January 2013

Two Essays on Investor Distraction

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Two Essays on Investor Distraction

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
Department of Finance
College of Business
University of South Florida

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Date of Approval
July 2, 2013

Keywords: Investor Attention, Market Efficiency,
Post-Earning Announcement Drift, Culture, Mood

DEDICATION

I dedicate this dissertation to my mother (Sevgi Ucar), my father (Arslan Ucar), and my sister (Ceren Ucar). I could not have done it without your great support.

ACKNOWLEDGMENTS

I would like to express my deepest gratitude to my advisor, Dr. Chris Pantzalis, for his excellent guidance, patience, and support. I also thank my committee members—Dr. Daniel Bradley, Dr. Jianping Qi, and Dr. Ninon Sutton—for their guidance and support. I also thank my fellow doctoral students and administrative staff of the Department of Finance at the University of South Florida for their friendship and support. I am also thankful for the comments that I received from seminar participants at the University of South Florida. This dissertation has also benefited from the comments of seminar participants at the University of Central Florida, as well as the comments of conference participants at the Financial Management Association 2012 annual meeting, the Southern Finance Association 2012 annual meeting, and the Eastern Finance Association 2013 annual meeting. All remaining errors are mine.

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ABSTRACT

In theory, all relevant information is incorporated in stock prices timely and completely and therefore prices respond related news quickly in efficient financial markets. In today's information age, technological advances provide investors with fast access to a vast number of information resources. One can argue that these advances can help market efficiency due to easy and quick access to relevant information. On the other hand, these technological advances not only facilitate availability of relevant information but also facilitate availability of all types of information—both relevant and irrelevant information signals. In essence, one can argue that there is (over)exposure to information which may come with a cost in the form of distraction and limited attention to relevant information. After considering these previous points, this study sheds more light on investor distraction and its impact on stock prices in two essays. My first essay introduces a new type of investor distraction, which arises from the discrepancy between investors' mood state and the content of the firm news. My second essay shows the importance of culture to explain investors' information processing .Moreover; the findings of my second essay are consistent with an investor distraction effect caused by cultural factors which are assumed as irrelevant factors in investors' information environment.

In my first essay titled "Overexposure to Unrelated News and Investor Distraction: Earnings News and Big Sports Games", I use mood-generating events – proxied by big sports games –that contain no information on firm fundamentals but occur concurrently with earnings

announcements to test the hypothesis that investors' attention shifts away from financial news that is incongruent with investors' mood states, thereby leading to underreaction. I empirically confirm the existence of mood-conflicting distraction. I find stronger post-earnings announcement drift and delayed response ratio, and weaker immediate volume reaction, when the earnings announcing firm's local investors' sports mood is inconsistent with the earnings news' content (good vs. bad). This effect strengthens with firm's proximity to the location of the mood source.

In my secon essay titled "Post-Earnings Announcement and Religious Holidays", I show the role of culture, proxied by religion, in financial information processing and the impact of culture on financial outcomes through investor inattention. I examine whether and how the religious holiday calendar affects investors' information processing by investigating price reactions to U.S. firms' earnings announcements that occur during Easter week. I find different patterns for short-term and delayed responses to Easter week earnings surprises. Moreover, there is a stronger immediate (delayed) reaction to good (bad) news, primarily found in less religious, predominantly Protestant areas. The results are consistent with a religion-induced investor distraction effect. The findings also show the role of religious characteristics in firms' information environment and the locality of stock prices.

1.0 OVEREXPOSURE TO UNRELATED NEWS AND INVESTOR DISTRACTION: EARNINGS NEWS AND BIG SPORTS GAMES

1.1 INTRODUCTION

Although there are many studies of investor sentiment showing the impact of mood states on asset prices, there is little evidence from the finance literature on the impact of mood on investors' attention allocation. Specifically, past studies focuses solely on *mood congruent* effects such as a) the relationship of asset prices to exogenous mood shifters like sport events (Edmans, Garcia and Norli (2007)), weather (Saunders (1993), Hirschleifer and Shumway(2003)) length of day (Kamstra, Kramer and Levi (2003)), or advertising (Fehle, Tsyplakov, and Zdorovtsov (2005)), b) mood congruent judgment bias (Agarwal, Duchin and Sosyura (2012)), and c) mood congruent memory (Bodoh-Creed (2012)). On the other hand, behavioral science literature contains extensive psychological evidence on mood induced attention changes and judgment biases (e.g. Isen (1984), Clark and Isen (1982) and Tversky and Kahneman (1973), among many others). Kahneman (1973) argues that attention is determined by an "allocation policy", which is itself determined by several factors, such as physiological state, personality, and current mood. I conjecture that mood can lead to investor distraction because it can cause cognitive biases through its influence on memory, evaluation, and behavior (e.g., see Gardner (1985) or Forgas (1992)).

In this paper, I empirically investigate whether investor behavior reflects human tendency to focus on mood-congruent content when processing information. [1]In particular, I test whether investors' mood states play a role in propensity to pay attention to new firm information or to ignore it. This paper extends the literature on investor inattention[2] by introducing a new type of investor distraction, which I call as *mood-conflicting investor distraction*. This study also investigates whether mood-conflicting investor distraction cause underreaction to earnings news that is conflicting with investors' mood state. I use big sports events as a proxy for exogenous mood-generating shocks to investors' information environment and empirically test whether sports mood can serve as a background affective filter which helps investors to evaluate relevant firm information contained in earnings announcements.[3] In addition, this is consistent with the view that investors experiencing a good sports mood state are looking at the world through rose-colored glasses (Schweitzer et al (1992)). I posit that when processing earnings news, investors will do so in a mood-congruent way, i.e. by emphasizing the positive, and overlooking or discounting the negative pieces of information. In this case, the *mood-conflicting investor distraction* hypothesis suggests that negative firm news to be reflected in prices with a delay, which causes prices to display a negative post earnings announcement drift (PEAD). [4] Similarly,

[1] This type of mood-induced attention shift has also been observed in experimental subjects' studies in the field of psychology. For example, biased attention to pleasant (unpleasant) information as a function of positive (negative) mood experience causes more life satisfaction (anxiety) (Cavanagh, Urry, and Shin (2011)).

[2] Limited investor attention is one of the explanations put forth by the literature for underreaction-related anomalies, such as the post-earnings announcement drift. Studies that have looked at time periods when inattention is more likely include Francis, Pagach, and Stephan (1992), Bagnoli, Clement, and Watts (2005), DellaVigna and Pollet (2009), and (Hou, Peng, and Xiong (2009). Hirshleifer, Lim and Teoh (2009) provide an example of how investors struggle to process multiple stimuli and perform multiple tasks at the same time.

[3] The use of sports data in the finance literature is fairly new. For example see Brown and Hartzell (2001), Edmans, Garcia and Norli (2007), and Palomino, Renneboog and Zhang (2009) and Bernile and Lyandres (2011).

[4] Livnat and Mendenhall (2006) define PEAD as "the tendency for a stock's cumulative abnormal returns to drift in the direction of an earnings surprise for several weeks following an earnings announcement". PEAD is a major

when experiencing a bad sports mood state, investors will tend to focus more on the negative earnings news and less on the positive. In this case, the *mood-conflicting investor distraction* argument suggests and underreaction to positive earnings news to be reflected in positive PEAD.

My empirical findings provide strong support for the *mood-conflicting distraction* hypothesis. I find high levels of delayed response to earnings news when firms, which are located near cities with teams competing in big sports events, announce earnings around the day of the sports event and when the type of earnings news is in disagreement with the sports mood state experienced by local investors. This effect is both statistically and economically significant and accounts for, on average, up to an additional 9% of PEAD.[5] Also consistent with the view that investors' mood state can cause distraction in the form of inattention to mood-incongruent firm news, I find that trading volume of firms located around cities with teams competing in big sports events declines around the time of the games. Furthermore, the results are generally stronger for the subsamples of firms located closer to the home areas of teams competing in the big games, where sports mood is expected to be stronger. Since the mood-conflicting distraction effect manifests itself through a local investor base channel, my evidence also highlights the importance of the local component of stock pricing, which has not received sufficient attention in many other studies with the exception of those focusing on local bias.[6] My findings essentially

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financial market anomaly that holds an important place in both finance and accounting literatures. Livnat and Mendenhall (2006) report that "Brennan [1991, p. 70] calls it a "most severe challenge to financial theorists," and Fama [1998, p. 286] refers to it as "the granddaddy of all underreaction events."

[5] The 9% additional PEAD is observed when drift is measured by the cumulative abnormal return for the period starting two days after the current earnings announcement and ending one day after the next earnings announcement ($CAR(E_t,E_{t+1})$, see Livnat and Mendenhall (2006)). The effect is even bigger, amounting to an additional 10.5% of PEAD when I measure drift using the cumulative abnormal return over the (2, 75) day window after the earnings announcement.

[6] my findings are therefore also in line with the local bias literature that suggests retail investors (Ivkovic and Weisbenner (2005)) and professional managers (Coval and Moskowitz (2001)) show some local preference in their

suggest that mood-generating unrelated news can produce mood states that shift attention away from mood-inconsistent firm news and thereby lead to underreaction due to mood-conflicting investor distraction effects.

Delayed response ratio[7] tests also show empirical findings similar to my PEAD tests. Earnings announcements by firms located close to cities with teams competing in big sports events (i.e. when there is sports mood) have a large delayed portion (i.e. up to 70%-75% of the long term response) of the stock response. The portion of the delayed price response declines with firm distance from the mood source, i.e. from the home cities of the teams competing in the big games. In addition, this finding is particularly pronounced among firms that display a combination of a) *positive* earnings surprises and headquarters' location close to cities hosting sports teams that *lost* in a big sports event, and to a lesser extent, b) *negative* earnings surprises and headquarters' location close to cities hosting teams that *won* in a big sports event. Thus, the *mood-conflicting distraction* effect is asymmetric, and consistent with prior studies that show differences in the way information is being processed under positive versus negative mood states (e.g., see Forgas (1992) and Sinclair and Mark (1992) and Edmans et al (2007)).[8]

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investments. Hong, Kubik and Stein (2008) suggest that the local bias effect is more pronounced in areas with relatively few firms per capita.

[7] Delayed response ratios are ratios of the delayed stock response to the long-term stock response generated similar to DellaVigna and Pollet (2009).

[8] The psychology literature suggests this asymmetric reaction to bad news and good news is rooted in the fact that negative information induces a greater influence on people's impressions than positive information (Ronis and Lipinski (1985), Singh and Teoh 2000, Van der Pligt and Eiser (1980), and Vonk (1993) (1996) among others). The finance and accounting literature also highlights the role of sentiment into generating asymmetric investor reactions to good and bad news. For example, Edmans et al. (2007) examine national stock indices and find strong market reaction to national teams' soccer matches but only after big tournament losses that generate widespread bad mood. Livnat and Petrovits (2009) suggest that the PEAD is a greater after bad news during high investor sentiment times than during low investor sentiment times.

The underlying rationales for the choice of big sports events as the basis for this empirical analysis of mood-induced investor distraction are as follows. First, it is well established that big sports events are both capable of producing mood[9] and can have a direct emotional effect on stock prices and economic outcomes.[10] Second, sports events have an impact on a sizeable portion of society and sports-induced mood is effective at both the individual and the community levels (White (1989) and Wann et al. (2001)). Big sports events can potentially trigger "socially induced" mood contagion stimulated through social interactions.[11] Mood contagion may in turn stimulate similarity in changes of attention within a group (Hatfield, Cacioppo, and Rapson (1993)). [12] Third, sports events are appropriate for a study of investor distraction because, by definition, they do not produce any information that is either related to firm fundamentals or relevant for investment decisions. Consequently, finding underreaction to earnings news can only be interpreted as the result of big sports events' impact on investors' information processing, in the form of inattention to mood-conflicting earnings news.

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[9] See Schwarz et al. (1987), Arkes, Herren, and Isen (1988), Hirt et al. (1992), or Wann et al. (1994), among others. In a recent paper, Edmans, Garcia and Norli (2007) use the aforementioned psychological evidence of a link between sports and mood to motivate and examine of whether stock prices indices reflect investor sentiment related to soccer games' results. Consistent with the notion that sports events can affect human behavior, Edmans et al. (2007) show that national stock market indices decline after losses of national soccer teams, but they do not discover a similar effect for the case of wins.

[10] See Edmans et al. (2007), Ashton et al. (2003) , and Berument and Yucel (2005) among others.

[11] People are exposed to the subject of important sports events through their daily social interactions. Major sports events, such as the Super Bowl, are intensely followed by a large proportion of the population with large media coverage not only during the actual time of the games but also during pre- and post- game periods. Big sport games like final/championship games are always at the top of the list of the most viewed TV shows in a given year. For example, according to Nielsen Media Research (www.huffingtonpost.com, www.tampabay.com, (accessed on 2.7.2011)) Super Bowl XLV is the most viewed TV broadcast in history in the U.S.

[12] Neumann and Strack (2000) define mood contagion as the automatic transfer of mood between individuals. Kelly (2004) defines emotional contagion as the process in which the moods and emotions of people around a person influences the person. Hatfield et al. (1993) suggest that emotional contagion generates a similarity and harmony of attention, emotion, and behavior. McIntosh, Druckman, and Zajonc (1994)) suggest a change in a person's emotions similar to another person's emotions through "socially induced affect". I conjecture that sports induced mood can create similar results in group behavior that is suggested for any mood effect by psychology literature.

I use earnings announcements as my test environment because they constitute firm news, which investors typically pay close attention to, occur regularly on a quarterly basis but not always on the same calendar day. Thus, this helps to identify a large number of earnings news that can be matched with concurrent news about big sports events and to construct a sample that can be used to provide a clear answer as to whether mood-conflicting distraction can lead to underreaction to earnings news that are incongruent with sports mood.

In addition, any sports-induced mood state that affects stock price reaction to earnings news is expected to be more pronounced when the investor base overlaps with the sports fan base, i.e. among "local" firms located near the home city of the teams competing in the big game. Thus, if stock prices have a significant local component (Pirinsky and Wang (2006)) there should be more post earnings announcement drift caused by mood-conflicting investor distraction for local firms around the time of big sports games. My findings showing more pronounced mood confliction investor distraction effect for the firms located closer the mood source provide support to this view. Moreover, my additional tests show a higher distraction for the subsample of firms with higher local retail investor ownership. All these points suggest that the mood-confliction distraction effect comes mainly through the local investor channel and this paper shows the importance of local investor channel on financial outcomes.

This paper is also closely related to the recent limited investor attention literature that provides evidence of distracting effects associated with an array of different news (simultaneous corporate news from other companies, timing/day of the corporate event and etc.) that are related to the corporate event.[13] The main distinction between this paper and earlier papers is that my

[13] Francis, Pagach, and Stephan (1992), and Bagnoli, Clement, and Watts (2005)) show limited attention associated with event occurrence during non-trading hours, whereas others show that this is the case on Fridays (DellaVigna and Pollet (2009)), down market periods (Hou, Peng, and Xiong (2009)), and low trading volume (Hou, Peng, and

paper presents evidence of investor distraction caused by limited attention due to mood-conflicting relevant information. On the other hand, earlier studies show a distraction effect induced by factors that do not include any mood content that can cause judgment bias and/or cause an attention shift toward certain types of information. Moreover, my paper provides a novel approach to the investigation of mood effects on investor attention by focusing on exposure to sports news that by design is unrelated to investment decisions, but a source of mood.

In a recent theoretical paper Bodoh-Creed (2012) provides a model for the impact of mood congruent memory on financial outcomes. Bodoh-Creed's (2012) model employs market affective states as a cue for information congruent with the affect of the agents suggesting that agents recall information from memory and this process causes them to have biased beliefs which leads to mispricing.[14] My results are in line with his model. Big sports events exogenously change investors' mood and cause attention allocation to shift toward mood-congruent financial news and to shift away from mood-conflicting financial news.

The remainder of the paper is organized as follows. The next section includes a description of the data and the sample selection. Section 3 shows summary statistics and provides a discussion on mood-conflicting distraction. Section 4 presents the empirical results of multivariate stock response, delayed response and volume reaction tests. Section 5 provides a conclusion.

Xiong (2009)). Hirshleifer et al. (2009) suggest that a high number of earnings announcements in a given day limits the immediate reaction to a firm's earnings surprise in the day and strengthens the post-announcement drift of the firm. In addition to behavioral bias, limited attention can also be induced by constraints in investor's information processing (see Hou, Peng and Xiong (2009) or Palomino, Renneboog and Zhang (2009)).

[14] Bodoh-Creed's (2012) model makes some predictions about short-run overreactions and price corrections. It also suggests that knowledgeable or sophisticated investors are more affected by the biases induced by mood-congruent memory.

1.2 DATA AND SAMPLE SELECTION

I include earnings announcements of NYSE, AMEX and NASDAQ firms that issued earnings news within the (-1,+2) trading day window around dates of widely followed sports games in the U.S. Firm location information is crucial in terms of measuring a firm's proximity to the source mood induced by sports events in my paper. Therefore, I require the firms in my sample of earnings announcements around game dates to have firm location information from Compact Disclosure, which provides firms' correct location at any point time and accounts for headquarter changes. After imposing the aforementioned requirements, I end up with 97,304 earnings announcements occurring any time during the period between 1989 and 2006 by firms with available headquarter zip code information that matches with the zip code information in Census zip code files. Out of this entire sample of quarterly earnings announcements, 5,096 announcements are within the (-1, +2) trading day window around the dates of major sport events.

I use Google web search and some sports statistics websites to identify dates for the following major U.S. sports events: Super Bowl, AFC and NFC championship games, NBA playoffs final game (if it is the 6th or 7th game of the best of seven series), MLB playoff final game (if it is 6th or 7th game of the best of seven series) and NCAA basketball playoff final game.[15] I identify 80 such big-game dates for the years 1989-2006. I use Google web search, and some other sport websites[16] to obtain each team's stadium address, which is my proxy for

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[15] Those websites are: http://www.nfl.com/superbowl/history, http://www.basketball-reference.com/playoffs/ , http://www.sports-reference.com/cbb/postseason/ , http://www.pro-football-reference.com/super-bowl/ , http://www.baseball-reference.com/postseason/, http://www.cbssports.com/collegebasketball/ncaa-tournament/history/yearbyyear (accessed in April 2011).

[16] http://www.nflfootballstadiums.com/NFL-Football-Stadium-Reviews.htm , http://www.baseball-statistics.com/Ballparks/ , http://basketball.ballparks.com/ , http://www.sportmapworld.com/ (accessed in April 2011).

team location. Distance between firm and team locations is calculated using longitudes and latitudes from the Census 2010 zip code data file. I require my sample firms to have non-missing information from COMPUSTAT, CRSP, and I/B/E/S databases as well as Compact Disclosure.

