prior misreaction.

[17] As previously mentioned the method for adjusting momentum for the fundamental news released during the preannouncement period is discussed in detail in Section 3.2.

3. Research design

3.1. Estimating meet/beat premiums

To estimate the meet/beat premiums, we utilize a model consistent with prior research. Following Bartov et al. (2002) and Koh et al. (2008) we estimate the JustMeet and Beat Premiums using the following regression:

$$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \varepsilon \quad (1)$$

where CAR_{iq} refers to the cumulative market-adjusted (value-weighted) return. Following Koh et al. (2008) and Bartov et al. (2002) the event window is defined as starting two days after the first forecast (F_{first}) of the period and ending one day after the firm announces earnings. To ensure that information related to last period's earnings does not confound the event window, F_{first} is defined as the first forecast of the period starting at least three days subsequent to the previous period's earnings announcement. UE_{iq} is the firm's unexpected earnings scaled by stock price at the beginning of the quarter defined as $(EPS_{iq} - F_{first})/P_{q-1}$ where EPS_{iq} is the firm's actual earnings and P_{q-1} is the stock price at the beginning of the quarter.

The firms that meet/beat analysts' expectations are divided into two groups: firms that just met analysts' expectations (*JustMeet*) and firms that beat analysts' expectations (*Beat*).[18] $JustMeet_{iq}$ is one if the firm meets or beats the last forecast of the period (F_{last}) by no > 1 cent ($0 \le EPS_{iq} - F_{last} \le 0.01$).[19] $Beat_{iq}$ is one if the firm beats expectations by > 1 cent ($EPS_{iq} - F_{last} > 0.01$). To control for the possibility that earnings information leaks out prior to the earnings announcement date, F_{last} is defined as the last forecast of the period made at least three days prior to the earnings announcement date.[20] The coefficients on these indicators capture the market premium for beating analysts' EPS expectations.

3.2. Estimating preannouncement momentum

As stated previously, we define momentum as prior price movements. Because we are interested in momentum directly preceding an earnings announcement we define the return period as the 28 days prior to the earnings announcement ($t = -30, -2$, where 0 is the earnings announcement). Preannouncement momentum (*PreMomentum*) is defined as the raw return over a 28 day window. Preannouncement price movement can be the result of fundamental information being released during the preannouncement period or momentum trading. Because our intent is to capture price movements not explained by changes in fundamental information, we utilize a measure of momentum that controls for the release of fundamental information during the pre-announcement period. We utilize analysts' forecast revisions to proxy for the release of fundamental information; defined as the difference between the first and last analyst forecasts in the preannouncement period scaled by price (i.e. $(F_{last} - F_{first})/P_{q-1}$). Forecast revision adjusted price momentum is defined as the residual (δ_{iq}) from the following model:

$$PreMomentum_{iq} = \alpha_0 + \alpha_1 Forecast\ Rev_{iq} + \delta_{iq} \quad (2)$$

Momentum in the preannouncement period can be positive in cases of strong buying or negative in cases of strong selling. We investigate the impact of both general momentum and the direction of momentum. Momentum in the general sense is defined as the absolute value of the residual (δ_{iq}) from Eq. (2), hereafter referred to as *AbsMomentum*. Directional momentum is defined as the signed residual (δ_{iq}) from Eq. (2), hereafter referred to as *Momentum*.

3.3. Preannouncement momentum and the meet/beat premiums

Our research design focuses on how the *JustMeet* and *Beat* premiums vary across pre-announcement momentum portfolios. We utilize two multivariate models to investigate the impact of preannouncement momentum on the meet/beat premiums. The first model tests our primary hypothesis (H1) by investigating the impact of absolute preannouncement momentum on the premiums and the second model tests our second hypothesis (H2) related to the importance of the direction of preannouncement momentum.

3.3.1. Absolute preannouncement momentum

To test H1, firms are ranked into deciles based on their level of *AbsMomentum*. Absolute momentum is advantageous as it ensures that firms with the most extreme preannouncement price momentum (positive or negative) fall into the upper deciles. Using the decile rankings, Eq. (1) is enhanced with two indicator variables. The first indicator, *MidMomentum*, is 1 if the firm falls within the 4th through the 7th momentum decile; and 0 otherwise. The second indicator, *TopMomentum*, is 1 if the firm falls within the 8th through the 10th momentum decile; 0 otherwise. Each indicator is interacted with the *JustMeet* and *Beat* indicators and *UE* thus capturing the magnitude of the premiums relative to the premiums of firms in the bottom three preannouncement momentum deciles. The model is as follows:

$$\begin{aligned} CAR_{iq} = {} & \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \beta_4 MidMomentum_{iq} \\ & + \beta_5 TopMomentum_{iq} + \beta_6 UE_{iq}{}^{*} MidMomentum \\ & + \beta_7 UE_{iq}{}^{*} TopMomentum_{iq} + \beta_8 JustMeet_{iq}{}^{*} MidMomentum_{iq} \\ & + \beta_9 JustMeet_{iq}{}^{*} TopMomentum_{iq} + \beta_{10} Beat_{iq}{}^{*} MidMomentum_{iq} \\ & + \beta_{11} Beat_{iq}{}^{*} TopMomentum_{iq} + \varepsilon_i \end{aligned} \quad (3a)$$

The *JustMeet* and *Beat* premiums for firms in the bottom three *AbsMomentum* deciles are captured by the β_2 and β_3 coefficients. The β_8 and β_{10} (β_9 and β_{11}) coefficients capture the difference in premiums for firms in the middle four (top three) deciles. We expect firms with higher levels of preannouncement momentum to have larger premiums and therefore predict positive signs on all of these coefficients. We have no formal expectations for the coefficients capturing the relationship between preannouncement momentum and unexpected earnings (*UE*).

3.3.2. Signed preannouncement momentum

A similar design is utilized to test H2, except that firms are ranked into deciles based on directional *Momentum* rather than *AbsMomentum* such that firms in the bottom (top) deciles have negative (positive) preannouncement momentum. Using the decile rankings, Eq. (1) is enhanced with two indicator variables to develop the model to test H2. The first indicator, *NMomentum*, is 1 if the firm falls within momentum deciles 1 through 3 (i.e. strongest negative momentum); and 0 otherwise. The second indicator, *PMomentum*, is 1 if the firm falls within momentum deciles 8 through 10 (i.e. strongest positive momentum); 0 otherwise. Each indicator is interacted with the *JustMeet* and *Beat* indicators and *UE* thus capturing the magnitude of the premiums relative to the premiums of firms in the middle four momentum deciles 4 through 7. The model is as follows:

[18] As a robustness check, we created a separate category for small misses (i.e. miss by 1 penny). Results are qualitatively similar if *JustMiss* is included in the model. We present all findings with only *JustMeet* and *Beat* to be consistent with prior research.

[19] A significant amount of academic research (Bartov et al. 2002; Brown and Caylor 2005; Jensen et al. 2004; and Koh et al. 2008) and the financial press (see Morgensen 2004) focus on the 1 cent cutoff. The argument is that managers face large incentives to attain this additional cent in order to meet the market's expectations. All inferences are similar when the cutoff is defined at 2 cents.