In particular, I use the COMPUSTAT, CRSP, and I/B/E/S databases to determine the earnings announcements and extract the information needed to compute the cumulative abnormal returns (*CARs*) around and after earnings announcements, following Livnat and Mendenhall (2006) as "the difference between the firm's daily return from the CRSP and the daily return on the portfolio of firms with the same size (the market value of equity from June) and book-to-market (B/M) ratio (from the prior December)". The CAR between two consecutive earnings announcements, $CAR(E_t,E_{t+1})$, is defined as the cumulative abnormal return for the period starting two days after the current earnings announcement and ending one day after the next earnings announcement.

In addition to requiring that earnings announcement dates and stock price information are not missing in COMPUSTAT, I also require that firm size for the corresponding quarter end is larger than $5 million and stock price per share is greater than $1. I match I/B/E/S forecasts and COMPUSTAT earnings data, and use the primary earnings definition from I/B/E/S. I measure earnings surprise by the forecast error which I define as $FE_{iq}=(E_{iq}-F_{iq})/P_{iq}$. FE_{iq} is calculated by subtracting analyst expectations (i.e., the median of forecasts reported to I/B/E/S in the 90 days prior to the earnings announcement) from actual earnings and then normalized by the price per share at the end of the quarter obtained from COMPUSTAT.[17] In my tests, I use a bad (good) earnings news indicator variable for the lowest (highest) FE_{iq} quintile every fiscal quarter, which

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[17] I have also experimented with other deflators without obtaining materially different results.

I call as *FE1* (*FE5*). my PEAD measures are *CAR* (E_t, E_{t+1}) and *CAR (2, 75)*[18]. The dependent variables in the immediate reaction regressions are *CAR (-1,1)* and *CAR(0,1)*, where day 0 is the day of the earnings announcement. In some of my tests, I also use the delayed response, which follows DellaVigna and Pollet (2009), is defined as the delayed stock response to the long-term stock response ratio. [19]

My tests also control for other variables that can affect return performance, such as firm size, book-to-market ratio, earnings volatility, reporting lag, analyst coverage, and share turnover as well as day of the week, month, year, and two-digit SIC industry indicator variables. Consistent with Hirshleifer et al. (2009), *Earnings volatility* is computed as the standard deviation of the deviations of quarterly earnings computed over a four year period ending with the quarter preceding the current earnings announcement. I require a minimum of four split-adjusted quarterly earnings to calculate this variable. *Share turnover* is the average monthly trading volume normalized by the average number of share outstanding for the one year period that ends at the end of corresponding fiscal quarter. *Reporting lag* is the number of days between the quarter end and earnings announcement day. *Log (1+ # of analyst)* is constructed by using the number of analyst that follows the firm during the corresponding quarter.

1.3 SUMMARY STATISTICS AND MOOD-CONFLICTING DISTRACTION

1.3.1 Summary Statistics

Panel A of Table 1.1 reports summary statistics for the sample of firms whose earnings announcements occur on dates around big sports games. Panel B provides descriptive statistics

[18] Following DellaVigna and Pollet (2009) I also use CAR computed over the (2, 75) trading day window (CAR (2, 75)) as an alternative measure of PEAD. Note that the CAR (2, 75) trading day windows will not always accurately capture PEAD because a firm can announce its next earnings earlier (later) than the end of a fiscal quarter.

[19] To compute the ratio, I use CAR (-1, E_{t+1}) and CAR (0, 75) as long-term stock responses for corresponding ratios. CAR (-1, E_{t+1}) and CAR (0, 75) are calculated similar to the other cumulative abnormal returns mentioned above.

for the subsample of firms whose earnings announcements occur on dates around big sports games and whose location is within 200 miles of a city with a sports team that competed in a big sports event. When comparing the two samples in terms of means and medians I do not see much difference across any of the variables with the exception of earnings volatility that seems to be a bit lower in the subsample of firms located close to sports teams competing in the big games.

1.3.2 Mood-Conflicting Distraction

Recent studies in the limited investor attention literature suggest attention grabbing factors such as timing/day of the corporate event can lead to investor distraction. These papers show distraction effects emanating from factors lacking mood content. In contrast, my empirical investigation employs distracting information signals, which are unrelated to firm fundamentals but have mood content that affects investors' attention allocation and response. In Figure 1.1, I display the relative attention allocation to positive and negative firm news for different cases of distraction, i.e. without mood content or with positive or negative mood content. A distracting factor without any distinguishing (positive or negative) mood content leads to the same degree of inattention to both positive and negative firm news.

When distraction originates from an event with mood content, the degree of attention allocated to firm news depends on the combination of mood and firm news types. Investors receive firm news that can either be consistent or inconsistent with the mood state they are experiencing. When firm news is in agreement with current mood, investors will allocate more attention to it. On the other hand, when firm news is incongruent with the current mood state, investors will pay less attention to it. Thus, the *mood-conflicting distraction* effect amounts to an asymmetric delayed stock price response to firm news. When there is negative mood, there will be more delayed response to good firm news and less delayed response to bad firm news. Similarly, when there is positive mood, there will be more delayed response to bad firm news and less delayed response to good firm news. The picture that emerges from the stock price responses to earnings announcement news received by investors that are concurrently exposed to sports mood is in line with the mood-conflicting distraction effect described above.

Figure 2 shows the time path of the stock responses (measured by mean cumulative abnormal returns (CARs) over different event windows) for the two types of mood-conflicting investor distraction cases: (i) good firm news and concurrent unrelated news inducing bad mood, and, in a similar manner, (ii) bad firms news and concurrent unrelated news inducing good mood. Mood-conflicting distraction predicts that people who live in areas with a strong mood state will allocate their attention differently than other times because they experience a mood state which amounts to an exogenous shock to their attention allocation process. Consistent with my mood-conflicting distraction argument, Figure 2 shows that stock prices react with a delay to mood-conflicting earnings news suggesting that investors allocate less attention to news that are incongruent with the mood state they experience.

Moreover, Figure 2 shows that the mood-conflicting distraction effect is asymmetric, i.e. different for the cases of good mood combined with bad earnings news and bad mood combined with good earnings news. When there is good earnings news (depicted by FE5) paired with bad sports mood, I observe a slow drift after the earnings announcement in the direction of the earnings surprise that lasts for about a month and a half, followed by stronger drift for the next half month (i.e., window [+45, +60]) and not much of a drift thereafter. On the other hand, in the case of bad earnings news (depicted by FE1) coupled with good sports mood, there is also a slow drift in the initial period that extends for a month, followed by a stronger drift over the next half month (i.e. up to day 45) and a slight correction thereafter. Thus even though the magnitude of the mood-conflicting distraction effect, as captured by the delayed price response, is stronger for good firm news coupled with bad sports mood the evolution of PEAD is a bit slower than that of bad firm news coupled with good sports mood. This result is indicative of bad mood's greater persistence and significance compared to good mood and is consistent with both the prediction of prospect theory (Kahneman and Tversky (1979)) as well as with the empirical evidence from numerous other studies documenting an asymmetry in the magnitudes of bad versus good mood effects (e.g. see Carroll et al. (2002), White (1989) or Edmans et al. (2007), among others).

A closer look at Figure 2 in terms of magnitude of stock responses to mood-conflicting firm news, reveals that the delayed response or PEAD (i.e. in terms of CAR(2,75)) is more pronounced among firms located near cities with losing teams than among those located near cities with winning teams. Moreover, the underreaction to good earnings news issued by firms in areas exposed to negative mood decreases with distance to the source of distraction. CAR(2,75) drops from about 12% for firms within 100 miles from the mood source to about 6% for firms located within 200 miles from the mood source. This pattern implies the importance of local investors for this mood-conflicting distraction effect. The magnitude of the delayed response is smaller in absolute terms for the other case of mood-conflicting distraction. There is a delayed negative stock price response of up to 7.3%, on average, when the firms that are located in areas with positive mood announce bad firm news. Therefore, the delayed response (PEAD) effect is asymmetric. The PEAD effect is more pronounced for good earning news which is consistent with recent literature (e.g. see Hirshleifer et al. (2009)). In addition, and consistent with studies in psychology and other behavioral sciences that suggest a stronger impact of negative mood compared to the positive one, the mood-conflicting investor distraction is stronger when it is induced by negative mood[20]. Overall, the pattern of reactions to mood-conflicting firm news cases shown in Figure 2 is very much in line with the interpretation that emerges from Figure 1.

My earlier discussion suggests that investors will allocate more attention to firm news that is congruent with the current mood. Figure 3 displays stock responses for the two types of mood-consistent firm news cases: (i) good earnings news occuring when investors experience good mood emanating from firm fundamentals-unrelated (i.e. sports) news, and (ii) bad earnings news when there is bad sports mood. I observe a reasonably strong short-term stock reaction to good earnings news that is announced when sports mood is positive while the delayed response is in the opposite reaction. Similarly, there is some strong short-term stock reaction to bad earnings news issued when sports mood is negative, again followed by delayed response in the opposite reaction. These findings imply some initial overreaction possibly due to the greater attention allocated to mood-consistent firm news and support the notion that the mood-consistent information signals receive more attention and larger information processing resources. Overall, Figure 2 and Figure 3 support the notion that mood-conflicting investor distraction can cause investors to underreact to mood-incongruent firm news. On the other hand, investors' tendency to pay more attention to mood-congruent firm news may cause overreaction.

1.4 MULTIVARIATE TESTS

1.4.1 Stock Response Tests

In this section I examine mood conflicting distraction using market response regression models whose main independent variables account for mood content emanating from unrelated news (i.e. big sports games), firm news and their interaction. I also control for many other

[20] See Ronis and Lipinski (1985), Singh and Teoh 2000, Van der Pligt and Eiser (1980), and Vonk (1993) (1996) among others.

factors that have been shown to matter for stock price responses to earnings news using the following model:

$$CAR=\beta_0+ \beta_1 Win+ \beta_2 Loss+ \beta_3 Win*FE5+ \beta_4 Loss*FE5+ \beta_5 Win*FE1+ \beta_6 Loss*FE1 + \beta_7 FE5 + \beta_8 FE1 +Controls \quad (1)$$

In the equation above, *Win* represents a dummy variable that takes the value of one if a firm is located near a city with a winning team and the value of zero otherwise. *Loss* is a similar dummy variable for firms near a city with a losing team. The control variables are firm size, book-to-market ratio, earnings volatility, reporting lag, analyst coverage, and share turnover as well as day of the week, month, year, and two-digit SIC industry indicator variables. I estimate model (1) separately for subsamples of firms located within 100, 150 and 200 miles from the aforementioned cities and report the results for delayed stock response and immediate stock reaction to earnings announcements issued around game dates in my sample in Table 1.2, Panels A and B, respectively. In all regressions the base group consists of firms located further away from both cities with winning teams and cities with losing teams.

Consistent with the earlier univariate evidence, the results in Panel A suggest a strong mood-conflicting investor distraction effect that gets stronger with greater exposure to sports mood. In particular, the coefficient of *Loss*FE5* is economically and statistically significant, especially for firms that are close to cities with a sports team that plays in a big game. For example, a firm with high earnings surprise (good earnings news) and within 100 miles from a city with a losing team will exhibit 9% to 10.5% higher post-earning announcement drift. This effect is statistically significant for firms within up to 150 from a losing team's city when PEAD is measured by CAR(E_t,E_{t+1}) and up to 200 miles from a losing team's city when PEAD is measured by CAR (2, 75).

The coefficients of *Win*FE1* are also consistent with the mood-conflicting distraction hypothesis. For example, a firm with low earnings surprise (bad earnings news) that is within 100 miles of a city with a winning team has 4.7% to 6.4% more negative PEAD. The effect persists for distances up to 200 miles for both alternative PEAD measures. In addition, and similar to my earlier results, the magnitude of delayed stock response to mood-conflicting bad earnings news is smaller than the one for mood-conflicting good earnings news. This result is in line with Hirshleifer et al. (2009) who show distracting news has a stronger effect on companies that experience positive earnings surprises and with the psychology literature's evidence[21] of a stronger impact of negative mood on attention shifts and judgment biases. Also in line with the earlier findings and with the mood-consistent attention allocation argument, the coefficients of *Loss*FE1* and *Win*FE5* are in all but one model statistically insignificant. In addition, earlier studies have shown higher drift after high earnings surprises. My results also show that the coefficient of FE5 is statistically significant, and the coefficient has very similar magnitude in all models (about 3.5% to 3.9%).

Next, in Panel B, I look at the immediate reaction to earnings announcements using the model shown in equation (1). The dependent variable is CAR (-1, 1) in first three columns of Panel B and CAR (0, 1) in last three columns. The immediate reaction regression results are in line with prior evidence. The FE5 coefficient suggests that there is about 1.6% to 2% higher return as immediate reaction to high earnings surprises, regardless of firm distance to the city

[21] See the discussions in Beevers and Carver (2003) and Cavanagh et al.(2011) related to attentional shifts and biases. Also see Ronis and Lipinski (1985), Singh and Teoh 2000, Van der Pligt and Eiser (1980), and Vonk (1993) (1996) that suggest a greater impact of negative information signals on impressions.

with a team competing in a big sports game. The FE1 coefficient suggests that the immediate reaction to low earnings surprises for all firm-team city distances amounts to about 3% to 3.4% lower return.

The coefficient of Win*FE5 for immediate reaction is also positive but statistically significant only for firms located within 200 miles of cities with a winning team in one column suggesting that there may be a strong initial reaction to mood-consistent information. Consistent with this notion, the Win*FE5 coefficient is negative in some of the PEAD regressions, indicating the possibility of a correction of some initial overreaction to positive mood-consistent earnings news.

1.4.2 Delayed Response Ratio Tests

Having provided strong PEAD results in support of the mood-conflicting hypothesis I now perform delayed response ratio tests and report their results in Table 1.3. As in the previous table, these tests are performed separately for subsamples of earnings announcing firms located within 100, 150 and 200 miles from the source of sports mood. In Panel A, delayed response ratios of mood-conflicting good firm news (Loss*FE5 effect) and mood-conflicting bad firm news (Win*FE1 effect) are one at a time contrasted with those of all other announcements. Following DellaVigna and Pollet (2009), I define delayed response ratio as ratio of the delayed stock response (CAR(E_t, Et_{+1}) and CAR (2, 75)) to the long-term stock response (CAR (-1, Et_{+1}) and CAR (0, 75), respectively). I estimate delayed stock response and long-term stock response from extreme earnings news quintiles only as in the following model;

$$CAR=\beta_0 + \beta_1 Win + \beta_2 Loss + \beta_3 Win*Top + \beta_4 Loss*Top + \beta_5 Top + Controls \qquad (2)$$

This model is estimated by using the same control variables used in Panels A and B and in a similar way, and only extreme earnings surprise (FE5 and FE1) announcements are included in estimations. In above model, *Top* is a dummy variable that takes the value of one if earnings surprise is in the highest surprise quintile (FE=5) and the value of zero if it is in the lowest surprise quintile (FE=1). For example, in the last three columns of Panel A where I use CAR (2,75) and CAR (0,75) for the delayed response ratio computation, the delayed response ratio of mood-conflicting good firm news (Loss*FE5 effect) is [$(\beta_4^{(2,75)} + \beta_5^{(2,75)}) / (\beta_4^{(0,75)} + \beta_5^{(0,75)})$] whereas the delayed response ratio of mood-conflicting bad firm news (Win*FE1 effect) is [$(\beta_3^{(2,75)} + \beta_5^{(2,75)}) / (\beta_3^{(0,75)} + \beta_5^{(0,75)})$]. For all other announcements, i.e. those by firms that are *not* located near cities with a winning or losing sports team, the delayed response ratio is [$(\beta_5^{(2,75)}) / \beta_5^{(0,75)})$].

Panel A shows that, up to, 72% of the long-term response is delayed for earnings news announced during big sports events by firms located near the losing team's cities. Consistent with prior evidence, the delayed response effect gets larger with proximity to the losing teams' cities. In contrast, only about 21% to 26% of the long-term response is delayed in the case of announcements made by firms not located near cities with a sports team competing in big sports games. Moreover, the difference between negative mood-conflicting distraction announcements and other announcements without mood content is statistically significant, especially for the subsamples of firms located nearer to the mood source. Delayed response ratios calculated based on CAR(Et,Et+1) show smaller magnitudes for earnings news issued around game dates by firms located near a winning teams' cities. One possible explanation for this is that CAR(E_t,E_{t+1}) captures drift up to the next earnings announcement date whereas CAR (2,75) accounts for the PEAD over a fixed time period which ends by the 75th day after the announcement. Moreover, since on average, there is considerable reporting lag between fiscal quarter end and earnings announcement date (about 28 days in my sample), the occurrence of differences between the next announcement date (E_{t+1}) and 75 days after earnings announcement is not surprising. Recall also that, as shown in Figure 2, this difference is more pronounced in the case of the Win*FE1 effect compared to the Loss*FE5 effect.[22]

In Panel B, I compare cases that contain mood-conflicting earnings announcements with all other announcements that lack any mood content. This is accomplished by combining the mood-conflicting distraction effects in one group whereas and the mood-consistent effects in another group as in the model shown below;[23]

$$CAR = \beta_0 + \beta_1 GameDist + \beta_2 * MoodConflicting * Top + \beta_3 * MoodConsistent * Top + \beta 4 Top + Controls \quad (3)$$

In the equation above, *GameDist* represents a dummy variable that takes the value of one if a firm is located within certain distance (from 100 miles up to 200 miles) of a city with a winning or losing team and the value of zero otherwise. *MoodConflicting* is an indicator variable that takes a value of one if either Loss*FE5 or Win*FE1 is equal to one and the value of zero otherwise. *MoodConsistent* is an indicator variable that takes a value of one if either Loss*FE1

[22] Figure 2 displays a bigger change between 61st and 75th days for the Win*FE1 effect compared to the Loss*FE5 effect. Since the time between two consecutive earnings may not always be the same, CAR (2, 75) can be sometimes contaminated by the reaction to a subsequent earnings announcement if it occurs at different time. Some other studies use different time period to measure PEAD such as (2,61) event window (Hirshleifer et al. (2009) among others). When I use (2,61) to measure PEAD in my all tests I obtain similar findings. These results are not shown here for the sake of brevity but are available upon request.

[23] Once, again, this model is estimated using only extreme earnings news quintiles (see DellaVigna and Pollet (2007).

or Win*FE5 is equal to one and the value of zero otherwise. The estimation of the delayed response ratios in Panel B is similar to the one in Panel A.[24] The results in Panel B show that the difference between mood-conflicting announcements and those that lack any mood content in terms of response ratios is significant across all distance subsamples and increases with proximity to the source of distraction. In sum, the evidence in Table 1.2 and 1.3 provides strong support for the mood-conflicting investor distraction hypothesis.

Next, I examine the subsample of firms that are located near areas exposed to sports mood to test whether it can produce more pronounced and clear patterns of the mood-conflicting distraction effect. I use the following regression model:

$$CAR=\beta_0+\beta_1 Loss+\beta_2 Loss*FE5+\beta_3 FE5+\beta_4 Loss*FE1+\beta_4 FE1+Controls \qquad (4)$$

Since the test sample includes only firms in or near cities with winning or losing teams, I do not include both win and loss dummies and their interactions in this model. I choose to include the *Loss* rather than the *Win* dummy variable because, based on my results thus far, the distraction effect is expected to be stronger among firms located near a losing team's city. In Table 1.4, I show the regression results for the model in equation (4) estimated using subsamples defined based on firm headquarters' distance from the home cities of teams competing in big sports events. For the subsample of firms only within 100 miles of cities with a sports team that plays a big game, a high earnings surprise combined with negative mood associated with home team loss results in 13.5% to14% higher drift. The Loss*FE5 effect declines from 13.5%-14% to

[24] For example, in last three columns, delayed response ratio of all mood-conflicting distraction effects based on Model (3) is defined as $[(\beta_2^{(2,75)} + \beta_4^{(2,75)}) / (\beta_2^{(0,75)} + \beta_4^{(0,75)})]$. Similarly, for other announcements of firms that are *not* located near cities with a winning or losing sports team (announcements without mood content), delayed response ratio is defined as $[(\beta_4^{(2,75)}) / \beta_4^{(0,75)})]$.

8.6% as the firm distance goes up from 100 miles to 200 miles, but remains statistically significant in all subsamples except in the 200 miles distance subsample when PEAD is measured by CAR (2, 75). The coefficient of Loss*FE1 is not statistically significant in any of the different distance subsamples.

Correspondingly, Panel B displays the immediate reaction results for the subsample of firms that are close to cities with a losing or a winning team. As expected, FE5 (FE1) shows a significant 3.5% to 4.3% higher (1.8% to 2.5% lower) immediate reaction for positive (negative) earnings surprises across most distance subsamples. Overall, my results in this subsection also point out that the distraction effect of bad sports mood coupled with good earnings news is more pronounced than the corresponding distraction effect of good sports mood coupled with bad earnings news.

1.4.3 Volume Response Tests

Investor distraction implies that there will be less trading volume response to earnings surprises (e.g. DellaVigna and Pollet (2009) and Hirshleifer et al. (2009)). I first use the following regression model in order to test this hypothesis for mood-conflicting distraction:

$$AbnormalVol[0,1] = \beta_0 + \beta_1 Game + \beta_2 Game*ExtFE + \beta_3 ExtFE + Controls \qquad (5)$$

AbnormalVol[0,1] is equal to the average of the abnormal trading volume on the earnings announcement date and on the next day (see Hirshleifer et al. (2009)). Abnormal trading volume for a given day *t* is calculated by subtracting the average log dollar daily volume from the (-41,-11) window relative to day *t* from the log dollar volume on day *t*. As the previous studies suggest, higher trading volume is expected around both good and bad earnings news. Therefore in my model (5), I use an indicator variable of extreme earnings surprise (FE1 or FE5), *ExtFE*, as well as its interaction with a dummy variable, *Game*, that takes the value of one if a firm is located within certain distance (from 100 miles up to 200 miles) from a city with a sports team playing a big game and the value of zero otherwise. I use the same control variables that I use in the multivariate tests of the previous section. In addition, following Hirshleifer et al. (2009) I control for the impact of market-wide abnormal trading volume, which I define as the average abnormal trading volume of all CRSP firms.

Table 1.5, Panel A presents the trading volume response regressions' results for subsamples of various firm distances to the city of a big sports game. The coefficient of *Game*ExtFE* is negative across all distance definitions and its magnitude declines with distance. Although the coefficient's sign is in line with the distraction argument, and the decline in the magnitude of the coefficient with distance is consistent with my earlier results, it is statistically insignificant. This result is similar to the one in DellaVigna and Pollet (2009) where the distraction effect becomes statistically insignificant after controlling for aggregate market volume. More importantly, it is possible that lower statistical power could be attributed to limitations of regression model (5)—specifically, to the inability of the Game*ExtFE variable to distinguish mood-conflicting and mood-consistent earnings news. In order to further explore this possibility and to clearly account for a distraction effect, I estimate the following new model:

$$AbnormalVol[0,1]=\beta_0+\beta_1 Game+\beta_2 GameDistractionExtFE+\beta_3 GameOtherExtFE$$
$$+\beta_4 ExtFE+Controls \qquad (6)$$

Model (6) is essentially like model (5), but includes the variables *GameDistractionExtFE* and *GameOtherExtFE* in place of *Game*ExtFE. GameDistractionExtFE* is an indicator variable that takes the value of 1 if Win*FE1=1 or Loss*FE5=1, and therefore indicates cases of mood-conflicting earnings news. GameOtherExtFE is an indicator variable that takes the value of 1 if Win*FE5=1 or Loss*FE1=1. Panel B reports the results for regression model (6). The coefficient of GameDistractionExtFE is negative across all distance definitions, and its magnitude declines with distance to the source of sports mood. It is statistically significant for firms within 100-150 miles of cities with a sports team, consistent with the mood-conflicting distraction effect, which predicts lower abnormal trading volume for firms whose earnings news is incongruent with the sports mood experienced by local investors. The coefficient of *GameOtherExtFE* is statistically insignificant in all columns.

1.4.4 Is There a General Distraction Effect?

Having established the existence of a mood-conflicting distraction effect I now address the possibility that such an effect could be part of a general distraction effect caused by sports events which exists even without considering mood content. In particular, I examine whether the market gets distracted by earnings announcements around the time of big sports events by estimating the following models:

$$CAR=\beta_0+\beta_1 GameTime+\beta 2 GameTime*FE5+\beta_3 GameTime*FE1+ B_4*FE5+B_5*FE1+Controls \quad (7)$$

$$CAR=\beta_0+\beta_1 Game200mi+\beta 2 Game200mi*FE5+\beta_3 Game200mi*FE1+ B_4*FE5+B_5*FE1+Controls \quad (8)$$

In model (7) above, *GameTime* is a dummy variable that takes the value of one if a firm's earnings announcement occurs around the time of big sports events and the value of zero otherwise. Model (8) is similar to model (7) above, but instead of simply accounting for the timing of the announcement I also measure the proximity to the source of the unrelated news (i.e. the sports news) by replacing GameTime with *Game200mi*, a dummy variable that takes the value of one if a firm is located within 200 miles of a city with a team competing in a big sports event and the value of zero otherwise. This variable, Game200mi, helps to consider cases of greater exposure to sports news. In both models, there are also interactions of FE5 and FE1 with GameTime and Game200mi, respectively. My test in this section is similar to my earlier stock response tests and I also control for size, book-to-market, number of analysts that follow the firm, reporting lag, earnings volatility, share turnover, industry, day of week, month and year.

Panel A of Table 1.6 contains the results for model (7) depicted in odd numbered columns and those for model (8) in even numbered columns. The estimation includes all earnings announcements observations with firm location and other firm information that are issued during my sample period. The first four columns show results for delayed response regressions, and the last four columns show results for immediate reaction regressions. There is no statistically significant difference in delayed response between announcements issued around big sports games and all other announcements. However, there is some difference in immediate reaction between announcements issued around big sports games and other announcements. This pattern is different for announcements of firms located close to participating teams' cities than for other firms making announcements around game time. All announcements with good earnings news issued around game days show an attenuated immediate reaction by 0.7%, whereas the announcements, especially good earnings news, of the firms located near team cities display a somewhat boosted immediate reaction. The results from these tests show that without accounting for mood content PEAD is not significantly affected by sports events, and thus reveal that there is no general sports event distraction effect in that no PEAD . Furthermore the results also highlight the importance of proximity to the source of sports mood.

I also examine delayed response ratios for GameTime and Game200mi. As I did before and based onDellaVigna and Pollet (2009), I estimate regression models by only focusing on extreme earnings news quintiles. Delayed response ratio computation includes the following models:

$$CAR=\beta_0+\beta_1 GameTime+\beta_2 GameTime*Top+\beta_3 Top+Controls \tag{9}$$

$$CAR=\beta_0+\beta_1 Game200mi+\beta_2 Game200mi*Top+\beta_3 Top+Controls \tag{10}$$

The above models are estimated by using the same control variables used in the Panel A regression, and include only extreme earnings surprise (FE5 and FE1) announcements. In the above models, *Top* is a dummy variable that takes the value of one if earnings surprise is in the highest surprise quintile (FE=5) and the value of zero if earnings surprise is in the lowest surprise quintile (FE=1).

Panel B of Table 1.6 shows that the delayed response of announcements issued around game times are not statistically significantly different, and are actually even smaller, than that of announcements from other times. This result is in line with the evidence in Panel A and consistent with the view that there is no general distraction effect associated simply with the timing of big sports events. A comparison of delayed responses for *Game200mi* and *Other* also shows an insignificant difference. The lower half of Panel B indicates that, up to, 54% of stock response takes places with delay for earnings news announced around the time of big sports events with issuing firm location near team cities competing in big sports events. For other announcements, delayed response only accounts for, up to, 37% of long-term response. Even though this is a sizeable difference, it is not significant in statistical terms. However, this result denotes the importance of proximity to the source of unrelated news, in that it strengthens the delayed response to firm news.

1.4.5 Local Stock Ownership

So far I have shown that mood-conflicting distraction is stronger among firms located closer to the source of mood inducing unrelated news. This pattern is consistent with the existence of a sizeable local component in the pricing of stocks and highlights the potential role of local investors in the mood-conflicting distraction effect. In order to further examine and verify the importance of local investors, I run two additional tests.

First, following prior studies that examined the importance of local component of asset pricing (e.g. Pirinsky and Wang (2006)), I re-examine the distraction effect using the subsample of earnings announcements around big sports events excluding firms that are located in the New

York area. Since New York is the heart of the U.S. financial markets and the home of numerous financial institutions, the locality of investors is expected to have a smaller role in any financial outcome compared to the other places. Table 1.7 shows the results of tests for the subsample excluding New York firms. In Panel A, the pattern and magnitude of the Loss*FE5 and Win*FE1 coefficients are very similar to those displayed in Table 1.2 and in line with the strong mood-conflicting distraction effect that becomes gradually weaker with distance from the source of the mood-inducing sports news.

Panel B reports results for the short-term price reaction tests. The findings are, once again, very similar to the short response results provided in Table 1.2. Consistent with the notion of a distraction effect, there is no pronounced reaction to firm mood-conflicting earnings news. I conclude that, my findings remain robust when I exclude from my investigation the areas that are expected to have less pronounced impact of local investors.

Next, I examine the impact of the size of local retail investor ownership. I construct a local stock ownership index and use it to divide my sample into two subsamples, one with more local ownership and one with less local ownership. The local stock ownership index contains several factors that reflect the likelihood of stock ownership by local investors. For example, Coval and Moskowitz (1999) suggest that small firms have higher levels of local ownership and they also imply that individual investors are more likely to own local stocks compared to institutional investors. Therefore, I use firm size and institutional ownership in constructing the local ownership index. In addition, other components of the local ownership index are investors' income, education and age.[25] In particular, I use the proportion of population with a college

[25] Investors' income and education are important in determining in (especially individual) investors' stock market participation and thus local stock ownership (Hong, Kubik, and Stein (2008) and Brown, Ivkovic, Smith, and Weisbenner (2008) among others). Previous studies of stock market participation also control for investor age

degree in a county, the median household income of a county from 1990 and 2000 Censuses and the proportion of people who are 65 years old or older in a firm's headquarter county. I use interpolation to fill in the missing values for years between Censuses.

I first rank firms into deciles after sorting on each of the five factors and then, for each firm observation, I compute the local ownership index by taking the average value of the ranks.[26] Specifically, I divide my sample into ten firm size groups based on the corresponding NYSE equity deciles and assign corresponding index values as in the following: Firms that are in the smallest (biggest) size group takes the value of 10 (1). Similarly, I divide the sample into ten institutional ownership groups and assign corresponding index values as in the following: Firms that are in the smallest (biggest) institutional ownership takes the value of 10 (1). I also repeat a similar procedure for my county level variables—education, income and age variables. I divide the sample into ten groups and assign corresponding index values as in the following: Firms that are located in a county, which is in the biggest (smallest) county level variable takes the value of 10 (1). The local ownership index is the average of the five ranks and can take values between 1 and 10, with higher index values representing greater likelihood of larger local ownership.

The median value of my local ownership index is about 5.6. In order to examine the impact of local ownership on my findings, I divide the sample of firms that announce earnings around big sports events into two as in the following: Firms that have local index values higher than the median value (5.6) form the more local ownership subsample whereas firms whose local index values are lower than the median value (5.6) form the less local ownership subsample. I repeat my tests for these two subsamples and present the results in Table 1.8. Consistent with

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(Hong, Kubik, and Stein (2008) and Brown et al.(2008), among others). Moreover, older local investors are influential and can affect corporate policies (Becker et al. (2011)).

[26] If some factors have missing values for a given firm observations then I use the remaining factors to compute the local ownership index value.

the notion that local retail investors are the drivers of the mood-conflicting distraction effect, the results are stronger, especially for Loss*FE5, for firms with more local ownership. Panel A shows that the magnitude of the Loss*FE5 coefficient, especially for the firms that are within shorter distances from cities with sports teams, is about 20%-30% higher than that of the corresponding coefficients from the tests based on the full sample shown in Table 1.2. Consistent with earlier results, this result is statistically significant, economically important and becomes weaker as the distance to the cities with sports teams becomes bigger. The mood-conflicting distraction effect of good sports news concurrently occurring with bad firm news—Win*FE1—does not appear to be different between the subsamples of firms with more and less local ownership. This is somewhat expected considering its smaller magnitude compared to the distraction effect emanating from bad sports news concurrently occurring with good firm news—Loss*FE5— shown in my earlier results.

Moreover, observing a weaker mood-conflicting investor distraction effect for positive mood is consistent with behavioral studies suggesting a stronger impact of negative mood compared to the positive one[27]. Panel B presents immediate reaction results. The results for the subsample of firms with higher fraction of local investors are consistent with the earlier tables. The coefficients for mood-conflicting distraction effects are not pronounced as in my earlier findings. Loss has significant coefficient values which suggest a negative mood effect on all firms near cities with a losing team. Win*FE5 is statistically significant for some columns which indicates a mood-consistent returns when firms that are within longer distances of cities with a winning team. On the other hand, the immediate reaction results obtained using the subsample of firms with less local ownership are different and somewhat opposite. Overall, the results of Table

[27] See Ronis and Lipinski (1985), Singh and Teoh 2000, Van der Pligt and Eiser (1980), and Vonk (1993) (1996) among others.

1.8 suggest that mood-conflicting distraction is more pronounced among firms with more local ownership and are consistent with the notion that mood effects enhance the importance of the local component of price formation.

1.5 CONCLUSION

Technological advances provide investors with fast access to a vast number of information resources which facilitate availability of large amounts of all types of information. Given investors limited cognitive capacity (Kahneman (1973)), overexposure to information may come with a cost in the form of distraction and limited attention to relevant information. In this paper, I extend the literature on PEAD and investor inattention, which thus far primarily consists of different examples of how calendar and time effects and/or attention-grabbing events interfere with investors' information processing capacity and cause underreaction to firm news.

I analyze investors' ability to process fundamentals- related (firm) information when it is inconsistent with the mood state they experience. In support of the mood-conflicting distraction hypothesis, I show that the combination of earnings surprise content and corresponding type of mood associated with the major sports events is important in determining investor distraction. Consistent with my mood-conflicting investor distraction hypothesis, I find stronger post-earnings announcement drift and delayed response ratio and weaker immediate volume reaction when the earnings news content is inconsistent with local sports mood. In addition, my findings show the importance of local investor attention on stock prices. In particular, my findings suggest that an investor distraction effect evolving primarily through the local investor base channel, which has not received sufficient attention in other studies.

1.6 FIGURES

<table>
<tr><th colspan="2" rowspan="2">Type of
Distraction</th><th colspan="2">Type of Firm news</th></tr>
<tr><th>Positive (+) Firm News</th><th>Negative (-) Firm News</th></tr>
<tr><td colspan="2">Distraction caused by information/event
without mood content</td><td>Less attention</td><td>Less attention</td></tr>
<tr><td rowspan="2">Distraction caused by event/information with mood content</td><td>Distraction caused by Negative mood(-)</td><td>Mood-conflicting information leads to Less attention</td><td>Mood-consistent information leads to More attention</td></tr>
<tr><td>Distraction caused by Positive mood(+)</td><td>Mood-consistent information leads to More attention</td><td>Mood-conflicting information leads to Less attention</td></tr>
</table>

Figure 1.1: Positive or Negative Firm News and Types of Distraction
This figure shows the relative attention allocation to positive and negative firm news for different cases of distraction, i.e. without mood content or with positive or negative mood content

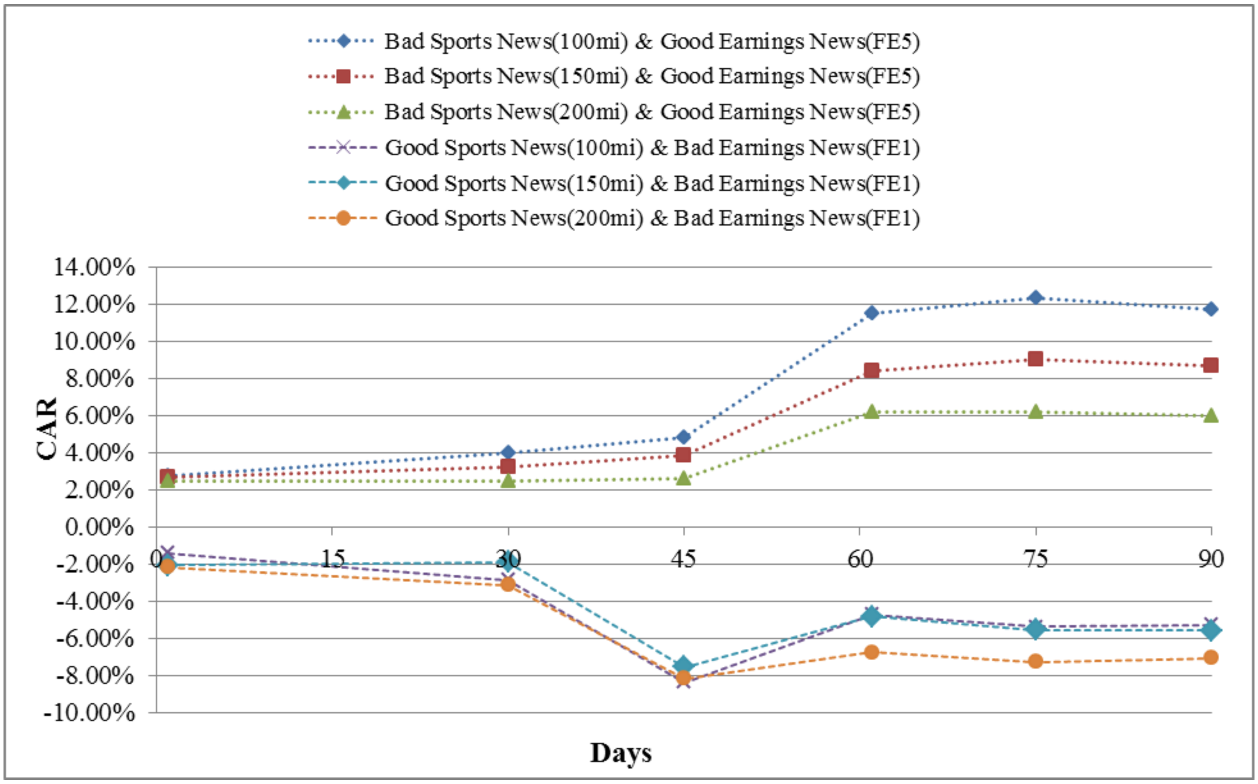

Figure 1.2: Time-path of PEAD when Earnings Surprises are in Conflict with Sports Mood

This figure shows the mean cumulative abnormal returns (CARs) for different event windows and different earnings surprise quintiles for the firms that are located near *bad or good sports news*(*cities with losing or winning teams*) for mood-conflicting earnings news cases.. CARs are for subsample of firms with different distances to bad or good sports news (cities with losing or winning teams). CARs are for (0,1) event window as well as the periods from 2 days after the current earnings announcement to 30 days (or 45 or 61 or 75 or 90 days) after the announcement. In other words, the depicted CAR event windows are [0,+1], [+2,+30], [+2,+45], [+2,+61], [+2,+75], and [+2,+90]. CAR is the difference between the firm's daily return and the daily return on the portfolio of firms with the same size and book-to-market ratio". FE5 is an indicator variable that takes value of 1 for the FE=5 and value of 0 for everything else.FE1 is an indicator variable that takes value of 1 for the FE=1 and value of 0 for everything else.