[20] The average forecast is used if multiple estimates are made on the F_{last} or F_{first} date.

$$CAR_{iq} = \alpha_0 + \alpha_1 UE_{iq} + \alpha_2 JustMeet_{iq} + \alpha_3 Beat_{iq} + \alpha_4 NMomentum_{iq} + \alpha_5 PMomentum_{iq} + \alpha_6 UE_{iq}{}^{*} NMomentum + \alpha_7 UE_{iq}{}^{*} PMomentum_{iq} + \alpha_8 JustMeet_{iq}{}^{*} NMomentum_{iq} + \alpha_9 JustMeet_{iq}{}^{*} PMomentum_{iq} + \alpha_{10} Beat_{iq}{}^{*} NMomentum_{iq} + \alpha_{11} Beat_{iq}{}^{*} PMomentum_{iq} + \tau_{iq} \quad (3b)$$

The *JustMeet* and *Beat* premiums for firms in the middle four *Momentum* deciles are captured by the α_2 and α_3 coefficients. The α_8 and α_{10} (α_9 and α_{11}) coefficients capture the difference in premiums for firms in the bottom (top) three deciles of preannouncement momentum. Firms in the bottom (top) three have negative (positive) preannouncement momentum. We expect larger premiums with both positive and negative momentum and therefore predict positive signs on all of these coefficients. However, H2 predicts a stronger premium when preannouncement momentum is negative. To test this hypothesis we compare the interaction coefficients and expect the premiums in the presence of negative momentum to be larger than the premiums in the presence of positive momentum (i.e. $\alpha_8 - \alpha_9 > 0$ and $\alpha_{10} - \alpha_{11} > 0$). Again, we make no formal expectations for the coefficients capturing the relationship between preannouncement momentum (positive or negative) and unexpected earnings (*UE*).

3.3.3. Controls for other properties of Analysts' forecasts

As discussed in Section 2.3 relating to H2, Hong et al. (2000) demonstrate the importance of analyst following in determining momentum portfolio returns. We augment Models (3a) and (3b) to control for two properties of analysts' forecasts of earnings, number of forecasts and forecast dispersion, as follows:

$$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \beta_4 MidMomentum_{iq} + \beta_5 TopMomentum_{iq} + \beta_6 UE_{iq}{}^{*} MidMomentum + \beta_7 JustMeet_{iq}{}^{*} MidMomentum_{iq} + \beta_8 Beat_{iq}{}^{*} MidMomentum_{iq} + \beta_9 UE_{iq}{}^{*} TopMomentum_{iq} + \beta_{10} JustMeet_{iq}{}^{*} TopMomentum_{iq} + \beta_{11} Beat_{iq}{}^{*} TopMomentum_{iq} + \beta_{12} NumForecast_{iq} + \beta_{13} Dispersion_{iq} + \beta_{14} UE_{iq}{}^{*} NumForecast_{iq} + \beta_{15} UE_{iq}{}^{*} Dispersion_{iq} + \beta_{16} JustMeet_{iq}{}^{*} NumForecast_{iq} + \beta_{17} JustMeet_{iq}{}^{*} Dispersion_{iq} + \beta_{18} Beat_{iq}{}^{*} NumForecast_{iq} + \beta_{19} Beat_{iq}{}^{*} Dispersion_{iq} + \varepsilon \quad (4a)$$

$$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \beta_4 NMomentum_{iq} + \beta_5 PMomentum_{iq} + \beta_6 UE_{iq}{}^{*} NMomentum + \beta_7 UE_{iq}{}^{*} PMomentum_{iq} + \beta_8 JustMeet_{iq}{}^{*} NMomentum_{iq} + \beta_9 JustMeet_{iq}{}^{*} PMomentum_{iq} + \beta_{10} Beat_{iq}{}^{*} NMomentum_{iq} + \beta_{11} Beat_{iq}{}^{*} PMomentum_{iq} + \beta_{12} NumForecast_{iq} + \beta_{13} Dispersion_{iq} + \beta_{14} UE_{iq}{}^{*} NumForecast_{iq} + \beta_{15} UE_{iq}{}^{*} Dispersion_{iq} + \beta_{16} JustMeet_{iq}{}^{*} NumForecast_{iq} + \beta_{17} JustMeet_{iq}{}^{*} Dispersion_{iq} + \beta_{18} Beat_{iq}{}^{*} NumForecast_{iq} + \beta_{19} Beat_{iq}{}^{*} Dispersion_{iq} + \varepsilon_{iq} \quad (4b)$$

Number of forecasts (*NumForecast*) is measured as the total number of analyst forecasts in the quarter preceding the earnings announcement. Forecast dispersion (*Dispersion*) is measured as the coefficient of variation in the last month that I/B/E/S forecasts quarter *q* earnings. We posit that *NumForecast* proxies for the size and information environment of the firm (Hong et al., 2000) and *Dispersion* proxies for the disparity of investors' beliefs concerning earnings expectations and firm value. We expect that the *NumForecast* variable affects the potential synchronizing element of earnings announcements in that the richer information environment from having greater analyst following decreases the likelihood of mispricing at a given level of momentum. Based on this we wouild expect a negative relation between *NumForecast* and the premiums. Meanwhile, while we expect that forecast dispersion likely affects the synchronizing element of earnings announcements, we are unclear as to which direction the effect will manifest. On the one hand, wide dispersion in preannouncement earnings forecasts would each indicate more disparity about intrinsic value, and hence increase the potential synchronizing element of the earnings announcement, which would result in a greater premium. On the other hand, with greater preannouncement forecast dispersion there will be lower consensus concerning the interpretation of the announcement (i.e. with regard to determining the extent of mispricing), leading to less synchronization and a lower premium. In summary, based on the arguments above, we expect that in both models, the coefficients related to number of forecasts (β_{16} and β_{18}) will be negative and the coefficients related to forecast dispersion (β_{17} and β_{19}) are indeterminate.

4. Data and descriptive analysis

Analysts' forecasts and actual earnings data are obtained from Thomson Financials split-unadjusted I/B/E/S table for the period 1985 to 2009.[21] Other required forecasted financial statement items are obtained from the I/B/E/S detail history table. Stock returns and price data, necessary to calculate the dependent variable, are obtained from Center for Research in Security Prices (CRSP) using EVENTUS. The intersection of these tables yields a final sample of 137,362 firm-quarter observations.

Descriptive statistics for the entire sample and means for each *AbsMomentum* decile are provided in Table 1. On average 16% of firms during our sample period met or just beat analysts' EPS expectations. Interestingly, the percentage appears to increase across the *AbsMomentum* deciles, suggesting the possibility that managers' incentive to *JustMeet* is higher when preannouncement momentum is stronger. This percentage difference between the 1st and 10th decile is 0.03 and significant at the 1% level.[22] On average 49.9% of firms during our sample period *Beat* analysts' EPS expectations. Other interesting descriptives relate to the properties of analysts' forecasts. The average firm in our sample received 7.864 EPS estimates. The number of estimates decreases across the *AbsMomentum* deciles. Firms in the 10th deciles only received 6.96 estimates on average compared to 8.07 for firms in the 1st decile; suggesting that analysts are less likely to follow and provide estimates for high momentum stocks. Analyst Dispersion is also higher for high momentum stocks (0.16 for firms in the 1st decile compared to 0.33 for firms in the 10th decile); suggesting that there is more disagreement in preannouncement beliefs among analysts for firms with strong preannouncement momentum. Based on prior literature discussed in the preceding section and because both number of estimates and forecast dispersion vary across the *AbsMomentum* deciles we include them as controls in our multivariate tests.

5. Results

Eqs. (1)–(4b) are estimated using ordinary least squares regression. All t-statistics are reported using robust standard errors (White 1980) to control for heterscedasticity. To further control for potential cross-sectional and time-series dependence all results are reported using two-way (across firm and time) cluster robust standard errors (Thompson

[21] Payne and Thomas (2003) show that it is necessary to utilize the split-unadjusted IBES table because not all prior forecasts and earnings per share amounts divide precisely to a penny, rounding in the adjusted EPS table can create misclassification problems.

[22] Section 7 investigates this relationship in greater detail.

Table 1
Descriptive statistics.