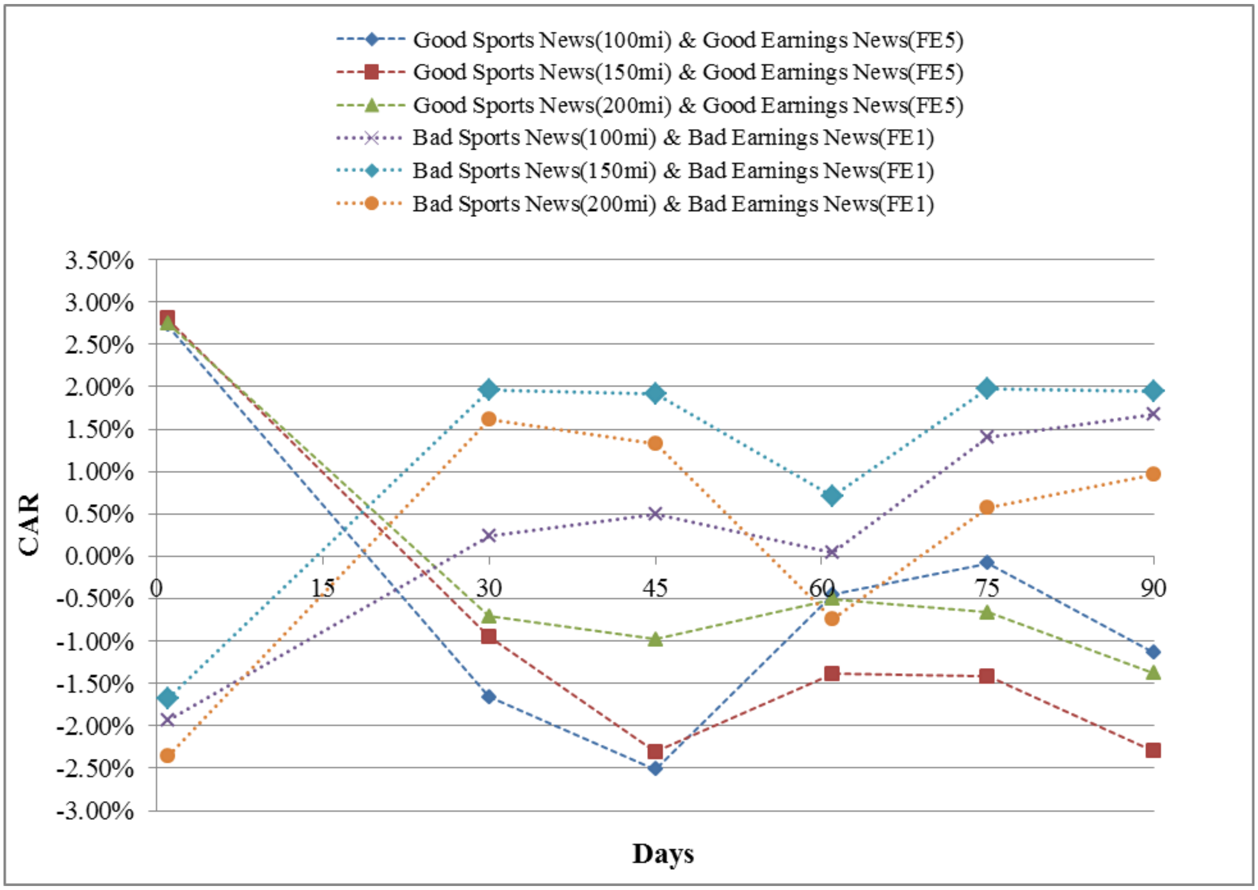

Figure 1.3: Time-path of PEAD when Earnings Surprises are Consistent with Sports Mood

This figure shows the mean cumulative abnormal returns (CARs) for different event windows and different earnings surprise quintiles for the firms that are located near *bad or good sports news*(*cities with losing or winning teams*) for mood-consistent earnings news cases. CARs are for subsample of firms with different distances to bad or good sports news (cities with losing or winning teams). CARs are for (0,1) event window as well as the periods from 2 days after the current earnings announcement to 30 days (or 45 or 61 or 75 or 90 days) after the announcement. In other words, the depicted CAR event windows are [0,+1], [+2,+30], [+2,+45], [+2,+61], [+2,+75], and [+2,+90]. CAR is the difference between the firm's daily return and the daily return on the portfolio of firms with the same size and book-to-market ratio". FE5 is an indicator variable that takes value of 1 for the FE=5 and value of 0 for everything else.FE1 is an indicator variable that takes value of 1 for the FE=1 and value of 0 for everything else.

1.7 TABLES

Table 1.1: Summary Statistics

Panel A: All Earnings Announcements of Firms around game Times					
	N	Mean	p10	Median	p90
Size($M)	5,096	3,318.01	68.55	549.70	5,865.57
B/M	5,096	0.563	0.138	0.457	1.029
Earnings surprise	5,096	-0.0009	-0.0045	0.0003	0.0045
Earnings Volatility	5,088	6.59%	0.03%	0.13%	0.69%
Share turnover	5,096	9.49%	1.90%	6.89%	19.83%
Reporting Lag	5,096	28.4	20	27	36
# Analysts	5,096	4.3	1	3	10
Panel B: Earnings Announcements of Firms within 200 miles Team Cities Around Game Ttimes					
	N	Mean	p10	Median	p90
Size($M)	943	3,065.64	76.98	572.92	6,136.23
B/M	943	0.53	0.12	0.44	1.01
Earnings surprise	943	-0.0004	-0.0050	0.0003	0.0046
Earnings Volatility	943	1.25%	0.03%	0.14%	0.79%
Share turnover	943	9.70%	1.97%	7.10%	20.30%
Reporting Lag	943	27.522	18	26	36
# Analysts	943	4.3	1	3	10

Panel A of Table 1.1 reports summary statistics of the subsample of firms whose earnings announcements occur on dates around big sports games. Panel B provides descriptive statistics for firms whose earnings announcements occur on dates around big sports games and whose location is within 200 miles of a city with a sports team that competed in a big sports event. This table reports number of observations (N), mean, median, and the 10th and 90th percentile values for each variable. Size is company's market value. B/M is company's book to market ratio. Earnings volatility is measured as the standard deviation of the deviations of prior four year quarterly earnings from the earnings one year ago. Share turnover is the average monthly trading volume normalized by the average number of share outstanding for the one year period that ends at the end of corresponding fiscal quarter. Reporting lag is the number of days between the quarter end and earnings announcement day. Log (1+# of analysts) is logarithm of the number of analysts that follows the firm during the corresponding quarter. The sample period is the years between 1989 and 2006.

Table 1.2: Earnings Announcements around Game Times

Panel A: Delayed Response (PEAD) Regressions						
Dependent Variable :		CAR (Et,Et+1)			CAR (2,75)	
Distance to Team Location:	100 miles	150 miles	200 miles	100 miles	150 miles	200 miles
Win	0.0215	0.0092	0.0075	0.0207	0.0101	0.0108
	(0.237)	(0.547)	(0.671)	(0.239)	(0.475)	(0.460)
Loss	0.0195	0.0187	0.0088	0.0191	0.0171	0.0079
	(0.094)*	(0.084)*	(0.365)	(0.287)	(0.250)	(0.442)
Win*FE5	-0.0382	-0.0376	-0.0222	-0.0242	-0.0282	-0.0262
	(0.149)	(0.090)*	(0.451)	(0.332)	(0.221)	(0.427)
Loss*FE5	0.0899	0.0581	0.0420	0.1049	0.0703	0.0473
	(0.034)**	(0.079)*	(0.121)	(0.026)**	(0.068)*	(0.071)*
Win*FE1	-0.0469	-0.0313	-0.0415	-0.0635	-0.0589	-0.0783
	(0.013)**	(0.055)*	(0.013)**	(0.003)***	(0.042)**	(0.034)**
Loss*FE1	-0.0103	-0.0010	-0.0076	-0.0076	0.0020	-0.0053
	(0.796)	(0.974)	(0.832)	(0.873)	(0.961)	(0.889)
FE5	0.0347	0.0355	0.0352	0.0369	0.0377	0.0389
	(0.008)***	(0.006)***	(0.009)***	(0.008)***	(0.007)***	(0.004)***
FE1	0.0186	0.0177	0.0199	0.0244	0.0244	0.0276
	(0.191)	(0.235)	(0.201)	(0.121)	(0.143)	(0.103)
Constant	0.0126	0.0161	0.0144	0.0140	0.0181	0.0172
	(0.597)	(0.517)	(0.579)	(0.394)	(0.253)	(0.322)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5088	5088	5088	5088	5088	5088
R-squared	0.036	0.035	0.034	0.039	0.038	0.037

Table 1.2 (cont.)

Panel B: Immediate Reaction Regressions

Dependent Variable :		CAR (-1,1)			CAR (0,1)	
Distance to Team Location	100 miles	150 miles	200 miles	100 miles	150 miles	200 miles
Win	0.0054	0.0048	0.0035	0.0031	0.0026	0.0028
	(0.004)***	(0.205)	(0.046)**	(0.246)	(0.501)	(0.172)
Loss	-0.0021	0.0009	-0.0016	0.0002	0.0022	0.0009
	(0.439)	(0.632)	(0.478)	(0.912)	(0.196)	(0.467)
Win*FE5	0.0087	0.0145	0.0137	0.0080	0.0100	0.0078
	(0.161)	(0.100)	(0.043)**	(0.386)	(0.140)	(0.379)
Loss*FE5	0.0191	0.0129	0.0127	0.0108	0.0085	0.0075
	(0.347)	(0.344)	(0.325)	(0.580)	(0.462)	(0.513)
Win*FE1	0.0159	0.0083	0.0083	0.0124	0.0070	0.0050
	(0.162)	(0.311)	(0.307)	(0.453)	(0.611)	(0.711)
Loss*FE1	0.0118	0.0108	0.0046	0.0109	0.0122	0.0054
	(0.300)	(0.285)	(0.604)	(0.141)	(0.037)**	(0.347)
FE5	0.0193	0.0188	0.0184	0.0160	0.0157	0.0157
	(0.005)***	(0.006)***	(0.007)***	(0.005)***	(0.005)***	(0.004)***
FE1	-0.0339	-0.0339	-0.0335	-0.0303	-0.0306	-0.0299
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	0.0666	0.0657	0.0657	0.0441	0.0440	0.0437
	(0.007)***	(0.006)***	(0.006)***	(0.015)**	(0.016)**	(0.015)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5088	5088	5088	5088	5088	5088
R-squared	0.070	0.070	0.070	0.064	0.064	0.064

Dependent variables are CAR (Et,Et+1) and CAR(2,75) in Panel A and CAR(-1,1) and CAR (0,1) in Panel B. Distance to Team City shows the distance to the sports mood source, which is distance to the location of a winning(losing) team competing in the big sports game. Win (Loss) takes value of one if the firm that issued an earnings announcement is headquartered within a specific distance from a location with a sports team that "won" ("lost") a big game and zero otherwise. Day 0 represents the day of earnings announcement in all CAR event window definitions. CAR(Et,Et+1) is the cumulative abnormal return between current earnings announcement and the next one. FE is a rank variable that represents (1 to 5) earnings surprise quintiles.FE5 is an indicator variable that takes value of 1 for the FE=5 and value of 0 for everything else.FE1 is an indicator variable that takes value of 1 for the FE=1 and value of 0 for everything else. This table controls for Size, B/M ratio, Log (1+ #of analyst), Reporting Lag, Earnings Volatility, Share Turnover, which are defined in Table 1.1. This table also includes controls of two-digit SIC, day of week, month, year indicator variables. Control variable are not shown for brevity. Standard errors are adjusted for heteroskedasticity, clustered by the day of announcement. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Table 1.3: Delayed Response Ratio Tests

Ratio of the Delayed Stock Response to the Long-Term Stock Response						
Response Ratio representation	[CAR(Et,Et+1) / CAR(-1,Et+1)]			[CAR(2,75) / CAR(0,75)]		
Distance to Team City	100 miles	150 miles	200 miles	100 miles	150 miles	200 miles
Panel A: Analysis of Response Ratios of Mood-Conflicting Distraction Effects Separately						
Announcements subject to Negative mood-conflicting distraction (*Loss*FE5* effect)	0.6108	0.5606	0 .4837	0.7204	0.6595	0.5846
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Announcements subject to Positive mood-conflicting distraction (*Win*FE1* effect)	0.2892	0.1174	0.3391	0.5245	0.4441	0.5478
	(0.522)	(0.852)	(0.235)	(0.047)**	(0.082)*	(0.002)***
Other announcements without mood content	0.2344	0.2391	0.2645	0.2321	0.2357	0.2102
	(0.055)**	(0.038)**	(0.025)**	(0.117)	(0.116)	(0.203)
Difference between Negative mood-conflicting distraction announcements & Other announcements without content	0.3763	0.2825	0.3018	0.4883	0.4238	0.3744
	(0.020)**	(0.111)	(0.104)	(0.006)***	(0.028)**	(0.079)*
Difference between Positive mood-conflicting distraction announcements & other announcements without content	0.0548	-0.1333	0.1167	0.2924	-0.1333	0.3376
	(0.907)	(0.784)	(0.710)	(0.334)	(0.784)	(0.157)
Panel B: Analysis of Response Ratios of Mood-Conflicting Distraction Effects in One Combined Distraction Effect						
Announcements subject to Mood-conflicting distraction (*Loss*FE5* & *Win*FE1* effects)	0.6499	0.6015	0.5869	0.7599	0.7156	0.6761
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Other announcements without content	0.2233	0.2396	0.2119	0.2177	0.2216	0.2012
	(0.077)*	(0.055)*	(0.119)	(0.159)	(0.158)	(0.237)
Difference between Mood-conflicting distraction announcements & Other announcements without content	0.4266	0.3619	0.3619	0.5422	0.4940	0.4748
	(0.004)***	(0.020)**	(0.020)**	(0.001)***	(0.005)***	(0.012)**

Dependent variables are delayed response ratios of [CAR(Et,Et+1) / CAR(-1,Et+1)] in first three columns and [CAR(2,75) / CAR(0,75)] in last three columns. Delayed response ratios are constructed by flowing DellaVigna and Pollet (2009). This table only includes announcements with good (depicted by FE5) and bad (depicted by FE1) in delyed response ratio tests. CAR definitions and FE5 and FE1 representations are in line with Table 1.2 and CAR(-1,Et+1) is the cumulative abnormal return between one day before the current earnings announcement and the next announcement. Distance to Team City shows the distance to the sports mood source, which is distance to the location of a winning (losing) team competing in the big sports game. Win (Loss) takes value of one if the firm that issued an earnings announcement is headquartered within a specific distance from a location with a sports team that "won" ("lost") a big game and zero otherwise. This table controls for Size, B/M ratio, Log (1+ #of analyst), Reporting Lag, Earnings Volatility, Share Turnover, which are defined in Table 1.1. This table also includes controls of two-digit SIC, day of week, month, year indicator variables. Control variable are not shown for brevity. Standard errors are adjusted for heteroskedasticity, clustered by the day of announcement. Standard errors are calculated by using Delta method. Robust p-values are in parentheses. (* significant at 10%; ** significant at 5%; *** significant at 1%).