Variable	Sample			Means across preannouncement momentum decile										Comparing high and low deciles	
	Mean	Std. Dev.	Med.	Low 1	2	3	4	5	6	7	8	9	High 10	High - Low	Sig.
JustMeet %	0.160	0.366	0.000	0.15	0.15	0.15	0.16	0.15	0.16	0.16	0.17	0.18	0.18	0.03	***
Beat %	0.499	0.500	0.000	0.50	0.51	0.51	0.50	0.50	0.51	0.50	0.50	0.49	0.47	−0.03	***
CAR	0.005	0.199	0.008	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	−0.02	−0.02	***
UE	−0.002	0.017	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	−0.01	−0.01	***
NumForecast	7.864	5.662	6.000	8.07	8.09	8.07	8.15	8.20	8.14	7.92	7.71	7.32	6.96	−1.11	***
Dispersion	0.192	0.413	0.067	0.16	0.15	0.15	0.16	0.16	0.17	0.19	0.22	0.25	0.33	0.16	***

This table presents descriptive statistics for the entire sample and means for each *AbsMomentum* decile. *JustMeet* is firms that just met analysts' expectations. *Beat* is firms that just beat analysts' expectations. CAR_{iq} refers to the cumulative market-adjusted (value-weighted) return. UE_{iq} is the firm's unexpected earnings scaled by stock price at the beginning of the quarter defined as $(EPS_{iq} - F_{first})/P_{q-1}$ where EPS_{iq} is the firm's actual earnings and P_{q-1} is the stock price at the beginning of the quarter. NumForecast is the total number of analysts' forecasts in the quarter preceding the earnings announcement. *Dispersion* is measured as the coefficient of variation in the last month that I/B/E/S forecasts quarter q earnings.

2006; Cameron et al., 2011; Petersen 2009; Gow et al., 2009).

5.1. Absolute preannouncement momentum and the meet/beat premiums

We begin our analysis with a graphical depiction of the impact of preannouncement *AbsMomentum* on the meet/beat premiums. Eq. (1) is estimated across each *AbsMomentum* decile and the *JustMeet* (β_2) and *Beat* (β_3) premiums are reported graphically in Fig. 1. The figure shows an exponential relationship between preannouncement momentum and the *JustMeet* and *Beat* premiums. The *JustMeet* premium is largest for the most extreme levels of preannouncement momentum. *JustMeet* firms in the top decile of preannouncement momentum have a market adjusted premium of 7.5% relative to firms in that decile that miss analysts' EPS expectations. To put this number in perspective, it is 4.5 times larger than the 1.67% premium for firms in the bottom decile of preannouncement *AbsMomentum*. The relationship between the *Beat* premium and preannouncement momentum appears to be even stronger. The *Beat* premium increases monotonically across the deciles. Within the top decile, firms that beat expectations have market adjusted premium of 21.2% relative to firms in that decile that miss expectations. This premium is 5.3 times larger than the 3.98% *Beat* premium for firms in the bottom decile of preannouncement *AbsMomentum*. Since Eq. (1) controls for unexpected earnings (UE) both premiums are independent of any price reaction due to the release of new fundamental information.

Results related to significance testing are reported in Table 2. Coefficient estimates and t-statistics for Eqs. (1), (3a), and (4a) are reported in Panels A, B, and C respectively. Panel A reports the historical *JustMeet* premium of 0.031 and *Beat* premium of 0.081 across our entire sample period. Panel B shows how the premiums vary with the presence of preannouncement momentum. The results indicate a strong positive association between preannouncement price momentum and the *JustMeet* and *Beat* market premiums. The coefficient on the *JustMeet*TopMomentum* interaction is 0.037 and significant ($p < .01$); indicating that the *JustMeet* premium for firms in the top three momentum deciles is about twice the magnitude of the *JustMeet* premium in the bottom three momentum deciles (=0.019). The JustMeet premium appears to only vary with more extreme levels of preannouncement momentum as the coefficient on the *JustMeet*MidMomentum* is insignificant. The *Beat* premium also appears to be strongly associated with the level of preannouncement price momentum. The coefficient on the *Beat*TopMomentum* interaction is 0.101 and significant ($p < .01$); indicating that the *Beat* premium for firms in the top three momentum deciles is more than twice the magnitude of the *Beat* premium in the bottom three momentum deciles (=0.045). Beat premiums are also larger for firms with moderate preannouncement momentum (coefficient on Beat * MidMomentum is 0.011 and significant, $p < .01$). However, as shown in Fig. 2, both the *JustMeet* and *Beat* premiums are largest in the

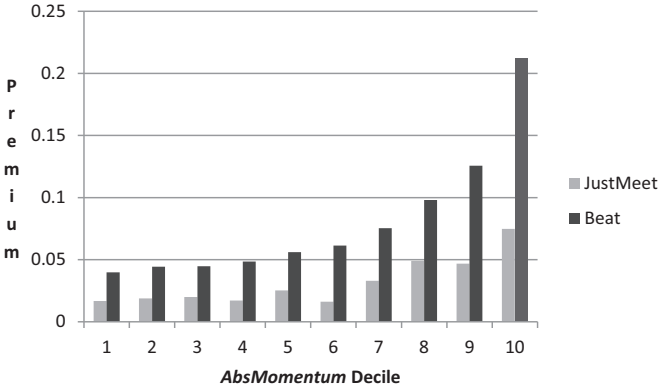

Fig. 1. JustMeet and Beat Premiums across AbsMomentum Deciles.
This figure calculates the JustMeet and Beat premium for each absolute momentum decile. The premiums are calculated using the regression shown in Eq. (1). Price momentum is calculated using the regression in Eq. (2):

$$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \varepsilon \quad (1)$$

$$PreMomentum_{iq} = \alpha_0 + \alpha_1 Forecast\ Rev_{iq} + \delta_{iq} \quad (2)$$

Where:
CAR_{iq} refers to the cumulative market-adjusted (value-weighted) return.
F_{first} is defined as the first forecast of the period starting at least three days subsequent to the previous period's earnings announcement.
UE_{iq} is the firm's unexpected earnings scaled by stock price at the beginning of the quarter defined as $(EPS_{iq} - F_{first})/P_{q-1}$ where EPS_{iq} is the firm's actual earnings and P_{q-1} is the stock price at the beginning of the quarter.
$JustMeet_{iq}$ is one if the firm meets or beats the last forecast of the period (F_{last}) by no > 1 cent ($0 \le EPS_{iq} - F_{last} \le 0.01$).
$Beat_{iq}$ is one if the firm beats expectations by > 1 cent ($EPS_{iq} - F_{last} > 0.01$).
F_{last} is defined as the last forecast of the period made at least three days prior to the earnings announcement date.
AbsMomentum is defined as the absolute value of the residual (δ_{iq}) from Eq. (2).

cases of extreme preannouncement momentum, which is consistent with an increased likelihood of investor disagreement concerning a prior misreaction, allowing for the possibility of greater synchronization.

It is also interesting to note that the relation between *UE* and preannouncement price momentum does not to follow seem to follow any specific pattern and seems unrelated to the relation between momentum and the meet/beat premium. This result implies that the meet/beat indicator and the ERC represent different information signals.

Panel C includes control variables for other properties of analysts' forecasts. The relation between momentum and the meet/beat premiums are qualitatively unaffected by the inclusion of the analyst variables. The meet/beat premiums are significantly negative in both number of forecasts and forecast dispersion. Overall, the results

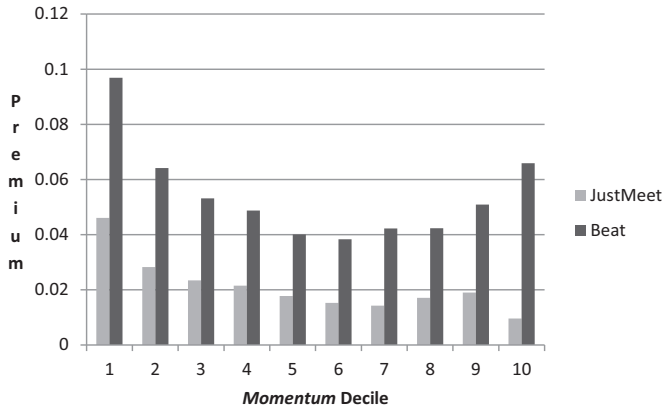

Fig. 2. JustMeet and Beat Premiums Preannouncement Momentum Deciles.
This figure graphically depicts the JustMeet and Beat premiums across each *Momentum* decile. The premiums are calculated using the regression shown in Eq. (1). Price momentum is calculated using the regression in Eq. (2):
$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \varepsilon$ (1)
$PreMomentum_{iq} = \alpha_0 + \alpha_1 Forecast\ Rev_{iq} + \delta_{iq}$ (2)
Where:
CAR_{iq} refers to the cumulative market-adjusted (value-weighted) return.
F_{first} is defined as the first forecast of the period starting at least three days subsequent to the previous period's earnings announcement.
UE_{iq} is the firm's unexpected earnings scaled by stock price at the beginning of the quarter defined as $(EPS_{iq} - F_{first})/P_{q-1}$ where EPS_{iq} is the firm's actual earnings and P_{q-1} is the stock price at the beginning of the quarter.
$JustMeet_{iq}$ is one if the firm meets or beats the last forecast of the period (F_{last}) by no > 1 cent ($0 \le EPS_{iq} - F_{last} \le 0.01$).
$Beat_{iq}$ is one if the firm beats expectations by > 1 cent ($EPS_{iq} - F_{last} > 0.01$).
F_{last} is defined as the last forecast of the period made at least three days prior to the earnings announcement date.
Momentum is defined as the raw value of the residual (δ_{iq}) from Eq. (2).

reported in Table 2 are consistent with preannouncement momentum having a strong impact on the meet/beat premiums thus providing support for our first hypothesis.

5.2. Signed preannouncement momentum and the meet/beat premiums

The previous section provided evidence of a positive association between absolute preannouncement momentum and the magnitude of the meet/beat premiums. In this section, we investigate whether that association is stronger in the presence of negative preannouncement momentum. As before, we begin our analysis with a graphical depiction of the impact of *Momentum* on the meet/beat premiums. However, this time we estimate Eq. (1) across each *Momentum* decile and report the *JustMeet* (β_2) and *Beat* (β_3) premiums graphically in Fig. 2.

The figure provides evidence consistent with *JustMeet* premiums being larger in the cases of negative preannouncement momentum. The *JustMeet* premium for firms in the 1st decile is 0.046 compared to a 0.009 premium for firms in the 10th decile.[23] The Beat coefficients appear to follow a U-shaped pattern; indicating that premiums are largest when momentum is present (positive or negative). However, as with the *JustMeet* premiums, *Beat* premiums are larger in cases of negative preannouncement momentum. The *Beat* premium for firms in the 1st decile is 0.097 compared to a 0.066 premium for firms in the 10th decile.[24]

[23] In an untabulated analysis, we estimated the JustMeet premiums for firms within these two deciles (1st and 10th) and used a dummy variable to compare the premiums. The two JustMeet premiums are significantly different at $p < .01$.

[24] In an untabulated analysis, we estimated the Beat premiums for firms within these two deciles (1st and 10th) and used a dummy variable to compare the premiums. The two Beat premiums are significantly different at $p < .01$.

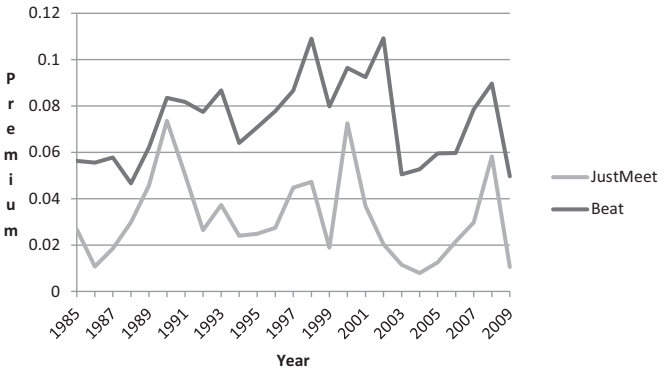

Fig. 3. JustMeet and Beat Premiums over Time.
This figure presents the JustMeet and Beat premiums across time. The premiums are calculated by estimating the following model for all firms with available data for the period beginning in 1985 and ending in 2009:
$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \varepsilon$ (1)
Where:
CAR_{iq} refers to the cumulative market-adjusted (value-weighted) return.
UE_{iq} is the firm's unexpected earnings scaled by stock price at the beginning of the quarter defined as $(EPS_{iq} - F_{first})/P_{q-1}$ where EPS_{iq} is the firm's actual earnings and P_{q-1} is the stock price at the beginning of the quarter.
$JustMeet_{iq}$ is one if the firm meets or beats the last forecast of the period (F_{last}) by no > 1 cent ($0 \le EPS_{iq} - F_{last} \le 0.01$).
$Beat_{iq}$ is one if the firm beats expectations by > 1 cent ($EPS_{iq} - F_{last} > 0.01$).
F_{last} is defined as the last forecast of the period made at least three days prior to the earnings announcement date.

Results related to significance testing are reported in Table 3. Panel A captures the effects of dichotomizing momentum into positive and negative and Panel B includes controls for the number of forecasts and forecast dispersion. Results confirm the findings reported in Fig. 3. Panel A shows the coefficient on the *JustMeet*NMomentum* interaction is 0.0125 and significant at $p < .01$, indicating that JustMeet premiums are significantly larger when negative preannouncement momentum precedes the earnings announcement. The coefficient on *JustMeet*PMomentum* is insignificant and thus does not follow our original expectation that the *JustMeet* premium will be larger when strong positive momentum precedes the announcement. This prediction was based on the assumption that investors will attribute the *JustMeet* signal as good news. However, in cases of strong positive momentum some investors may be expecting the firm to beat expectations and therefore view just meeting expectations as a negative signal. The fact that in cases of strong positive preannouncement momentum the just meet signal can be interpreted as positive or negative news weakens it synchronizing ability and may explain the insignificant coefficient on *JustMeet * PMomentum*.

The 0.0128 coefficient on *Beat*PMomentum* (significant at p < .01); indicates that firms must exceed expectations by more than a penny to receive a premium in the presence of positive preannouncement momentum. However, while investors react stronger to firms that *Beat* expectations when preannouncement momentum is positive, the reaction is even stronger when the preannouncement momentum is negative; as the coefficient on *Beat * NMomentum* is 0.0352 and significant at $p < .01$. An F-test in Panel C shows that impact of negative preannouncement momentum on the *JustMeet* premium is significantly stronger than the impact of positive momentum and thus provides support for our second hypothesis.