Table 1.4: Firms Located Near the Source of Big Sports News

Panel A: Delayed Response (PEAD) Regressions						
Dependent Variable	CAR (Et,Et+1)			CAR (2,75)		
Distance to Team City	100 miles	150 miles	200 miles	100 miles	150 miles	200 miles
Loss	0.0095	0.0152	0.0006	0.0095	0.0100	-0.0048
	(0.540)	(0.499)	(0.977)	(0.309)	(0.606)	(0.758)
Loss*FE5	0.135	0.0991	0.0761	0.1403	0.1049	0.0861
	(0.025)**	(0.025)**	(0.151)	(0.026)**	(0.017)**	(0.093)*
Loss*FE1	-0.0082	-0.0135	0.0105	0.0204	0.0210	0.0466
	(0.790)	(0.460)	(0.453)	(0.708)	(0.613)	(0.222)
FE5	0.0118	-0.0002	0.0107	0.0323	0.0138	0.0164
	(0.677)	(0.991)	(0.628)	(0.439)	(0.657)	(0.582)
FE1	0.0076	0.0172	-0.0029	-0.0003	-0.0012	-0.0261
	(0.479)	(0.004)***	(0.756)	(0.986)	(0.955)	(0.216)
Constant	-0.1507	0.0992	-0.0562	-0.1362	0.0010	-0.1551
	(0.081)*	(0.228)	(0.459)	(0.234)	(0.987)	(0.221)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	581	739	943	581	739	943
R-squared	0.182	0.154	0.124	0.186	0.154	0.130
Panel B: Immediate Reaction Regressions						
Dependent Variable:	CAR(-1,1)			CAR(0,1)		
Distance to Team City	100 miles	150 miles	200 miles	100 miles	150 miles	200 miles
Loss	-0.0037	-0.0044	-0.0068	0.0018	-0.0006	-0.0031
	(0.716)	(0.436)	(0.045)**	(0.877)	(0.932)	(0.214)
Loss*FE5	0.0058	-0.002	0.0007	-0.0033	-0.0033	0.0012
	(0.801)	(0.833)	(0.967)	(0.920)	(0.767)	(0.943)
Loss*FE1	-0.011	-0.0024	-0.0025	-0.0111	-0.0016	-0.0008
	(0.596)	(0.838)	(0.766)	(0.450)	(0.876)	(0.947)
FE5	0.0435	0.0419	0.0354	0.0429	0.0362	0.0287
	(0.000)***	(0.002)***	(0.004)***	(0.038)**	(0.010)***	(0.027)**
FE1	-0.009	-0.0184	-0.025	-0.0051	-0.0153	-0.0223
	(0.076)*	(0.037)**	(0.012)**	(0.619)	(0.267)	(0.109)
Constant	0.0837	0.1146	0.0797	0.0639	0.0635	0.0568
	(0.117)	(0.050)**	(0.090)*	(0.351)	(0.061)*	(0.119)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	581	739	943	581	739	943
R-squared	0.165	0.139	0.124	0.167	0.143	0.127

Dependent variables are CAR (Et,Et+1) and CAR(2,75) in Panel A and CAR(-1,1) and CAR (0,1) in Panel B. Distance to Team City shows the distance to the sports mood source, which is distance to the location of a winning(losing) team competing in the big sports game. This table only includes subsample of firms that are located close to the cities with teams participating in a big sports game and with announcements around big sports news. In this table, Loss takes value of one if the firm that issued an earnings announcement is headquartered within a specific distance from a location with a sports team that "lost" a big game and zero if the firm that issued an earnings announcement is headquartered within a specific distance from a location with a sports team that "won". FE5 and FE1 variables and CARs are defined as they are defined in Table 1.2. This table controls for Size, B/M ratio, Log (1+ #of analyst), Reporting Lag, Earnings Volatility, Share Turnover, which are defined in Table 1.1. This table also include controls of two-digit SIC, day of week, month, year indicator variables. Control variable are not shown for brevity. Standard errors are adjusted for heteroskedasticity, clustered by the day of announcement. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Table 1.5: Trading Volume Response Regressions

Panel A: Overall Effect for Games			
Dependent Variable :		AbnormalVol [0,1]	
Distance to Team City:	100 miles	150 miles	200 miles
Game*ExtFE	-0.2534	-0.1521	-0.0054
	(0.163)	(0.286)	(0.972)
Game	0.0788	0.0501	-0.0041
	(0.634)	(0.746)	(0.972)
ExtFE	0.195	0.1882	0.1666
	(0.001)***	(0.001)***	(0.001)***
Constant	0.6956	0.6891	0.6879
	(0.173)	(0.176)	(0.171)
Controls	Yes	Yes	Yes
Observations	5088	5088	5088
R-squared	0.064	0.064	0.064
Panel B: Distraction Effect of Games vs. Other Effect of Games			
Dependent Variable :		AbnormalVol [0,1]	
Distance to Team City	100 miles	150 miles	200 miles
GameDistractionExtFE	-0.3632	-0.2202	-0.0465
	(0.017)**	(0.013)**	-0.562
GameOtherExtFE	-0.1557	-0.0973	0.0353
	(0.492)	(0.692)	(0.89)
Game	0.0745	0.0505	-0.005
	(0.650)	(0.745)	(0.967)
ExtFE	0.1936	0.1882	0.166
	(0.001)***	(0.001)***	(0.001)***
Constant	0.6889	0.6878	0.6845
	(0.171)	(0.172)	(0.165)
Controls	Yes	Yes	Yes
Observations	5088	5088	5088
R-squared	0.064	0.064	0.064

Dependent variable is AbnormalVol [0,1], which is equal to the average of abnormal trading volume on the earnings announcement date and of the abnormal trading on the next day. Distance to Team City shows the distance to the sports mood source, which is distance to the location of a winning (losing) team competing in the big sports game. FE5 and FE1 variables are defined as they are defined in Table 1.2. In Panel A, Game takes value of one if a firm is within a certain "distance" to "big sport game city" and value of zero for everything else. Panel B decomposes game distance into two based on stock market reaction results of distraction effect as in the following: GameDistractionExtFE takes value of 1 if Win*FE1=0 or Lost*FE5=0 and value of 0 for everything else. GameOtherExtFE takes value of 1 if Win*FE5=0 or Lost*FE1=0 and value of 0 for everything else. This table controls for Size, B/M ratio, Log (1+ #of analyst), Reporting Lag, Earnings Volatility, Share Turnover, which are defined in Table 2.1. This table also includes controls of two-digit SIC, day of week, month, year indicator variables. This table also controls for market-wide abnormal trading volume defined as “the average abnormal trading volume of all CRSP firms”. Control variable are not shown for brevity. Standard errors are adjusted for heteroskedasticity, clustered by the day of announcement. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Table 1.6: Stock Response to All Announcements during Sample Years

Panel A : Delayed Response (PEAD) and Immediate Reaction Regressions								
	Delayed Response				Immediate Reaction			
Dependent Variable	CAR (Et,Et+1)		CAR (2,75)		CAR (-1,1)		CAR (0,1)	
Gametime	0.0023		0.0015		-0.0001		0.0010	
	(0.571)		(0.687)		(0.958)		(0.461)	
Gametime*FE5	-0.0032		0.0008		-0.0077		-0.0071	
	(0.487)		(0.837)		(0.074)*		(0.025)**	
Gametime*FE1	0.0126		0.0177		-0.0014		-0.0010	
	(0.201)		(0.120)		(0.548)		(0.483)	
Game200mi		0.0099		0.0089		0.0006		0.0021
		(0.377)		(0.334)		(0.773)		(0.067)*
Game200mi*FE5		0.0055		0.0108		0.0042		0.0002
		(0.443)		(0.328)		(0.099)*		(0.966)
Game200mi*FE1		-0.0085		-0.0148		0.0034		0.0031
		(0.344)		(0.108)		(0.665)		(0.563)
FE5	0.0325	0.0323	0.0320	0.0319	0.0293	0.0288	0.0252	0.0248
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
FE1	-0.0018	-0.0010	-0.0020	-0.0009	-0.0310	-0.0311	-0.0277	-0.0278
	(0.463)	(0.654)	(0.406)	(0.656)	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	-0.0158	-0.0155	-0.0063	-0.0059	-0.0043	-0.0042	-0.0029	-0.0028
	(0.496)	(0.503)	(0.789)	(0.801)	(0.583)	(0.595)	(0.671)	(0.682)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	96885	96885	96885	96885	96880	96880	96880	96880
R-squared	0.011	0.011	0.011	0.011	0.053	0.053	0.047	0.047

Table 1.6 (cont.)

Panel B: Ratio of the Delayed Stock Response to the Long-Term Stock Response				
Response Ratio representation	[CAR(Et,Et+1) / CAR(-1,Et+1)]		[CAR(2,75) / CAR(0,75)]	
Response Ratio for *Gametime*	0.2472		0.2688	
	(0.033)**		(0.043)**	
Response Ratio for *Other times*	0.3465		0.3845	
	(0.000)***		(0.000)***	
Difference between the response ratio for Gametime and other days	-0.09923		-0.11567	
	(0.398)		(0.389)	
Response Ratio for *Game200mi*		0.4291		0.5425
		(0.003)***		(0.043)**
Response Ratio for *Other*		0.3413		0.3777
		(0.000)***		(0.000)***
Difference between the response ratio for Game200mi and other announcements		0.0878		0.1647
		(0.541)		(0.184)

In Panel A, dependent variables are CAR (Et,Et+1), CAR(2,75), CAR(-1,1), and CAR (0,1), respectively. First four columns show delayed response regressions, and last four columns show immediate reaction regressions in Panel A. Dependent variable is delayed response ratio in Panel B, which is the ratio of the delayed stock response to the long-term stock response. In Panel B, delayed response ratios are for [CAR(Et,Et+1) / CAR(-1,Et+1)] in first two columns and [CAR(2,75) / CAR(0,75)] in last two columns. FE5 and FE1 variables and CARs are defined as they are defined in Table 1.2. GameTime is a dummy variable that takes the value of one if a firm's earnings announcement happens around the time of big sports events and the value of zero otherwise. Game200mi is a dummy variable that takes the value of one if a firm is located within 200 miles of a city with a team competing in a big sports event and the value of zero otherwise. This table controls for Size, B/M ratio, Log (1+ #of analyst), Reporting Lag, Earnings Volatility, Share Turnover, which are defined in Table 1.1. This table also includes controls of two-digit SIC, day of week, month, year indicator variables. Control variable are not shown for brevity. Standard errors are adjusted for heteroskedasticity, clustered by the day of announcement. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Table 1.7: Tests with a Subsample that Excludes New York Area

Panel A: Delayed Response (PEAD) Regressions						
Dependent Variable	CAR (Et,Et+1)			CAR (2,75)		
Distance to Team City	100 miles	150 miles	200 miles	100 miles	150 miles	200 miles
Win	0.0230	0.0088	0.0086	0.0228	0.0106	0.0127
	(0.121)	(0.450)	(0.616)	(0.112)	(0.332)	(0.374)
Loss	0.0226	0.0209	0.0089	0.0216	0.0188	0.0077
	(0.044)**	(0.042)**	(0.401)	(0.183)	(0.147)	(0.393)
Win*FE5	-0.0387	-0.0366	-0.0245	-0.0229	-0.0265	-0.0266
	(0.211)	(0.137)	(0.461)	(0.415)	(0.274)	(0.464)
Loss*FE5	0.0898	0.0554	0.0438	0.1027	0.0662	0.0480
	(0.038)**	(0.109)	(0.118)	(0.027)**	(0.085)*	(0.062)*
Win*FE1	-0.0482	-0.0300	-0.0339	-0.0658	-0.0592	-0.0689
	(0.003)***	(0.085)*	(0.026)**	(0.005)***	(0.055)*	(0.028)**
Loss*FE1	-0.0046	0.0042	-0.0014	-0.0022	0.0069	0.0006
	(0.887)	(0.861)	(0.961)	(0.955)	(0.827)	(0.984)
FE5	0.0345	0.0352	0.0349	0.0364	0.0372	0.0381
	(0.010)***	(0.006)***	(0.012)**	(0.010)***	(0.009)***	(0.006)***
FE1	0.0173	0.0163	0.0178	0.0232	0.0231	0.0253
	(0.211)	(0.269)	(0.255)	(0.118)	(0.147)	(0.126)
Constant	0.0482	0.0521	0.0518	0.0491	0.0538	0.0546
	(0.063)*	(0.052)*	(0.057)*	(0.094)*	(0.062)*	(0.058)*
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4943	4943	4943	4943	4943	4943
R-squared	0.035	0.035	0.033	0.038	0.038	0.037

Table 1.7 (cont.)

Panel B: Immediate Reaction Regressions

Dependent Variable:	CAR(-1,1)			CAR(0,1)		
Distance to Team City	100 miles	150 miles	200 miles	100 miles	150 miles	200 miles
Win	0.0072	0.0056	0.0040	0.0052	0.0037	0.0035
	(0.018)**	(0.225)	(0.115)	(0.156)	(0.438)	(0.206)
Loss	-0.0027	0.0006	-0.0019	0.0002	0.0022	0.0009
	(0.371)	(0.741)	(0.478)	(0.926)	(0.135)	(0.599)
Win*FE5	0.0069	0.0137	0.0116	0.0047	0.0078	0.0057
	(0.240)	(0.125)	(0.114)	(0.619)	(0.215)	(0.496)
Loss*FE5	0.0225	0.0151	0.0154	0.0130	0.0099	0.0091
	(0.328)	(0.328)	(0.257)	(0.527)	(0.418)	(0.449)
Win*FE1	0.0142	0.0077	0.0071	0.0107	0.0065	0.0044
	(0.222)	(0.322)	(0.401)	(0.522)	(0.619)	(0.762)
Loss*FE1	0.0121	0.0111	0.0044	0.0124	0.0135	0.0062
	(0.293)	(0.280)	(0.619)	(0.138)	(0.012)**	(0.212)
FE5	0.0188	0.0182	0.0180	0.0159	0.0156	0.0156
	(0.006)***	(0.007)***	(0.007)***	(0.005)***	(0.006)***	(0.005)***
FE1	-0.0344	-0.0345	-0.0339	-0.0310	-0.0313	-0.0306
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	0.0715	0.0706	0.0712	0.0475	0.0473	0.0474
	(0.020)**	(0.019)**	(0.018)**	(0.029)**	(0.028)**	(0.024)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4943	4943	4943	4943	4943	4943
R-squared	0.070	0.070	0.070	0.065	0.065	0.065

Dependent variables are CAR (Et,Et+1) and CAR(2,75) in Panel A and CAR(-1,1) and CAR (0,1) in Panel B. Distance to Team City shows the distance to the sports mood source, which is distance to the location of a winning(losing) team competing in the big sports game. Win (Loss) takes value of one if the firm that issued an earnings announcement is headquartered within a specific distance from a location with a sports team that "won" ("lost") a big game and zero otherwise. FE5 and FE1 variables and CARs are defined as they are defined in Table 1.2. This table controls for Size, B/M ratio, Log (1+ #of analyst), Reporting Lag, Earnings Volatility, Share Turnover, which are defined in Table 1.1. This table also includes controls of two-digit SIC, day of week, month, year indicator variables. Control variable are not shown for brevity. Standard errors are adjusted for heteroskedasticity, clustered by the day of announcement. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Table 1.8: Local Ownership Subsamples

Panel A: Delayed Response (PEAD) Regressions

	More Local Ownership						Less Local Ownership					
Dep. Variable	CAR(Et,Et+1)			CAR(2,75)			CAR(Et,Et+1)			CAR(2,75)		
Distance to Team City	100 mi	150 mi	200 mi	100 mi	150 mi	200 mi	100 mi	150 mi	200 mi	100 mi	150 mi	200 mi
Win	0.0208	0.0188	0.0082	0.0122	0.0082	0.0049	0.0119	-0.0069	0.0024	0.0229	0.0073	0.0154
	(0.238)	(0.256)	(0.760)	(0.581)	(0.682)	(0.842)	(0.455)	(0.710)	(0.885)	(0.092)*	(0.559)	(0.300)
Loss	0.0243	0.0287	0.0048	0.0239	0.0249	0.0051	0.0236	0.0175	0.0179	0.0253	0.0201	0.0189
	(0.203)	(0.149)	(0.758)	(0.277)	(0.265)	(0.755)	(0.041)**	(0.074)*	(0.009)***	(0.093)*	(0.140)	(0.081)*
Win*FE5	-0.0593	-0.0591	-0.0456	-0.0273	-0.0267	-0.0364	0.0444	0.0194	0.0414	0.0323	0.0023	0.0207
	(0.265)	(0.140)	(0.400)	(0.606)	(0.530)	(0.524)	(0.129)	(0.327)	(0.039)**	(0.268)	(0.897)	(0.424)
Loss*FE5	0.1247	0.0787	0.0776	0.1352	0.0926	0.0823	-0.0159	-0.0032	-0.0314	0.0112	0.0102	-0.0274
	(0.036)**	(0.064)*	(0.024)**	(0.029)**	(0.069)*	(0.018)**	(0.629)	(0.910)	(0.201)	(0.721)	(0.714)	(0.214)
Win*FE1	-0.0616	-0.0553	-0.0559	-0.0607	-0.0687	-0.0871	-0.0049	0.0192	-0.0047	-0.0544	-0.0249	-0.0475
	(0.068)*	(0.165)	(0.251)	(0.058)*	(0.137)	(0.156)	(0.921)	(0.776)	(0.927)	(0.024)**	(0.509)	(0.089)*
Loss*FE1	-0.0384	-0.0208	-0.0094	-0.0439	-0.0254	-0.0199	0.0458	0.0256	0.0046	0.0594	0.0431	0.0256
	(0.416)	(0.638)	(0.836)	(0.420)	(0.637)	(0.673)	(0.166)	(0.279)	(0.857)	(0.188)	(0.202)	(0.440)
FE5	0.0446	0.0462	0.0442	0.0500	0.0505	0.0510	0.0233	0.0236	0.0239	0.0240	0.0249	0.0263
	(0.005)***	(0.004)***	(0.021)**	(0.001)***	(0.001)***	(0.003)***	(0.050)*	(0.058)*	(0.045)**	(0.026)**	(0.033)**	(0.021)**
FE1	0.0233	0.0231	0.0230	0.0331	0.0339	0.0362	0.0138	0.0134	0.0164	0.0155	0.0148	0.0180
	(0.096)*	(0.088)*	(0.074)*	(0.081)*	(0.074)*	(0.043)**	(0.411)	(0.453)	(0.364)	(0.317)	(0.364)	(0.265)
Constant	0.0577	0.0601	0.0625	0.0905	0.0921	0.0933	-0.1989	-0.1914	-0.2004	-0.2123	-0.2048	-0.2141
	(0.468)	(0.469)	(0.447)	(0.272)	(0.285)	(0.277)	(0.002)***	(0.002)***	(0.001)***	(0.007)***	(0.007)***	(0.006)***
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2482	2482	2482	2482	2482	2482	2606	2606	2606	2606	2606	2606
R-squared	0.058	0.057	0.056	0.067	0.065	0.065	0.069	0.067	0.068	0.069	0.068	0.068

Table 1.8 (cont.)