Panel B includes control variables for other properties of analysts' forecasts. Again, the relation between momentum and the meet/beat premiums are qualitatively unaffected by the inclusion of the analyst

(*footnote continued*)

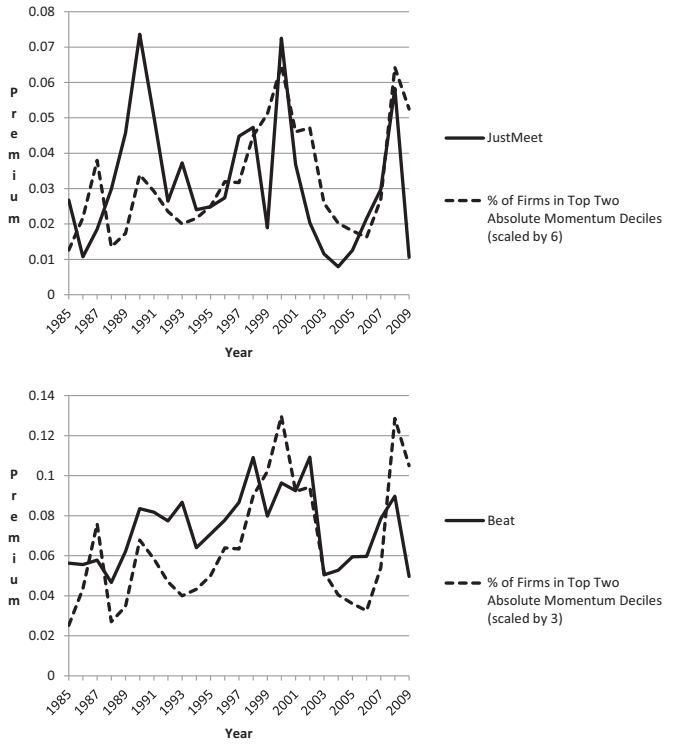

Fig. 4. Time Series Graphs of Momentum and Meet/Beat Premiums.
This figure (top panel)presents the Meet premiums over time mapped against the percentage of firms in the top two absolute momentum deciles (See Table 4). (lower panel) presents the Beat premiums over time mapped against the percentage of firms in the top two absolute momentum deciles. $JustMeet_{iq}$ is one if the firm meets or beats the last forecast of the period (F_{last}) by no > 1 cent ($0 \leq EPS_{iq} - F_{last} \leq 0.01$). $Beat_{iq}$ is one if the firm beats expectations by > 1 cent ($EPS_{iq} - F_{last} > 0.01$). *AbsMomentum* is defined as the absolute value of the residual (δ_{iq}) from Eq. (2).

variables. We again note that the relationship between UE and momentum appears to differ from the relation between the meet/beat signals and momentum. This finding further supports the idea that UE and the meet/beat signals provide different types of information to investors.

An F-test in Panel C shows that impact of negative preannouncement momentum on the *JustMeet* and Beat premiums is significantly stronger than the impact of positive momentum. The highly significant F-statistics provide support our second hypothesis that *JustMeet* and *Beat* premiums are larger when negative momentum precedes the earnings announcement.

6. Temporal variation in meet/beat premiums

Evidence reported in Koh et al. (2008) indicates the market premium for meeting or just beating (by one penny or less) forecasted EPS completely disappeared, and the premium for beating forecasted EPS by more than a penny greatly diminished following the accounting scandals in 2001–2002.[25] Koh et al. (2008) interpret these findings as evidence that investors became skeptical of accounting earnings following the scandals, and began to view meeting/beating forecasted EPS as a signal of managerial intervention by means of earnings or expectations management. Moreover, Koh et al. (2008) also document an increase in the quality of the meet/beat signal during the post-scandal period. These inferences imply an unwarranted loss of confidence in the quality of accounting information disclosed by meet/beat firms.

Given the conclusions of Koh et al. (2008), to assess the ongoing importance of the meet/beat premium as a research issue we investigate whether the disappearance (reduction) of the meet (beat) premium following the accounting scandal period of 2001–2002 has persisted and, more generally, whether and to what degree the meet/beat premium varies over time. To address these questions, we estimate Eq. (1) for each year during the 1985–2009 period. The annual regression coefficients β_2 and β_3, which reflect the just meet and beat premium, respectively, are plotted in Fig. 3.

Fig. 3 visually demonstrates that the meet/beat premium, while bounded within a range, indeed appears to vary temporally. In addition, consistent with Koh et al. (2008), there is an observable decrease in the premium following the accounting scandal period of 2001–2002. However, the premium appears to reach a trough at around 2004 and then begins to return from 2005 forward in the study period.

We formally test the return of the premium following the Koh et al. (2008) scandal period by estimating the following model for all firms with available data for the period beginning the 3rd quarter of 2001 and ending the 4th quarter of 2009:

$$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \beta_4 Post_{iq} + \beta_5 Post^{*} UE_{iq} + \beta_6 Post^{*} JustMeet_{iq} + \beta_7 Post^{*} Beat_{iq} + \varepsilon_{iq} \quad (5)$$

where Post is a categorical variable set equal to 0 for the period beginning with the 3rd quarter of 2001 to the 2nd quarter of 2006 (i.e. the scandal and post-scandal periods in Koh et al. (2008)) and set equal to 1 for the periods including the 3rd quarter of 2006 to the end of 2009 (i.e. the period subsequent to the Koh et al. (2008) study period). All other variables are as previously defined. Untabulated results demonstrate that both the *JustMeet* and *Beat* premiums significantly increased in the Post period ($\beta_6 = 0.023$, $t = 3.72$, $p = .0002$; $\beta_7 = 0.010$, $t = 2.00$, $p = .046$). These findings suggest that the disappearance of the *JustMeet* premium, documented by Koh et al. (2008), was only temporary.

Given that the meet/beat premium appears to vary over time and demonstrates a strong cross-sectional relation to extreme pre-announcement price momentum, we next analyze the intertemporal relation between the two. First, for each of the 25 years in our study period we partition the data into deciles based on preannouncement *AbsMomentum*. Based on the results from the preceding section, in this analysis we focus on firms with extreme momentum (deciles 9 and 10). The frequency matrix from this partition is presented in Panel A of Table (4), with the cells in the matrix representing the percentage of firms represented for each decile-year. For example, the upper-left (upper-right) cell in the matrix indicates that in 1985 2% (13%) of the firms available on IBES for that year are in the highest (lowest) *AbsMomentum* decile. Those same cells in the last row indicate that in 2009 19% (7%) of the firms are in the highest (lowest) *AbsMomentum* decile. Therefore, we would define 1985 as having 8% (6% + 2%) of the firms with extreme absolute momentum. Likewise, we would define 2009 as having 32% (13% + 19%) of the firms with extreme *AbsMomentum*.

Not surprisingly, some notable macroeconomic/market events coincide with entries from this table. For example, there is a preponderance of extreme negative momentum in the years 1987, 2000–2002, and 2008, which correspond to the years in which Black Friday, the Dot.com crash, and the recent financial crisis of 2008, respectively, occurred. Meanwhile, there is significant positive momentum in the market during the years 1998–2000 and 2009, which correspond to the Dot.com bubble and recovery from the financial crisis, respectively. It is interesting to consider whether much of the historic variation in the meet/beat premiums can be attributed to significant stock market events such as these.

In Fig. 4, we plot the time-series for both percent of firms with extreme *AbsMomentum* and the meet/beat premiums from 1985 to 2009. For purposes of graphical depiction, we scale the percentage of

[25] Examples of major accounting scandals during this period include Enron, WorldCom, Adelphia, HealthSouth, McKesson, Tyco, and Qwest.

Table 2
Regression Results - Absolute Preannouncement Momentum on the *JustMeet* and *Beat* Premiums.

Variable	Pred Sign	Panel A			Panel B			Panel C		
		Coef.	t-stat	Sig.	Coef.	t-stat	Sig.	Coef.	t-stat	Sig.
Intercept	±	−0.0393	−9.18	***	−0.0209	−6.17	***	−0.0234	−5.37	***
UE	+	0.0695	1.43		0.0880	1.59		−0.0254	−0.52	
JustMeet	+	0.0310	8.90	***	0.019	7.10	***	0.0266	6.76	***
Beat	+	0.0812	29.80	***	0.045	19.17	***	0.0505	18.24	***
MidMomentum	±				0.0013	0.46		0.0012	0.43	
TopMomentum	±				−0.0573	−3.59	***	−0.0531	−3.49	***
UE*MidMomentum	±				0.4707	4.49	***	0.3503	3.82	***
UE*TopMomentum	±				−0.0446	−0.66		0.0080	0.14	
JustMeet *MidMomentum	+				0.0000	0.01		0.0007	0.25	
JustMeet *TopMomentum	+				0.037	3.16	***	0.0334	3.04	***
Beat *MidMomentum	+				0.011	4.04	***	0.0119	4.67	***
Beat* TopMomentum	+				0.101	12.54	***	0.0955	12.11	***
NumForecast	±							0.0005	1.68	*
Dispersion	±							−0.0019	−1.41	
UE*NumForecast	±							0.0454	4.33	***
UE*Dispersion	−							−0.0155	−1.14	
JustMeet *NumForecast	−							−0.0009	−2.77	***
JustMeet* Dispersion	±							−0.0105	−2.93	***
Beat* NumForecast	−							−0.0009	−3.38	***
Beat*Dispersion	±							−0.0027	−1.67	*
		n	137,362		n	137,362		n	99,443	
		F-Statistic	1610.2	***	F-Statistic	569.59	***	F-Statistic	197.6	***
		Adj. R2	0.034		Adj. R2	0.0436		Adj. R2	0.051	

$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \varepsilon$ (1)

$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \beta_4 MidMomentum_{iq} + \beta_5 TopMomentum_{iq} + \beta_6 UE_{iq} * MidMomentum + \beta_7 JustMeet_{iq} * MidMomentum_{iq} + \beta_8 Beat_{iq} * MidMomentum_{iq} + \beta_9 UE_{iq} * TopMomentum_{iq} + \beta_{10} JustMeet_{iq} * TopMomentum_{iq} + \beta_{11} Beat_{iq} * TopMomentum_{iq} + \varepsilon_{iq}$ (3a)

$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \beta_4 MidMomentum_{iq} + \beta_5 TopMomentum_{iq} + \beta_6 UE_{iq} * MidMomentum + \beta_7 JustMeet_{iq} * MidMomentum_{iq} + \beta_8 Beat_{iq} * MidMomentum_{iq} + \beta_9 UE_{iq} * TopMomentum_{iq} + \beta_{10} JustMeet_{iq} * TopMomentum_{iq} + \beta_{11} Beat_{iq} * TopMomentum_{iq} + \beta_{12} NumForecast_{iq} + \beta_{13} Dispersion_{iq} + \beta_{14} UE_{iq} * NumForecast_{iq} + \beta_{15} UE_{iq} * Dispersion_{iq\_} + \beta_{16} JustMeet_{iq} * NumForecast_{iq} + \beta_{17} JustMeet_{iq} * Dispersion_{iq} + \beta_{18} Beat_{iq} * NumForecast_{iq} + \beta_{19} Beat_{iq} * Dispersion_{iq} + \varepsilon_{iq}$ (4a)

All significance tests based on two-tailed *t*-tests.
Where:
CAR_{iq} refers to the cumulative market-adjusted (value-weighted) return.
F_{first} is defined as the first forecast of the period starting at least three days subsequent to the previous period's earnings announcement.
UE_{iq} is the firm's unexpected earnings scaled by stock price at the beginning of the quarter defined as $(EPS_{iq} - F_{first})/P_{q-1}$ where EPS_{iq} is the firm's actual earnings and P_{q-1} is the stock price at the beginning of the quarter.
$JustMeet_{iq}$ is one if the firm meets or beats the last forecast of the period (F_{last}) by no > 1 cent ($0 \le EPS_{iq} - F_{last} \le 0.01$).
$Beat_{iq}$ is one if the firm beats expectations by > 1 cent ($EPS_{iq} - F_{last} > 0.01$).
F_{last} is defined as the last forecast of the period made at least three days prior to the earnings announcement date.
MidMomentum is 1 if the firm falls within the 4th through the 7th momentum decile; 0 otherwise.
TopMomentum is 1 if the firm falls within the 8th through the 10th momentum decile; 0 otherwise.
NumForecasts is the total number of analyst forecasts in the quarter preceding the earnings announcement.
Dispersion is measured as the coefficient of variation in the last month that I/B/E/S forecasts quarter q earnings.

firms with extreme momentum by 6 and 3 (e.g., adjust for mean differences) for comparison to the *JustMeet* and *Beat* premiums, respectively. A cursory observation of this graphic indicates that: (1) the meet/beat premiums appear to have a central tendency with intermittent spikes that revert back toward a mean and (2) these variables indeed appear to be related over time. As noted above, many of the spikes in the premium relate to significant macroeconomic events.

To formally test the relation, we perform time-series regressions on the variables as follows:

$$JustMeetPremium_{it} = \alpha_0 + \alpha_1 XM_t + \varepsilon_t \quad (6)$$

$$BeatPremium_{it} = \beta_0 + \beta_1 XM_t + \varepsilon_t \quad (7)$$

where XM_t = percentage of observations in extreme absolute momentum deciles 9 and 10 for year *t*.

The results of these regressions are shown in Panel B of Table 4. The coefficient α_1 is positive and significant at the 10% level (0.039, $t = 2.04$) and β_1 is positive and significant at the 1% level (0.034, $t = 3.44$). These results imply that the temporal variation in the meet/beat premiums is strongly related to the temporal variation of the percentage of firms with extreme stock price momentum.

7. The effect of preannouncement momentum on the likelihood of just meeting analyst forecasts of earnings

The previous sections documented that *JustMeet* premiums are larger in the presence of negative preannouncement momentum. In this section, we investigate whether the likelihood of firms just meeting expectations increases when momentum is present. Prior literature has provided convincing evidence that mangers utilize accruals (Kasznik and McNichols, 2002; Dhaliwal, Gleason, and Mills 2004) and expectations management (Matsumoto 2002;

Bartov et al. 2002; Burgstahler and Eames 2006) to meet analysts' forecasts. Our expectation is that managers of high momentum firms are more likely to manage earnings or expectations relative to low momentum firms as doing so would result in a larger market premium for high momentum firms. We test this hypothesis by investigating whether preannouncement momentum affects the probability of meeting or just beating expectations. Specifically, we estimate the following binomial models using logistic regression:

Table 3
Comparing the Impact of Positive and Negative Preannouncement Momentum on the Meet/Beat Premiums.

Variable	Pred. Sign	Panel A			Panel B		
		Coef.	t-stat	Sig.	Coef.	t-stat	Sig.
Intercept	±	−0.0175	−5.39	***	−0.0201	−5.77	***
UE	+	0.1326	1.79		−0.0155	−0.29	
JustMeet	+	0.0180	7.78	***	0.0249	7.46	***
Beat	+	0.0450	20.09	***	0.0496	19.93	***
PMomentum	+	0.1244	20.76	***	0.1252	21.62	***
NMomentum	−	−0.1524	−32.91	***	−0.1502	−32.29	***
NMomentum * UE	+	0.0055	0.05		0.0048	0.07	
PMomentum * UE	−	−0.1235	−1.59		−0.1194	−1.67	*
NMomentum * JustMeet	+	0.0125	2.09	**	0.0125	2.40	**
PMomentum * JustMeet	+	−0.0006	−0.13		−0.0023	−0.48	
NMomentum * Beat	+	0.0352	9.11	***	0.0342	9.12	***
PMomentum * Beat	+	0.0128	2.99	***	0.0108	2.71	***
NumForecast	±				0.0005	2.14	**
Dispersion	±				−0.0018	−1.72	*
UE* NumForecast	±				0.0514	4.82	***
UE * Dispersion	−				−0.0138	−1.03	
JustMeet * NumForecast	±				−0.0009	−3.01	***
JustMeet * Dispersion	−				−0.0094	−3.72	***
Beat * NumForecast	±				−0.0008	−3.42	***
Beat * Dispersion	−				−0.0001	−0.07	
		n	137,362		n	102,680	
		F-Statistic	5001.79	***	F-Statistic	1486.8	***
		Adj. R2	0.2859		Adj. R2	0.2812	
Panel C							
Comparisons Panel A		Pred. Sign	Difference		F-Stat		Sig.
JustMeet * NMomentum – ustMeet * PMomentum		+	0.0131		7.02		***
Beat*NMomentum – Beat * PMomentum		+	0.0224		55.89		***
Comparisons Panel B		Pred. Sign	Difference		F-Stat		Sig.
JustMeet * NMomentum –JustMeet * PMomentum		+	0.0148		8.02		***
Beat*NMomentum – Beat*PMomentum		+	0.0234		57.59		***