Panel B: Immediate Reaction Regressions

	More Local Ownership						Less Local Ownership					
Dep. Variable:	CAR(-1,1)			CAR(0,1)			CAR(-1,1)			CAR(0,1)		
Distance to Team City	100 mi	150 mi	200 mi	100 mi	150 mi	200 mi	100 mi	150 mi	200 mi	100 mi	150 mi	200 mi
Win	0.0015	-0.0012	0.0016	-0.0009	-0.0028	0.0018	0.0093	0.0104	0.0051	0.0055	0.0073	0.0042
	(0.625)	(0.870)	(0.750)	(0.898)	(0.773)	(0.834)	(0.035)**	(0.090)*	(0.313)	(0.263)	(0.208)	(0.356)
Loss	-0.0130	-0.0084	-0.0086	-0.0106	-0.0071	-0.0064	0.0097	0.0111	0.0044	0.0124	0.0132	0.0071
	(0.047)**	(0.012)**	(0.025)**	(0.034)**	(0.062)*	(0.121)	(0.021)**	(0.045)**	(0.158)	(0.001)***	(0.002)***	(0.040)**
Win*FE5	0.0143	0.0248	0.0212	0.0110	0.0190	0.0111	0.0107	0.0082	0.0080	0.0183	0.0067	0.0087
	(0.160)	(0.105)	(0.072)*	(0.475)	(0.081)*	(0.327)	(0.081)*	(0.103)	(0.522)	(0.032)**	(0.374)	(0.544)
Loss*FE5	0.0342	0.0270	0.0227	0.0232	0.0193	0.0167	0.0016	-0.0048	0.0021	-0.0009	-0.0036	-0.0020
	(0.345)	(0.302)	(0.313)	(0.478)	(0.381)	(0.405)	(0.933)	(0.785)	(0.835)	(0.938)	(0.752)	(0.823)
Win*FE1	0.0103	0.0036	0.0036	0.0130	0.0076	0.0037	0.0270	0.0264	0.0167	0.0090	0.0100	0.0035
	(0.410)	(0.793)	(0.796)	(0.297)	(0.660)	(0.836)	(0.096)*	(0.163)	(0.226)	(0.723)	(0.661)	(0.875)
Loss*FE1	0.0194	0.0177	0.0156	0.0211	0.0153	0.0128	0.0064	0.0041	-0.0116	-0.0004	0.0138	-0.0024
	(0.439)	(0.420)	(0.282)	(0.224)	(0.317)	(0.222)	(0.853)	(0.894)	(0.397)	(0.991)	(0.430)	(0.765)
FE5	0.0151	0.0140	0.0138	0.0121	0.0112	0.0115	0.0219	0.0220	0.0216	0.0193	0.0196	0.0195
	(0.021)**	(0.036)**	(0.034)**	(0.023)**	(0.037)**	(0.037)**	(0.003)***	(0.003)***	(0.005)***	(0.002)***	(0.002)***	(0.003)***
FE1	-0.0345	-0.0344	-0.0346	-0.0297	-0.0294	-0.0291	-0.0339	-0.0342	-0.0325	-0.0312	-0.0325	-0.0308
	(0.002)***	(0.003)***	(0.002)***	(0.001)***	(0.002)***	(0.001)***	(0.002)***	(0.002)***	(0.001)***	(0.004)***	(0.003)***	(0.003)***
Constant	0.0521	0.0534	0.0546	0.0342	0.0353	0.0358	0.0453	0.0454	0.0461	0.0247	0.0269	0.0258
	(0.151)	(0.118)	(0.113)	(0.061)*	(0.048)**	(0.050)*	(0.010)***	(0.006)***	(0.003)***	(0.005)***	(0.000)***	(0.000)***
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2482	2482	2482	2482	2482	2482	2606	2606	2606	2606	2606	2606
R-squared	0.081	0.081	0.081	0.080	0.080	0.080	0.091	0.092	0.090	0.082	0.084	0.081

In Panel A, CAR (Et,Et+1) is the dependent variable for columns 1-3 and columns 7-9 whereas CAR(2,75) is the dependent variable for columns 4-6 and columns 10-12.In Panel B, CAR (-1,1) is the dependent variable for columns 1-3 and columns 7-9 whereas CAR(0,1) is the dependent variable for columns 4-6 and columns 10-12. In both panels, columns 1-6 report the results for more local ownership subsample whereas columns 7-12 report the results for less local ownership subsample.I divide my sample into two based on median value of my local ownership index. If an observation's local ownership index value is greater (lower) than the median value of the index then it is included in more (less) local ownership subsample. Local ownership index is constructed based on firm size, institutional ownership, local income, local education and local senior citizen proportion.More details about the index are provided in the paper. Distance to Team City shows the distance to the sports mood source, which is distance to the location of a winning (losing) team competing in the big sports game. Definitions of Win and Loss are provided in the earlier tables. FE5 and FE1 variables and CARs are defined as they are defined in Table 1.2. This table controls for Size, B/M ratio, Log (1+ #of analyst), Reporting Lag, Earnings Volatility, Share Turnover, which are defined in Table 1.1. This table also includes controls of two-digit SIC, day of week, month, year indicator variables. Control variable are not shown for brevity. Standard errors are adjusted for heteroskedasticity, clustered by the day of announcement. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

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2.0 POST-EARNINGS ANNOUNCEMENT DRIFT AND RELIGIOUS HOLIDAYS

2.1 INTRODUCTION

Finance theory suggests that investors use all available relevant information when they make decisions in financial markets wherein information is completely and timely incorporated into prices. However, the finance literature presents evidence which suggests that frictions in financial markets can prevent fully and timely incorporation of relevant information into stock prices. One mechanism causing such an effect is investor distraction. The investor distraction argument suggests that any factor that distracts investors and mitigates attention can delay the incorporation of firm news into stock prices. This view is supported by a recent body of research showing that limited attention has an impact on stock returns, effectively causing market underreaction to firm-related news.[28] Recent studies also suggest that cultural attributes are important factors that affect economic outcomes, and "cultural-based explanations" can shed more light on some economic phenomena (see Guiso, Sapienza, and Zingales (2006) among others). Religion is one of the main factors that shape society's culture and therefore it can be considered as a driver of the impact of culture on economic behavior. Similarly, recent studies show that religion has an influence on corporate decision making as well as on investment

[28] Hirshleifer, Lim and Teoh (2009) show that extraneous news, measured by same-day earnings announcements made by other firms, leads to an underreaction to firm-related news. DellaVigna and Pollet (2009) find that market underreaction is associated with event occurrence on Fridays, which is consistent with greater likelihood of investor inattention.

behavior (Hilary and Hui (2009), Kumar et al. (2011), Grullon et al. (2010), and Golombick et al. (2011) among others). In this paper, I examine the role of culture, proxied by religion, in explaining investors' information processing.

In particular, I examine whether and how the religious holiday calendar impacts investors' information processing. I investigate price reactions to U.S. firms' earnings announcements issued during the week before Easter, commonly known as Holy Week and, next to Christmas, the most important period in the Christian religious calendar.[29] I hypothesize that when corporate earnings news is released during the Holy Week there will be delayed incorporation of information into stock prices due to investor inattention. Consistent with the view that religious activities occurring during Easter week distract investors, my findings show a stronger drift after earnings surprises released during Easter week. In addition, my empirical results show that local religious characteristics affect investors' response to firm news. Investors' response to earnings news released during Easter week is different for the areas with different religiosity and religious affiliations. Therefore, my paper also presents evidence on local component of investors (in)attention.

Major religious holidays, like Easter, are a big part of religious tradition that is embraced by a large proportion of the population in the U.S, including both the more religious individuals who regularly attend church and those who may not be regular church attendees but choose to follow Christian traditions around major religious holidays like Christmas and Easter. In

[29] I use earnings announcements as my test environment because they are firm news that can occur on different calendar days. This helps to see how concurrent religious holiday periods change investors' response to firm news. Post-earnings announcement drift is a major financial market anomaly that holds an important place in the literature for very long time (Ball and Brown (1968)). Investor inattention or limited investor attention provides an explanation for underreaction-related anomalies. My empirical findings lend support to the limited attention argument, and suggest that religious holiday sentiment-induced distraction makes investors not respond immediately to earnings announcements.

particular, I use the days prior to Easter Sunday as the setting for my investigation of the relation between religious holidays and investor inattention. I restrict my sample to earnings announcements issued few days prior to Good Friday and do not include those issued prior to Christmas, the other major Christian holiday. This is done for three reasons. First, by excluding earnings announcements prior to Christmas, I avoid the problem of potential contamination of post-earnings announcement drifts (PEADs) by the January effect. Second, there are only a small number of firms that choose to issue earnings announcements just prior to Christmas. Third, since this paper is about distraction associated with religious holidays, I drop Christmas because it is far more than a religious holiday and has evolved into a commercialized tradition that transcends religion. I conjecture that Good Friday is a less commercialized and more pious holiday compared to Christmas, and therefore any findings I produce can more directly be associated to a religious effect. Note that my results also hold when I add the Christmas period observations to my test sample. The results of the tests that include both Good Friday and Christmas holiday observations can be provided upon a request. Also, please note that in this paper, I use the terms religious holiday, Easter holiday or holiday interchangeably.

I posit that during Easter week it is common for people to partly shift their focus away from their daily routine and they get distracted. This conjecture is supported by evidence from various Gallup polls conducted over the years indicating significantly higher than normal religious participation rates around Easter, and an increased religious mood effect during Easter Week compared with other periods of a calendar year. Moreover, Easter can trigger distraction among investors because Good Friday is a day when schools and financial markets are closed throughout the United States. Good Friday is also an official holiday in 11 states[30] and thus, it is common for families to take a vacation during the Easter weekend or to plan family gatherings or visits with friends. Overall, there are some additional factors that lead to distraction in addition to a religion-induced distraction during Easter week.

Furthermore, earnings announcements issued during the Holy Week provide a good setting to investigate a distraction effect because, by itself, Easter does not include any information content related to firm performance or stock prices. Therefore, it is not expected to find a link between Easter and investors' reaction to firm news, earnings news in particular, unless Easter has some distraction effect on investors' behavior.

My empirical results support the argument that Easter is associated with investor inattention. In particular, I show a higher delayed response to earnings news (more post earnings announcement drift) when firms make announcements in the Holy Week days prior to Good Friday. Rational investors would be expected to incorporate earnings surprises into their decisions in a timely manner. However, my results indicate that religious holidays present a large enough distraction that prevents investors from processing earnings surprise news timely and completely. I find that, compared with other periods, firms' earnings announcements issued during the Holy Week are associated with an additional post-earnings announcement drift (PEAD) up to 9.6% for negative earnings surprises and up to 3.7% for positive surprises. This PEAD effect is not just statistically significant but also economically important. This effect exists even after controlling for the potential travel or vacation effect associated with Easter week. I use two event windows in defining the announcements that occur just prior to Easter holiday—one goes back two days earlier and the other one goes back three days earlier from

[30] Good Friday is a state holiday in the following states: Connecticut, Texas, Delaware, Hawaii, Indiana, Tennessee, Kentucky, Louisiana, New Jersey, North Carolina and North Dakota.

Good Friday. In general, all my empirical findings are stronger for the tests that use the event window which is closer to Good Friday and this suggests that the distraction effect becomes stronger as Easter Holiday time comes closer. This suggests that the stock price responses indicating a distraction effect is caused by Easter holiday. Moreover, the finding showing that the PEAD effect is more pronounced for bad earnings news than for good earnings news is consistent with the view that investors' positive mood associated with the upcoming Easter holiday. In particular, this finding is consistent with the notion that investors may become more (less) receptive to good (bad) news prior to Easter and this leads to a more delayed incorporation of bad news in stock prices due to distraction and less attention paid to negative news compared to good news. Moreover, my findings show that the religious holiday distraction effect is robust to the impact of possible distraction coming from vacation plans and high travel volume in religious holidays. In sum, my results are consistent with the arguments of Hou et al. (2008) who suggest that limited attention is induced by constraints in investor's information processing rather than a behavioral bias and that inattention-driven underreaction weakens with investor attention.

In addition to the potential investor distraction effect, religious holidays are associated with a good, positive, optimistic mood (see Beit-Hallahmi and Argyle (1997) and Białkowski, Etebari, and Wisniewski (2011)). These two effects can be consistent with the following two opposing scenarios. On one hand, if the higher positive mood around Easter makes investors more receptive to good news, it can lead to higher immediate reaction to good earnings news compared with bad earnings news and a correspondingly lower delayed response (PEAD) for good news compared with bad news. On the other hand, if the positive Easter mood results in a general tendency to anticipate good news, then investors would be less (more) surprised by good (bad) earnings news compared with bad (good) earnings news, and therefore there would be a weaker (stronger) immediate reaction and stronger (weaker) delayed response to good (bad) earnings news.

Conversely to both of the above scenarios' predictions, this paper shows that both the immediate reaction and the delayed response (PEAD) to earnings announcements occurring prior to the Easter holiday are more pronounced for bad earnings news. Any of the two alternative scenarios stated above cannot explain this result completely. Therefore, I expand my examination by focusing on my sample based on different local religious adherence statistics in order to provide an explanation for this seemingly puzzling result and to shed more light on the investor sentiment and inattention that occur around Easter. By doing so is also consistent with the notion that local investors are disproportionally important in the pricing of nearby stocks (see Hong et al (2008), and Pirinski and Wang (2006) among others).[31]

In particular, I start my expanded analysis by first studying whether my results change across subsamples of firms formed based on the degree of religiosity in the location where a firm is headquartered. Recent literature suggests that religion or religiosity can have an impact on corporate decisions and stock market outcomes (see Hillary and Hui (2009), Grullon, Kanatas and Weston (2010) and Bialkowski et al (2011) among others).[32] I use the county level religious participation proportion for a firm's headquarter county from the ARDA datasets in order to

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[31] Hong et al. (2008) show that the firms in areas with low population and relatively few firms have higher stock prices due to "only-game-in-town'' effect. Ivkovic and Weisbenner (2005) argue that local investors have access to better and more information about local firms, leading retail investors to display local bias. Pirinsky and Wang (2006) show that firms that have headquarters in the same geographic location have a strong degree of comovement of stock prices.

[32] Hilary and Hui (2009) find that firms headquartered in more religious areas have lower degrees of risk exposure. Bialkowski et al. (2011) study investor sentiment and show higher stock returns during Ramadan in Muslim countries. Grullon et al. (2010) suggest that religiosity is negatively related to corporate unethical behavior.

measure religiosity. The rationale for this investigation is that the degree of religiosity is a driver of the investor distraction effect induced by religious holidays.

My findings show that firms located in less religious counties display a higher drift after earnings announced during the Easter week than firms located in more religious counties. In addition, less religious areas show greater immediate responsiveness to good earnings news relative to bad earnings news, thereby giving rise to a higher delayed response to bad news. On the other hand, more religious areas are slightly more responsive to bad earnings news around the earnings announcement date and thereafter show a delayed response to good earnings news, albeit a weaker one than that of the firms located in less religious areas after bad news. In particular, the PEAD following bad earnings news announced during Easter holidays is up to -17.5% for firms in less religious areas. This suggests a significant effect in both statistical and economic terms. On the other hand, firms in more religious areas experience a PEAD after good news that is about 2.8%. The lower PEAD effect in more religious areas supports the argument that the distraction effect of religious holidays is less pronounced among people that attend church regularly. Religion and religious participation play a bigger role in people's lives in more religious areas and form a significant part of people's habits and daily routines in those areas. Thus Easter does not bring major changes to daily life in those areas and is not a significant distraction. In contrast, religious holidays can be more distracting in less religious areas because religion, religious participation, and planning for vacation and/or family gatherings, which play a smaller role in the daily routine in other times, can take a prominent role during the Easter week.

This paper also investigates the way local religious affiliation (Protestant vs. Catholic) affects investor inattention induced by religious holidays. Recent literature shows that the impact of religion on investment and corporate decisions can vary across different religious affiliation groups.[33] Golombick, Kumar and Prawada (2011) suggest that religious affiliation can explain some of the differences in stock preferences of mutual fund managers. Grullon et al. (2010) suggest differences in corporate misbehavior can be traced back to religiosity and religious affiliation. Furthermore, Grullon et al. (2010) also suggest that different religious affiliations "experience different utilities" "despite taking identical actions". They suggest that different religious affiliations lead to different approaches to corporate issues coming from Protestantism's emphasis on pride in moral behavior whereas the emphasis of Catholicism is on guilt about immoral behavior. Similarly, I conjecture that religious affiliation can affect the observation and experience of major religious holidays, like the Holy Week, and lead to differences in attention across communities dominated by Catholics or Protestants during the week of Easter. Overall, my empirical results are in line with recent studies and suggest that there are differences in investor inattention between predominantly Catholic and areas predominantly Protestant areas. This study shows that the PEAD effect coming from the investor distraction induced by Easter holidays is more (less) pronounced for the firms located in areas with a larger proportion of Protestants (Catholics). Moreover, the analysis of the combined effect of local religiosity and religious affiliation suggests an important impact on the distraction effect. The holiday PEAD effect after bad earnings news is the highest for firms located in less religious and predominantly Protestant areas, consistent with my previous findings based on local

[33] Golombick et al. (2011) analyzes the impact of religious inclinations on institutional investor behavior and show that Catholic managers have more preference for MSCI US Catholic Values Index stocks than Protestant managers. They suggest "that managers consider religious convictions when investing but these convictions are not sacrificed for financial performance as per Bollen's (2007) conditional utility hypothesis. That there develops an overall tilting of portfolios towards stocks aligned with a fund manager's religious convictions is consistent with the idea that SR investors are rational in that, while attaching value to the SR attribute of an asset, they put its financial performance first". Hilary and Hui (2009) find that the importance of religiousness in corporate decision making can be differ based on religious composition and the effect is more consistent for the firms in areas with a large proportion of Protestants compared to the areas with a large proportion of Catholics.

religiosity and religious affiliation. This negative drift is the strongest, up to -25.12%, among firms that announce earnings just prior to Good Friday.

My results are robust to geographic effects. Specifically, I examine whether geographic factors that are associated with my religion-based cultural characteristics measures may be the drivers of the observed differences in investor inattention during religious holidays. My findings suggesting this is not the case.[34] My empirical results are also consistent with the local bias argument that stock prices include a sizeable local component. Religious characteristics of local investors, who show a disproportionate preference for local stocks, are correlated with the degree of inattention around Easter and give rise to a delayed reaction to local stocks earnings news. My results are also not affected by the Friday PEAD effect (DellaVigna and Pollet (2009)) or the busy earnings announcement day effect (Hirshleifer et al. (2009)).

This paper shows the importance of culture, proxied by religion, to explain investors' information processing and the impact of culture on the outcomes of financial decisions through investor inattention. In particular, this paper contributes to the literature in the following ways. First, this study supports the notion that religious holidays can distract investors and lead to delayed incorporation of firm information into security prices. Second, I highlight the local component of the investor inattention effect. Specifically, I find that local religious characteristics (religious participation rate and affiliation) of firms that make earnings announcements during Easter holiday period affect the extent of investor distraction. Thus, my

[34] My results are retained after excluding firms located in big metropolitan areas, therefore, I can conclude that the investor distraction induced by Easter holiday periods does not come from a big metropolitan area effect. I also examine the impact of Easter on investor distraction across different geographic regions. I show that the results based on geographic regions are in harmony with those based on groups formed after sorting on religiosity and religious affiliation.

paper also presents new evidence that unfolds the religious characteristics of the local component of stock prices.

The remainder of the paper is organized as follows. The next section provides additional background information and presents a short summary of previous studies. Section 3 includes a description of the data and the sample selection method used in this paper. Section 4 discusses univariate statistics. It also reports the univariate statistics for religiosity and religious affiliation subsamples. Section 5 provides the empirical results of multivariate tests for full sample regressions. Section 6 shows the empirical results of multivariate tests for subsample analyses. Section 7 presents the results of additional tests. Section 8 provides a conclusion.