$$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \beta_4 NMomentum_{iq} + \beta_5 PMomentum_{iq} + \beta_6 UE_{iq} * NMomentum + \beta_7\ UE_{iq} * PMomentum_{iq} + \beta_8 JustMeet_{iq} * NMomentum_{iq} + \beta_9 JustMeet_{iq} * PMomentum_{iq} + \beta_{10} Beat_{iq} * NMomentum_{iq} + \beta_{11} Beat_{iq} * PMomentum_{iq} + \varepsilon_{iq} \quad (3b)$$

$$CAR_{iq} = \beta_0 + \beta_1 UE_{iq} + \beta_2 JustMeet_{iq} + \beta_3 Beat_{iq} + \beta_4 NMomentum_{iq} + \beta_5 PMomentum_{iq} + \beta_6 UE_{iq} * NMomentum + \beta_7\ UE_{iq} * PMomentum_{iq} + \beta_8 JustMeet_{iq} * NMomentum_{iq} + \beta_9 JustMeet_{iq} * PMomentum_{iq} + \beta_{10} Beat_{iq} * NMomentum_{iq} + \beta_{11} Beat_{iq} * PMomentum_{iq} + \beta_{12} NumForecast_{iq} + \beta_{13} Dispersion_{iq} + \beta_{14} UE_{iq} * NumForecast_{iq} + \beta_{15} UE_{iq} * Dispersion_{iq} + \beta_{16} JustMeet_{iq} * NumForecast_{iq} + \beta_{17} JustMeet_{iq} * Dispersion_{iq} + \beta_{18} Beat_{iq} * NumForecast_{iq} + \beta_{19} Beat_{iq} * Dispersion_{iq} + \varepsilon_{iq} \quad (4b)$$

All significance tests based on two tailed *t*-tests.
Where:
CAR_{iq} refers to the cumulative market-adjusted (value-weighted) return.
F_{first} is defined as the first forecast of the period starting at least three days subsequent to the previous period's earnings announcement.
UE_{iq} is the firm's unexpected earnings scaled by stock price at the beginning of the quarter defined as $(EPS_{iq} - F_{first})/P_{q-1}$ where EPS_{iq} is the firm's actual earnings and P_{q-1} is the stock price at the beginning of the quarter.
$JustMeet_{iq}$ is one if the firm meets or beats the last forecast of the period (F_{last}) by no > 1 cent ($0 \le EPS_{iq} - F_{last} \le 0.01$).
$Beat_{iq}$ is one if the firm beats expectations by > 1 cent ($EPS_{iq} - F_{last} > 0.01$).
F_{last} is defined as the last forecast of the period made at least three days prior to the earnings announcement date.
PMomentum is 1 if the firm falls within momentum deciles 8 through 10 (i.e. strongest positive momentum); 0 otherwise.
NMomentum is 1 if the firm falls within momentum deciles 1 through 3 (i.e. strongest negative momentum); and 0 otherwise.
NumForecast is the total number of analyst forecasts in the quarter preceding the earnings announcement.
Dispersion is measured as the coefficient of variation in the last month that I/B/E/S forecasts quarter q earnings.

$$JustMeet_{iq} = \gamma_0 + \gamma_1 MidMomentum_{iq} + \gamma_2 TopMomentum_{iq} + \gamma_3 NumForecast_{iq} + \gamma_4 Dispersion_{iq} + \gamma_5 MeetBeatNum_{iq} + \upsilon_{iq} \quad (8)$$

$$JustMeet_{iq} = \lambda_0 + \lambda_1 PMomentum_{iq} + \lambda_2 NMomentum_{iq} + \lambda_3 NumForecast_{iq} + \lambda_4 Dispersion_{iq} + \lambda_5 MeetBeatNum_{iq} + \upsilon_{iq} \quad (9)$$

We investigate both the impact of absolute Eq. (8) and signed Eq. (9) preannouncement momentum on the probability of just meeting expectations. JustMeet is 1 if the firm meets expectations by no > 1 cent; 0 otherwise. *MidMomentum* and *TopMomentum* are previously defined in Section 4 and *PMomentum* and *NMomentum* are previously defined in Section 3.3.1 and 3.3.2. We expect all momentum variables to be positively related to the likelihood of just meeting expectations. Both models also include three additional controls (*NumForecast*, *Dispersion*, and *MeetBeatNum*) that can affect the probability of just meeting expectations. We include *NumForecast* as a proxy for the firm's information environment. Firms with a large analyst following typically have richer information environments making it easier for an analyst to accurately forecast earnings and thus increasing the probability of a firm just meeting expectations. However, firms with a large analyst following are generally larger and therefore have more oversight which can constrain management's ability to use accrual or real earnings management to hit an earnings target. Therefore, we have no expectation for the sign on the *NumForecast* coefficient. We also include the standard deviation in analysts' forecasts scaled by mean consensus forecast (*Dispersion*) to capture the differences in opinion regarding earnings expectations. High levels of *Dispersion* likely indicate difficulty in accurately forecasting earnings and thus lower the probability that

Table 4
Time Series Analysis.

Panel A: Frequency matrix (percentage of firms within each absolute momentum decile by year).

	Weak momentum								Strong momentum	
	1	2	3	4	5	6	7	8	9	10
1985	0.13	0.12	0.12	0.13	0.12	0.13	0.09	0.08	0.06	0.02
1986	0.09	0.10	0.10	0.11	0.11	0.11	0.13	0.12	0.09	0.05
1987	0.08	0.09	0.09	0.09	0.10	0.10	0.10	0.11	0.11	0.12
1988	0.14	0.14	0.13	0.13	0.10	0.12	0.09	0.08	0.06	0.02
1989	0.13	0.12	0.13	0.12	0.11	0.11	0.10	0.07	0.07	0.03
1990	0.09	0.10	0.10	0.10	0.10	0.10	0.09	0.11	0.11	0.09
1991	0.11	0.10	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.08
1992	0.11	0.12	0.11	0.12	0.11	0.10	0.10	0.10	0.09	0.06
1993	0.11	0.11	0.12	0.13	0.11	0.10	0.10	0.09	0.08	0.04
1994	0.12	0.12	0.12	0.11	0.11	0.11	0.10	0.09	0.08	0.05
1995	0.12	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.09	0.06
1996	0.11	0.11	0.10	0.10	0.10	0.09	0.10	0.10	0.10	0.09
1997	0.10	0.09	0.10	0.09	0.10	0.11	0.11	0.10	0.11	0.08
1998	0.08	0.08	0.08	0.08	0.09	0.09	0.11	0.11	0.13	0.14
1999	0.08	0.07	0.08	0.08	0.08	0.08	0.10	0.11	0.14	0.17
2000	0.07	0.06	0.06	0.06	0.08	0.08	0.09	0.12	0.15	0.24
2001	0.08	0.09	0.08	0.09	0.09	0.09	0.10	0.11	0.12	0.15
2002	0.08	0.08	0.08	0.08	0.08	0.11	0.10	0.11	0.12	0.16
2003	0.11	0.11	0.11	0.10	0.11	0.10	0.11	0.09	0.09	0.07
2004	0.13	0.12	0.11	0.11	0.11	0.11	0.09	0.09	0.07	0.05
2005	0.11	0.12	0.12	0.12	0.11	0.11	0.11	0.09	0.07	0.04
2006	0.14	0.13	0.13	0.12	0.11	0.11	0.09	0.08	0.06	0.03
2007	0.10	0.10	0.10	0.10	0.11	0.10	0.11	0.11	0.09	0.07
2008	0.05	0.06	0.06	0.07	0.08	0.08	0.10	0.12	0.14	0.25
2009	0.07	0.08	0.08	0.08	0.09	0.09	0.10	0.11	0.13	0.19

Panel B: Regression results – time series of % of extreme absolute momentum on premium.