2.2 LITERATURE REVIEW

Livnat and Mendenhall (2006) describe PEAD as "the tendency for a stock's cumulative abnormal returns to drift in the direction of an earnings surprise for several weeks following an earnings announcement". Livnat and Mendenhall (2006) report that "Brennan [1991, p. 70] calls it a "most severe challenge to financial theorists," and Fama [1998, p. 286] refers to it as "the granddaddy of all underreaction events." The literature has provided many alternative explanations for the PEAD phenomenon, such as a) investors making wrong assumptions about the properties of earnings (Bernard and Thomas (1990) and Barberis,Shleifer and Vishny (1998)), b) information uncertainty (Zhang (2006)), c) cognitive limits (Hong and Stein (1999)), d) overconfidence (Daniel, Hirshleifer and Subrahmanyam (1998)), e) disposition effect (Frazzini (2006)), and f) limited attention (Hirshleifer et al. (2009), DellaVigna and Pollet (2009)).

Hirshleifer et al. (2009) presents a summary of the behavioral and psychological literature on limited attention. The main argument in that literature suggests that people have limited abilities to process information, and exposure to information over their capacity can lead to distraction effects. Simons and Chabris (1999) find that selective attention can make people to neglect apparent visuals in psychological experiments. Griffin and Tversky (1992) suggest that people can underreact to events that happen periodically whereas they overreact to ongoing events with consistent results. Hirshleifer et al. (2009) report that Baker et al. (1993), Busemeyer, Myung, and McDaniel (1993), and Kruschke and Johansen (1999)) suggest that people process related information less in experiments when they are exposed to irrelevant information. Therefore, the psychological literature implies that limited information processing capacity can lead to distraction and incomplete information processing.

This paper is also related to the growing body of literature that shows the different impacts of religion and religious characteristics on stock market outcomes and corporate decisions. Hilary and Hui (2009) suggest that religion affects corporate culture and corporate decisions in the U.S. Hilary and Hui (2009) find that local religiosity affects corporate risk taking behavior. Grullon et al. (2010) show that religiosity is negatively related to corporate unethical behavior. Grullon et al. (2010) also suggest that different religious affiliations lead to different approaches to corporate issues. They suggest that this result can be attributed to differences in perception of the same issue for different religious affiliations. For example, Grullon et al. (2010) report that Protestantism puts emphasis on pride in moral behavior while Catholicism puts emphasis on guilt in immoral behavior. McGuire et al. (2012) suggest that firms located in religious areas are less likely to have financial reporting irregularities. Golombick et al. (2011) argue that although Catholic mutual fund managers have a higher preference for the stocks aligned with the Catholic Values Index, they still prioritize financial characteristics over religious affiliation in their stock trades.

Another strand of the literature that is related to this paper is looking at the financial markets around holidays. Lakonishok and Smidt (1988), and Ariel (1990) show higher stock returns prior to holidays. Frieder and Subrahmanyam (2004) report lower trading volume in the US market during Jewish holidays. They also report lower stock returns for Yom Kippur and higher stock returns for Rosh Hashnah. Similarly, Jacobs and Weber (2011) show that firms located in different regions of Germany that have regional holidays have lower trading volume compared to firms located in other regions in Germany. They suggest that the lower trading effect they show can be attributed to the distraction effect. Bialkowski et al. (2011) find that stock returns are higher and less volatile during Ramadan for the stock markets in some Muslim countries. They suggest that their results are coming from the mood and happiness generated by a religious sentiment. This paper also suggests that religious holidays create an investor sentiment as well as investor distraction.

My results suggest that local characteristics impact investors' attention which implies that local bias is related to the distraction effect (the PEAD effect). Therefore, my study builds on the recent literature on local bias. In this literature, Ivkovic and Weisbenner (2005) suggest that local investors have an access to better and more information about local firms, leading retail investors to display local bias. Coval and Moskowitz (2001) present evidence of local bias in professional managers. Pirinsky and Wang (2006) suggest that firms that have headquarters in the same geographic location show a strong degree of comovement of stock prices. Hong et al. (2008) find that that the local bias effect is higher for the areas with relatively few firms per capita. My subsample analyses indicate that the religious holiday PEAD effect differs based on local characteristics such as local religious participation rate and religious affiliation.

2.3 DATA AND SAMPLE SELECTION

My sample includes earnings announcements issued a few days just prior to Good Friday in the period from 1989 to 2006. In the Western Christian calendar Easter always falls on a Sunday between March 22 and April 25, inclusively. The following day, Easter Monday, is a legal holiday in many countries with predominantly Christian traditions, but not in the U.S. In the US, almost all retail stores, shopping malls and even some restaurants are closed on Easter Sunday. Good Friday, is a holiday in 11 states. Moreover, the vast majority of private businesses, public schools as well as financial markets are closed on Good Friday.

I use the pre-holiday event windows (-2,0) and (-3,0), where 0 represents Good Friday.[35] I use the *COMPUSTAT*, *CRSP*, and *I/B/E/S* databases to determine earnings announcements and cumulative abnormal returns (CARs) before and after earnings announcements. I follow a methodology in line with Livnat and Mendenhall (2006). I first require that earnings announcement date and stock price information are not missing in *COMPUSTAT*. I also require that firm size for the corresponding quarter end is larger than $5 million. I match *I/B/E/S* forecasts and *COMPUSTAT* earnings data, and use the primary earnings definition from *I/B/E/S*. I use stock-split adjusted quarterly earnings and forecasts to calculate the earnings surprise (FE_{iq}). I follow the prior literature and use forecast error to measure earnings surprise as $FE_{iq}=(E_{iq}-F_{iq})/P_{iq}$. $\mathrm{FE}_{\mathrm{iq}}$ is calculated by subtracting analyst expectations from actual earnings and then normalized by the price per share at the end of the quarter obtained from *COMPUSTAT*. I use the median of forecasts reported to I/B/E/S in the 90 days prior to the earnings announcement as a measure of analysts' expectations. I calculate cumulative abnormal returns by using the *CRSP* database following Livnat and Mendenhall (2006), who define $CAR\ (E_t,E_{t+1})$ as

[35] I use websites such as http://www.opm.gov/operating_status_schedules/ or, http://www.timeanddate.com/calendar/ to determine the Good Friday dates for the sample years.

“cumulative abnormal return for the period from two days after the current earnings announcement to one day after the next earnings announcement”. *CAR* (E_t,E_{t+1}) is the cumulative abnormal return between current earnings announcement and the next one, and it is “the difference between the firm’s daily return from *CRSP* and the daily return on the portfolio of firms with the same size (the market value of equity from June) and book-to-market (B/M) ratio (from the prior December)” as Livnat and Mendenhall (2006) describe. *CAR (2,61)* , *CAR(-1, 1),* and *CAR(0, 1)* are defined in similar fashion for the trading days’ windows of (+2,+61), (-1,+1), and (0,+1) respectively[36]. The sample includes stocks that are traded in NYSE, AMEX or NASDAQ. Previous studies have shown that religious inclinations have an impact on institutional investor behavior ((Golombick et al. (2011)). Therefore, in my analysis of religious holiday distraction effect on PEAD I control for institutional holdings, extracted from 13F filings. The earnings announcement sample around Easter holidays is subsequently matched with firm location data, which I obtain from COMPUSTAT and correct for headquarter changes using information from Compact Disclosure. After matching with firm location data, I have 93,704 earnings announcements of firms with headquarter zip code and location information for the years 1989 to 2006. Next, I exclude firm earnings announcement observations with corresponding quarter ending stock price less than $5.[37] By doing so, I exclude the observations of firms whose stock is traded infrequently. There are also some observations with missing institutional holdings information. After considering these observations, my final sample is further reduced to 58,241 firm-quarter observations.

[36] In cumulative abnormal return (CAR) definition, day 0 is the day of the earnings announcement.
[37] The tests that include the stocks with quarter ending price less than $5 give results similar to the test results that I report in the following sections. These results can be provided to the reader upon request.

My sample also contains local religiosity and religious affiliation variables, constructed using information from the Association of Religion Data Archives (ARDA) Religious Congregations and Membership Study (2000) dataset. As the ARDA website reports, this dataset is completed by the Association of Statisticians of American Religious Bodies (ASARB), and shows religious adherence statistics for "149 Christian denominations, associations, or communions (including Latter-day Saints and Unitarian/Universalist groups); two independent Christian churches; Jewish and Islamic totals; and counts of temples for six Eastern religions"[38]. This dataset has two advantages over the earlier versions of the ARDA dataset used in previous studies. First, it is updated, and it includes statistics for more religious bodies. Second, it also includes the adjusted rates of adherence (Finke and Scheitle (2005)) at the county level that accounts for uncounted religious groups and adjusting for undercounted minority groups.[39]

My main dependent variables that capture PEAD in the delayed response tests are $CAR\ (E_t, E_{t+1})$ and *CAR (2, 61)*. The reason I use both in my tests is that none of the two measures is clearly superior, but each of the two has advantages as well as shortcomings. The advantage of *CAR (2, 61)* is that it uses the standardized length of two months for the drift period. However, it does not accurately capture the exact period between successive earnings announcements. On the other hand, $CAR\ (E_t, E_{t+1})$ correctly captures the length of the period between earnings announcements, but its shortcoming is the fact that the latter period of the window can include some of the anticipated or actual short term reaction to the next earnings announcement. My dependent variables in the immediate reaction regressions are *CAR (-1, 1)* and *CAR(0, 1)*. I winsorize CAR variables at 1% level to mitigate the effects of outliers.

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[38] http://www.thearda.com/Archive/Files/Descriptions/RCMSCY.asp

[39] The use of raw and unadjusted rate may lead to differences in adherence rates. Finke and Scheitle (2005) state that "after accounting for the uncounted, (they) estimated that the national adherence rate is 63 percent rather than the 50 percent estimated by using the RCMS data alone".

Following past studies (e.g. Hirshleifer (2009)), my tests also control for other factors that could be associated with the market's reaction to earnings news, such as firm size, book-to-market ratio, earnings volatility, reporting lag, share turnover, earnings persistence and institutional ownership. *Earnings volatility* is measured as the standard deviation of prior four year quarterly earnings from the earnings one year ago. I require a minimum of four split-adjusted quarterly earnings to calculate this variable. *Share turnover* is the average monthly trading volume normalized by the average number of share outstanding for the one year period that ends at the end of corresponding fiscal quarter. *Reporting lag* is the number of days between the quarter end and earnings announcement day. *Log(1+# of analysts)* is logarithm of the number of analysts that follows the firm during the corresponding quarter. *Earnings Persistence is* the "stock split-adjusted first-order autocorrelation coefficient of earnings per share for the past 4 years"[40]. I require at least four observations to form this variable. *Institutional ownership* is the percentage of shares that institutions hold for the corresponding fiscal quarter. I also use day of the week, month, year, and two-digit SIC industry indicator variables in my regression models.

2.4 UNIVARIATE STATISTICS

2.3.1 Summary Statistics

Panel A of Table 2.1 shows descriptive statistics for my sample firms. Briefly, my summary statistics are similar to those reported in earlier PEAD studies. For example, the average firm in the sample has a market valuation of a bit less than $3.4 billion (a skewed measure, since the median value is just over half a billion dollars), a book-to-market ratio of 0.53, a share turnover of 9.8%, institutional ownership of 56% and is followed by about four

[40] See Hirsheleifer et al. (2009).

security analysts. Panel B of Table 2.1 shows the mean values and number of observations for the immediate reaction (*CAR (-1, 1)* and *CAR(0, 1)*) and post-earnings announcement drift (*CAR* (E_t, E_{t+1}) and *CAR (2, 61)*) variables. This information is provided for the full sample, i.e. for all earnings announcements made during my study period and for the subsamples of earnings announcements issued in the (-2,0) and (-3,0) windows prior to Good Fridays (t=0). For the sample that includes all earnings announcements, the average value of the immediate reaction to earnings announcements is 0.23% in terms of *CAR (-1, 1)* and 0.12% in terms of *CAR (0, 1)*. On the other hand, the immediate reaction for the firms that announce earnings around religious holidays is between 0.35% and 0.77% in terms of *CAR (-1, 1)* and between 0.26% and 0.46% in terms of *CAR (0, 1)*. This result is consistent with previous studies (e.g., see Lakonishok and Smidt (1988), and Ariel (1990)) which show higher stock returns prior to religious holidays. The average delayed response to earnings announcements for my full sample is -0.91% in terms of *CAR* (E_t, E_{t+1}) and -0.89% in terms of *CAR (2, 61)*. On the other hand, delayed response to earnings news for firms that announce around religious holidays varies between -0.82% and -1.65% in terms of *CAR* (E_t, E_{t+1}) and -0.71% and -1.48% in terms of *CAR (2, 61)*.

2.4.2 Stock Response for Easter Week Announcements:

Next, in Table 2.2, I report univariate statistics of PEAD (Post-Earnings Announcement Drift) and immediate reaction to bad and good earnings surprises that occur in the (-2,0) and (-3,0) windows prior to Good Friday. After ranking announcements on earnings surprise, I define the lowest quintile (FE=1) as bad earnings news and the top earnings surprise quintile as good earnings news (FE=5). I also report PEAD and immediate market reaction for different religiosity and religious affiliation subsamples of firms experiencing good and bad earnings news before Easter. Panel A utilizes the sample of firms that issued earnings announcements before the Easter holiday and shows the cumulative abnormal returns (CARs) for different event windows and good/bad earnings surprise quintiles. Firms in the lowest earnings surprise quintile (FE=1) display statistically significant immediate reaction which averages between -2.21 % and -2.7%. They also have statistically significant PEAD, ranging on average between -7.35% and -9.18%. The firms that are in the highest earnings surprise quintile (FE=5) show a sizeable and statistically significant average immediate reaction ranging between 3.65% and 4.27%. They also have statistically significant PEAD, on average between 4.69% and 5.82%. Overall, the findings in Panel A show a greater immediate reaction to positive earnings news compared to negative earnings news and a more pronounced delayed response to bad earnings news compared to good earnings news. This result is in line with the argument that there is a good, positive mood prior to the Easter holiday, which may contribute to investors' inattention, i.e. focusing away from concurrent firm news, especially bad news. In sum, the univariate statistics in Panel A support the argument that investors are distracted by Easter holidays and underreact to firm news.

Next, I further explore whether the short term and delayed reaction to extreme earnings news varies across groups of firms sorted on religious demographic characteristics of the area the firm's headquarters is located in. Panel B displays average PEAD and immediate market reaction for subsamples of firms formed after sorting on the degree of religiosity in the county where the firm's headquarters is located. Religiosity is measured by the adjusted religious adherence (Finke and Scheitle (2005)) extracted from the ARDA database. I define firms in the highest (lowest) religiosity tercile of my sample as firms located in more (less) religious areas. Note that my sample's mean and median adherence is 65%, much in line with the national adherence rate in Finke and Scheitle (2005). Panel B, reports, on average, a weaker immediate reaction and a stronger PEAD after bad earnings news issued by firms located in less religious areas. In addition, on average, there is a slightly stronger immediate reaction and stronger PEAD after good earnings news about firms in less religious areas compared to firms in more religious areas. Overall, the immediate reaction to good news is significant and similar for both religiosity subsamples whereas the immediate reaction to bad earnings news is only pronounced for more religious areas. The delayed response effect is more pronounced after both good earnings news and bad earnings news for firms from less religious areas, and the strongest PEAD effect is after bad earnings news in less religious areas. This result is consistent with the view that Easter causes a greater distraction effect among investors that live in less religious areas, because religious participation or religion in general, is not a big part of their daily life during other times of a calendar year.

Panel C, shows average values of immediate and delayed response across subsamples formed based on religious affiliation. Following Kumar (2009) and Kumar et al. (2011), I construct a variable called Catholic-Protestant ratio *(CPRATIO)* and use it to classify firms into those that are headquartered in primarily Catholic versus primarily Protestant areas. County Catholic and Protestant rates are extracted from the ARDA dataset. Mean and median values of *CPRATIO* for my sample are 2.32 and 1.82 respectively. Recent literature suggests that there can be differences between religious affiliations in terms of perceptions and approaches for same issues (Grullon et al. (2010) among others). I use the following rule to define religious affiliation subsamples: if a county has a *CPRATIO* greater than or equal to 1.2 then I define this area as predominantly Catholic area and if a county has a *CPRATIO* less than or equal to 0.83 then I define this area as predominantly Protestant area. In other words, if a given firm is located in a county that has at least 20% of or more Catholic (Protestant) population than Protestant (Catholic), then I define the firm's location as predominantly Catholic (Protestant) area. The immediate response to negative earnings news is similar in both predominantly Catholic and Protestant areas whereas the immediate reaction to positive earnings news shows greater magnitude for the firms in predominantly Protestant areas. On the other hand, the firms from more Catholic areas show statistically significant and strong PEAD after both good earnings news and bad earnings news whereas the firms from predominantly Protestant areas display statistically significant PEAD only after bad earnings news. However, the magnitude of the delayed reaction among firms located in primarily Protestant areas is much stronger than the corresponding reaction among firms in primarily Catholic areas. PEAD following bad earnings in predominantly Protestant areas can go up to -16.37%. In sum, firms located in Protestant areas underreact, on average, more (less) to bad (good) earning news. This result is consisted with the fundamental differences in the ethical systems in Catholicism and Protestantism (see, Harrison (1985), and also mentioned in Grullon et al. (2010)); Catholics seem to be more inclined to emphasize guilt for doing the wrong thing, whereas Protestants emphasize pride for doing the right thing. In general, Panel C suggests that PEAD, especially the one following negative earnings surprises just prior to Easter, can be emanating from higher distraction due to the relatively greater (lesser) attention paid to positive (negative) news in predominantly Protestant areas.