Variable	JustMeet			Beat			UE		
	Coef.	t-stat	Sig	Coef.	t-stat	Sig	Coef.	t-stat	Sig
Intercept	0.022	4.09	***	0.062	13.8	***	2.045	7.00	***
XM	0.071	1.76	*	0.114	3.4	***	1.842	0.85	
	n	25		n	25		n	25	
	F-stat	3.09	*	F-stat	11.57	***	F-stat	0.72	
	Adj. R^2	0.0157		Adj. R^2	0.0563		Adj. R^2	0.0037	

This table presents a frequency matrix of the percentage of firms within each absolute momentum decile by year (1985–2009) where 1 is the weakest momentum and 10 is the strongest momentum.
Where XM_t = percentage of observations in extreme absolute momentum deciles 9 and 10 for year *t*.

the firm will *JustMeet* expectations. Therefore, we expect a negative coefficient on this variable. Finally, we include *MeetBeatNum* which is the number of consecutive prior quarters that the firm met or beat analysts' expectations. We expect a positive sign on this coefficient as managers with a history of meeting/beating expectations are more likely to use earnings or expectations management to continue the trend. Coefficient estimates and related t-statistics for Eqs. (8) and (9) are provided in Table 5.

Panel A shows a positive association between the absolute pre-announcement momentum and the probability of a firm just meeting expectations. Both coefficients on *MidMomentum* and *TopMomentum* are significant at the 1% level; indicating that the probability of meeting or just beating expectations is higher in the presence of preannouncement momentum. Results for Eq. (9) are displayed in Panel B. This model estimates how the probability of just meeting expectations varies across firms with extreme positive (*PMomentum*) and extreme negative (*NMomentum*) momentum relative to all other firms. Both the *PMomentum* and *NMomentum* coefficients are significant at the 1% level, indicating that firms with extreme momentum (positive or negative) are more likely than firms with low momentum to meet or just beat expectations. However, negative momentum appears to have a stronger affect on the probability of a firm meeting or just beating expectations. The coefficient on *NMomentum* is considerably larger than the coefficient on *PMomentum* (0.2189 vs. 0.0833). An untabulated chi-squared test shows that these coefficients are significantly different at the 1% level.[26] This result is not surprising given the larger premiums for meeting or just beating expectations in the presence of negative pre-announcement momentum (see Fig. 4). Overall, these findings are consistent with managers meeting or just beating expectations when it matters most.

8. Sensitivity analyses

To ensure the validity of our findings we conduct several untabulated sensitivity tests. Each test and result is discussed in detail below.

8.1. Alternate momentum windows

We utilized a 28 day momentum window. However, all reported results are robust to alternate momentum window specificications. Specifically, we also tested our hypotheses defining *AbsMomentum* and *Momentum* by using a 10 day window ($t = -12, -2$) and a 45 day window ($t = -47, -2$). All inferences are unaffected when these alternate momentum windows are utilized.

[26] The Wald Chi-Squared statistic for this test is 51.91.

Table 5
Preannouncement Momentum and the Probability of Just Meeting Analysts' EPS Expectations.

Panel A: Absolute Preannouncement Momentum				
Variable	Pred Sign	Coef.	Wald Stat.	Sig.
Intercept	±	−1.913	10,132.73	***
MidMomentum	+	0.0766	17.31	***
TopMomentum	+	0.2197	127.71	***
NumForecast	±	0.0106	64.99	***
Dispersion	−	−0.2345	144.65	***
MeetBeatNum	+	0.0629	367.21	***
n			131,776	
Likelihood Ratio			907.94	***
R^2			0.0117	
Panel B: Signed Preannouncement Momentum				
Intercept	±	−1.9215	12,123.60	***
PMomentum	+	0.0833	21.10	***
NMomentum	+	0.2189	151.83	***
NumForecast	±	0.0102	61.51	***
Dispersion	−	−0.2368	150.25	***
MeetBeatNum	+	0.0639	390.43	***
n			131,776	
Likelihood Ratio			963.39	***
R^2			0.0120	

All significance tests based on two tailed chi-squared tests.
Where:
AbsMomentum is defined as the absolute value of the residual (δ_{iq}) from Eq. (2).
MidMomentum is 1 if the firm falls within the 4th through the 7th momentum decile; 0 otherwise.
TopMomentum is 1 if the firm falls within the 8th through the 10th momentum decile; 0 otherwise.
PMomentum is 1 if the firm falls within momentum deciles 8 through 10 (i.e. strongest positive momentum); 0 otherwise.
NMomentum is 1 if the firm falls within momentum deciles 1 through 3 (i.e. strongest negative momentum); and 0 otherwise.
NumForecast is the total number of analyst forecasts in the quarter preceding the earnings announcement.
Dispersion is measured as the coefficient of variation in the last month that I/B/E/S forecasts quarter q earnings.
MeetBeatNum is the number of consecutive prior quarters that the firm met or beat analysts' expectations.

8.2. Alternate CAR windows

Although consistent with prior research (Bartov et al. 2002 and Koh et al. 2008), the design choice to define the return window as starting two days after the first forecast of the period and ending the day after the earnings announcement will likely result in longer event windows for firms with greater analyst following (Koh et al. 2008). Following Koh et al. (2008) we also used a fixed event window starting two days subsequent to the previous quarter's earnings announcement date and ending one day after the current quarter's earnings announcement. All inferences are unaffected when a fixed return window is utilized.

As an additional sensitivity check, we define the return as starting 1 day prior to the earnings announcement and ending one day subsequent to the earnings announcement. This ensures that the return window does not overlap with the momentum window. All inferences are unaffected when this specification is used.

8.3. Controlling for magnitude of the earnings surprise

In all of our reported results, we controlled for unexpected earnings [defined as $(EPS_{iq} - F_{first})/P_{q-1}$] and included an indicator to capture whether the firm *JustMeet* or *Beat* analysts' expectations. As an additional control we also include the magnitude of the *JustMeet* or *Beat* surprise (Bartov, et al. 2002) defined as the difference between actual earnings and the last forecast of the period scaled by price ($(EPS_{iq} - F_{last})/P_{q-1}$). All inferences are unaffected when the magnitude of the earnings surprise is included as an additional control variable.

8.4. Investigating the impact of regulation FD

On October 23, 2000 Regulation FD mandated that publicly traded companies disclose material information to all investors at the same time. This regulation dramatically changed the information environment for firms in our sample. As an additional sensitivity check, we estimated the models pre and post the enactment of Regulation FD. We found no significant differences in the pre and post period results.

9. Conclusion

Prior research has documented the existence of a stock return premium for meeting or beating analyst forecasts of earnings even after controlling for unexpected earnings. Despite the empirical evidence of its existence, the basis of the meet/beat premium has remained a somewhat unexplained phenomenon in the literature. Evidence in the paper demonstrates that the meet/beat premium is strongly related to the degree of pre-announcement stock price momentum. We attribute this relation to pre-announcement momentum being linked to disagreement among investors concerning the extent of mispricing in a security and/or the optimal exit strategy from the security. The meet/beat signal in the earnings announcement serves to synchronize investor beliefs concerning the extent of mispricing and either validates the current price path or triggers a correction. We posit that the differential return observed in the two outcomes is what has been defined in the literature as the meet/beat premium.

The findings of this study have broad implications for future research on the usefulness of accounting information in security valuation. Traditionally, the usefulness of accounting information has been considered primarily from the standpoint of fundamental analysis. This study demonstrates that accounting information may also be useful in correcting anomalous market conditions.

Declarations of interest

None.

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