2.5 MULTIVARIATE TESTS

2.5.1 Full Sample Regressions

In this section, I further explore the investor distraction hypothesis in a multivariate setting that helps to control for various other factors. In my multivariate regression models, I use, alternatively, *CAR* (E_t, E_{t+1}) and *CAR (2, 61)* as the dependent variable that measures delayed response (PEAD) to earnings announcements. I also use, alternatively, *CAR (-1, 1)* and *CAR (0,* *1)* as the dependent variable that measures immediate reaction to earnings announcements. My regression models for the full sample regressions are as in the following equation model:

$$CAR=\beta_0+ \beta_1 EasterHoliday+ \beta_2\, EasterHoliday*FE5+ \beta_3 FE5+ \beta_4\, EasterHoliday*FE1 + \beta_5 FE1+Controls \quad (1)$$

In the equation above, *EasterHoliday* represents a dummy variable that takes the value of one if an earnings announcement occurs within the (-2,0) or (-3,0) event windows (in which "0" represents the date of Good Friday) and the value of zero otherwise. *FE5* is a dummy variable that takes the value of one if the earnings surprise is in the highest surprise quintile (FE=5) and the value of zero otherwise. *FE1* is a dummy variable that takes the value of one if earnings surprise is in the lowest surprise quintile (FE=1) and the value of zero otherwise. Note that *FE* is the rank (1 to 5) of earnings surprise for the corresponding fiscal quarter. In model (1), there are also interactions of *FE5* and *FE1* with *EasterHoliday*. These interaction variables are the variables of interest in my tests. Consistent with previous studies, my regressions also control for size, book-to-market, number of analysts that follow the firm, reporting lag, earnings volatility, share turnover, earnings persistence, institutional investor ownership, as well as dummies for firm industry, day of week, month and year. Following DellaVigna and Pollet (2009) and Hirshleifer et al. (2009), I adjust standard errors for heteroskedasticity and cluster them by earnings announcement day. For the sake of brevity, in all of the following tables, I report the coefficients for the earnings surprise variables, the Easter holiday variable and their interactions and do not report coefficients for the control variables.

Table 2.3 shows the result of regression model (1) estimated using the full sample. The dependent variables in Panel A are the drift variables, *CAR* (E_t, E_{t+1}) and *CAR (2, 61)*, whereas the dependent variables in Panel B are the immediate reaction variables, *CAR (-1, 1)* and *CAR (0, 1)*. In each panel, there are four regression results for different CAR and *EasterHoliday* event window definitions.

Consistent with my univarite results, Panel A of Table 2.3 shows that the coefficients of *EasterHoliday*FE5* and *EasterHoliday*FE1* are positive and negative respectively, and almost always statistically significant. The magnitude of the *EasterHoliday*FE1* coefficient ranges from -7.09% to -9.63%. This implies that bad earnings news made public during the Easter week are followed by up to 9.6% additional drift (PEAD). The coefficient of *EasterHoliday*FE5* is statistically significant in three out of four models and takes values between 2.95% and 3.74. This result implies that good earnings news during Easter week are followed by 2.9% to 3.7% more PEAD.

The immediate reaction results shown in Panel B are also consistent with my univarite results, and the interaction variable coefficients have the expected signs. *EasterHoliday*FE1* is statistically significant for all *CAR (-1, 1)* results. *EasterHoliday*FE5* is only statistically significant in one out of four models. Moreover, a comparison of the interaction terms' coefficients reveals that the immediate reaction to bad firm news is more pronounced than the reaction to good earnings news.

Taken together, the immediate reaction and delayed response (PEAD) results for the full sample tests indicate an underreaction to earnings news, especially bad earnings news. However, the source of this effect is not easy to decipher from the patterns shown in Panels A and B.

There are two possible scenarios for a distraction-driven underreaction effect to exist. Both can be developed after I start from the assumption that during a major religious holiday like Easter, people will –on average – experience positive mood over and above of the impact of holidays on their attention. One view suggests that if there is positive mood, the average investor will be more receptive to good news and therefore there will be a higher (lower) immediate reaction to good (bad) firm news and later a lower (higher) delayed response to good (bad) news. The alternative view suggests that if people are already in a good mood, they also expect to experience mostly good news during Easter week. Thus there would be a weak (strong) immediate reaction good (bad) news and strong (weak) delayed response for good (bad) firm news. Since my results from Panels A and B indicate that both the immediate and the delayed reaction is more pronounced for bad earnings, they collectively constitute a puzzle because they do not fit any of the two alternative views above. It is possible though, that a clearer story can emerge if I inject different cultural/religious characteristics like religiosity and religious affiliations into my analysis. This may help to shed more light on the impact of holidays on investors' information processing. In the next sections, I turn my attention to the impact of these factors on investors' information processing.

2.5.2 Analysis of Vacation/Travel Effect

Before implementing further detailed analysis aimed at reconciling the puzzling pattern that emerges from the immediate and delayed response results in Table 2.3, I test whether these results are indeed induced by religious holidays or whether they could be attributed to a more general effect stemming from vacation and/or travel plans associated with this holiday. In particular, since the extended weekends of Easter Holidays provide a good opportunity for taking vacation, it is possible that the pronounced delayed response to earnings news released during

Easter Holidays comes from the distraction associated with vacation plans and travel that occurs in the extended weekend of Easter week, rather than the religious holiday induced-distraction. In order to test the validity of this argument, I include vacation and travel variables in my model and examine whether their explanatory power subsumes that of my religion variable.

One would argue that the findings that I show in my earlier findings are driven by the distraction effect induced by family vacations that occur during Easter week. If this is true then one would observe the same effect for other holidays, such as Thanksgiving, that have a vacation effect Thanksgiving is an important national holiday which includes some cultural and religious factors. Therefore, holidays like Thanksgiving, along with other national holidays with a vacation effect, can be included in stock response tests. Doing so can help to see whether a vacation or travel induced distraction effect is behind my findings or a religion induced distraction effect is the main driver of my findings.

In order to examine the role of vacation/travel effect, I, first, add a dummy variable called *VacationHoliday*, that takes the value of one if an earnings announcement occurs around Thanksgiving, 4th of July, or Memorial Day. [41] I also include the interaction terms between *VacationHoliday* and firm news indicator variables, *VacationHoliday*FE5* and *VacationHoliday*FE1*. Later, I look at my tests after controlling vacation holiday effect. Table 2.4 shows that the delayed response and immediate reaction results are very similar to those shown Table 2.3. The results for *EasterHoliday*FE5* and *EasterHoliday*FE1* still holds for both delayed response and immediate reaction. For example, *EasterHoliday*FE1* is about -7% to -9% for PEAD regressions, and all the coefficients for the Easter holiday interaction variables are

[41] Correspondingly, I use the [-2,0] or [-3,0] windows for these earnings announcements, where 0 is the day of the holiday.

very similar to those reported in Table 2.3. The immediate reaction and delayed response (PEAD) results indicate an underreaction to earnings news, especially bad earnings news, when earnings news is released during Easter Holiday. However, there is very little impact of vacation holidays on immediate reactions and delayed responses. The only significant coefficient is *VacationHoliday*FE1* in column 1 of Panel A, and it suggests a negative 3.46% drift for bad earnings news announced during vacation holidays. The magnitude of this effect is less than the magnitude for *EasterHoliday*FE1* in the same model. Overall, the results suggest that vacation holidays are not responsible for the religious holiday effect, which persists after controlling for vacation holidays.

Next, I examine whether travel mood induced distraction impact my results or not by employing a travel volume proxy. I investigate whether travel plans associated with typical extended weekends around major holidays affect investor response to firm news. I proxy travel effects by a variable called *AirPassengerVol*, the U.S. monthly air passenger volume from the Bureau of Transport Statistics. The data of air passenger volume is available after 1996[42]. I add *AirPassengerVol* and its interactions with earnings news, *AirPassengerVol*FE5* and *AirPassengerVol*FE1*, Later, in a regression model similar to model (1) with the air travel volume (proxied by *AirPassengerVol)* effects and show results in Table 2.5.

My main results still hold after accounting for the effects of travel volume proxied by monthly air passenger volume. The coefficients of Easter holidays effects have a pattern very similar to the one in Table 2.3, suggesting that the immediate reaction and delayed response results display an underreaction to earnings news (especially bad news) released during Easter

[42] The data is available at https://www.bts.gov/xml/air_traffic/src/index.xml#CustomizeTable . The data shows domestic revenue passenger enplanements (in thousands) after 1996. Revenue passenger enplanements are used as a measure of the total number of passengers boarding aircraft.

holiday after controlling for the distraction induced by high travel volume. Furthermore, calendar times with higher travel volumes do not have the same high impact on investor reaction to firm news as religious holidays do. Overall, the evidence in Tables 2.4 and 2.5 shows that the religious holiday distraction effect is robust to the impact of possible distraction coming from vacation plans and high travel volume in religious holidays.

2.6 SUBSAMPLE TESTS: LOCAL RELIGIOSITY AND AFFILIATION

In this section, and after having shown that my results are not driven by the impact of vacation or travel around the Easter holiday, I implement further analysis to shed more light on the origin and the mechanics of the Easter holiday effect. Following the order shown in my univariate tests in Table 2.2, this section investigates whether religiosity and religious affiliation/religious composition of firm location matter. If my results are driven by distraction caused by Easter, and if the pattern shown in the univariate tests is correct, then one may expect that firms from less religious areas experience a stronger delayed response to firm news whereas firms from more religious areas experience a lower effect. As discussed earlier, this expectation is based on the rationale that religious holidays can be a greater (smaller) distraction for non-religious (religious) people because for them religion is a smaller (bigger) part of their daily routine. Moreover, if the distraction effect is more pronounced in the less religious counties, I should be able to observe a clearer pattern of immediate and delayed reactions to earnings news, which might help to reconcile the somewhat puzzling pattern of my main result from Table 2.3, wherein prices seem to react to bad earnings surprises both immediately and in delayed fashion.

Table 2.6 displays the multivariate test results of delayed response and immediate market reaction for different religiosity subsamples. First four columns of both Panel A and B display the multivariate test results for a subsample of firms that are located in more religious areas whereas the last four columns of both panels report the results for a subsample of firms that are from less religious areas. As before, firms in more religious areas are located in areas that fall in the highest religiosity tercile of my sample, and firms in less religious areas are located in areas that fall in the lowest religiosity tercile of my sample.

Panel A shows a statistically significant PEAD after bad earnings news only for the subsample of firms that are located in less religious areas. The coefficient of *EasterHoliday*FE1* is negative, economically large (ranging between -12.65% and -17.52%) and statistically significant in all columns for firms from less religious areas. The *EasterHoliday*FE5* coefficient has the expected positive signs in three out of four models but is statistically significant in only two out of the four models in the subsample of firms located in the more religious areas. The magnitude of the significant coefficients is about 3%, indicating that it has much lower economic significance compared to the magnitude of PEAD for negative earnings news by firms in less religious areas. To sum up, Panel A shows that there is some PEAD after good earnings news for the firms located in more religious counties whereas the PEAD after bad earnings news is only pronounced for the firms that are located in less religious counties.

Panel B shows the immediate reaction results for the religiosity subsamples. There is more pronounced immediate reaction to good earnings news by firms located in less religious areas whereas there is more pronounced immediate reaction to bad earnings news by firms located in more religious areas. Taken together the results in Panels A and B imply that investors in less religious areas are more surprised by good firm news during Easter holiday period and show more pronounced immediate reaction. They tend to pay less attention to bad firm news to which there is strong delayed response. The results are consistent with the notion that distraction leads to higher underreaction to bad earnings news announced during Easter week in less religious areas. On the other hand, investors in more religious areas are slightly more surprised by bad earnings news as indicated by the immediate reaction to bad news. Consequently, more religious areas also show some delayed response to good news.

These results help to reconcile the seemingly puzzling evidence from the immediate and delayed response tests using the full sample. In particular, these results suggest that each of the two alternative views stated earlier applies to one of the two different religiosity subsamples. In more religious areas, the good mood associated with religious holidays leads to a general tendency to expect good news and therefore more religious areas only show a weak immediate response to good firm news. Moreover, the expectation of good news associated with Easter's good mood in religious areas can cause the arrival of bad news—the news with the content opposite to positive mood—to be perceived as a surprise and thus there is a strong immediate reaction. This underreaction to good news relative to bad news causes some delayed response following good news in more religious areas. On the other hand, the good mood around Easter in less religious areas is a less familiar sentiment that possibly makes people enthusiastically seek the positive and dismiss the negative side of things. Thus, in less religious areas good earnings news is met with immediate strong reaction whereas bad earnings news is not paid much attention to. This effect gives rise to drift after bad earnings news.

This evidence supports the earlier conjectures that i) major religious holidays, like Easter, cause investor distraction, especially in less religious areas, and ii) the positive mood in the less religious areas can be viewed as transitory and receptive to positive information, whereas the positive mood experienced by the average investor in more religious areas is probably a more static/permanent sentiment which makes the arrival of oppositely hued information resemble a shock to which there is a sharper reaction.

My results are also consistent with the view that local investors display bias in holding disproportionate amounts of local firm stocks and contribute to a sizeable local pricing component. In addition, based on differences in local religiosity characteristics, there is variation in the local investor distraction effect leading to different kinds of drift following good and bad news.

Next, I examine the question of whether the asymmetric patterns of immediate and delayed reactions observed across less and more religious subsamples is driven by differences in attitudes toward good or bad news which may exist across areas with different dominant religious affiliations. Specifically, in order to study whether religious affiliation has an impact on the distraction effect, I divide my main sample into two subsamples based on the dominant religious affiliation of the county where the firm is located, captured by the Catholic-Protestant ratio (*CPRATIO*).[43] As I explain in the previous section, if a county where a given firm is located has a *CPRATIO* greater than or equal to 1.2 (lower than or equal to 0.83) then I classify the firm's location as more Catholic (Protestant) area. Table 2.7 shows both immediate reaction and PEAD results for the religious affiliation subsamples. Panel A reports that the PEAD following bad earnings news is statistically significant for both religious affiliation subsamples whereas the PEAD following good earnings news is a bit more pronounced for the subsample of firms from highly Catholic areas. In addition, delayed response (to bad news) has a higher magnitude for the firms that are located in predominantly Protestant areas. The PEAD following bad news is between -11.04% to -14.13% for the firms that are located in predominantly Protestant areas whereas it is only between -4.41% and -6.47% for the firms that are located in predominantly Catholic areas. The PEAD following good news is not very different across Catholic and

[43] Following Kumar et al. (2011), I call this ratio as CPRATIO.

Protestant areas: it ranges between 2.63 to 4.18% for the firms in more Catholic areas whereas it is about 3.5-4% for the firms from more Protestant areas.

In Panel B, immediate reaction to earnings news also shows different short-term responses for the religious affiliation subsamples. Immediate reaction to bad news is more pronounced in predominantly Catholic areas. However, especially for the good earnings news, immediate response is stronger among firms in predominantly Protestant areas. This pattern is consistent with the differences in attitudes between Catholicism and Protestantism highlighted in Grullon et al (2010). Catholics are more responsive to bad news because they are typically showing greater emphasis on guilt about doing the wrong thing, whereas Protestants are more responsive to good news because of their tendency to emphasize pride about doing the right thing. My evidence is in harmony with this argument, showing that Catholic areas ignore good (firm) news more prior to Easter and consequently some delayed response to good news while Protestant areas ignore bad (firm) news more prior to Easter and a strong delayed response (PEAD) to bad news.

Overall, my results are more pronounced for the firms that are located in predominantly Protestant counties and display an asymmetric effect of immediate and delayed responses to earnings news around religious holidays. My results are also in line with recent literature (Hilary and Hui (2009), Kumar et al. (2011), Grullon et al. (2010), and Golombick et al. (2011) among others) suggesting that different religious affiliation impacts investment behavior and corporate decision making.

Last, I investigate whether and how different combinations of religiosity and religious affiliation affect investors' distraction around religious holidays. I start with the two religiosity subsamples used in Table 2.6 and divide each one of them further into two, based on the

Catholic-Protestant ratio (CPRATIO) of the county where the firm is located following the procedure used in Table 2.5. Table 2.8 Panels A and B display multivariate PEAD regression results for the "religiosity-religious affiliation" subsamples. Panels C and D report multivariate immediate reaction regression results for the subsamples.

Panel A shows no statistically significant PEAD after bad earnings news by firms located in predominantly Catholic and more religious areas whereas the PEAD after bad earnings news is statistically significant (and a sizeable additional -21%) for the firms from predominantly Protestant and more religious areas. On the other hand, the PEAD after good earnings surprises is only statistically significant for firms in predominantly Catholic and more religious areas, but it is only about 3.4%. Briefly, more religious and Protestant areas underreact strongly to bad firm news announced just prior to Good Friday.

Next, Panel B shows no statistically significant PEAD after either bad earnings news or good earnings news when firms are located in highly Catholic, less religious areas. However, there are statistically and economically significant PEADs after both bad and good earnings surprises for the firms from low highly Protestant, less religious areas. The PEAD following good news is between 9.19% and 12.39%. The PEAD following bad news has higher magnitude, and it is between -18.01 % and -25.12%. Taken together, the results in Panels A and B indicate that the distraction effect (after both bad and good earnings news) is strongest among firms located in predominantly Protestant, less religious areas and illustrate that religious affiliation effects are responsible for at least part of the delayed response results of Table 2.6.

Panels C and D display the immediate reaction results. In Panel C, immediate reactions to both good and bad earnings news are not statistically significant in more religious Catholic areas. On the other, immediate reaction is statistically significant for bad earning news from firms in predominantly religious Protestant areas. At first glance, a strong immediate reaction to bad news in the more religious-Protestant subsample is not very consistent with my previous religious affiliation subsamples' results, where there was a strong immediate reaction to good earnings news in Protestant areas. However, the result is consistent with the religiosity subsamples' results in Table 2.6 where I found a strong immediate reaction to bad news in more religious areas.

Panel D shows that there is some statistically significant immediate reaction to good earnings news by firms in predominantly Catholic parts of less religious locations. On the other hand, immediate reaction to good earnings news is significant (and about 9%) for the firms in predominantly Protestant parts of less religious areas. This result is in line with both earlier religiosity and religious affiliation subsample analyses.

In sum, the results are consistent with my earlier results. The PEAD effect is stronger among firms in predominantly Protestant, less religious areas. The fact that the highest delayed response to earnings surprises appears in that subsample is also in line with a distraction effect caused by religious holidays. I posit that an asymmetric effect for different religious affiliations is consistent with the earlier studies that show differences in financial decision-making across for different religious affiliations (Grullon et al. (2010), Kumar et al. (2011), and Golombick et al. (2011) among others).

2.7 ADDITIONAL TESTS

In this section, I explore whether geographic factors might affect my results. In particular, I investigate whether investors' information processing ability varies across metropolitan areas and/or geographic regions, where there may be more pronounced differences in daily routines or cultural characteristics. I first present multivariate test results for a sample that excludes the firms that are located in big metropolitan areas and then I repeat the tests separately for groups formed after sorting firms into geographic regions based on headquarter location.

In Table 2.9, I show my empirical results for a sample that excludes firms whose location is within 100 miles of the three biggest U.S. metropolitan areas (i.e., New York City, Chicago, and Los Angeles). Earlier studies suggest that there are some differences in stock characteristics between low population density and high population density areas (Hong et al. (2008)) and between urban and rural firms (Loughran and Schultz (2005)). Note that the three biggest metropolitan areas account for 24,829 out of 89,702 observations in my sample. Given the large number of observations and the starkly different nature of the social fabric in the large metropolitan areas, it is possible that my main tests would produce a less complicated pattern of immediate and delayed reactions to good and bad news once I exclude metropolitan areas' firms from the test sample. Essentially, it is conceivable that differences in cultural characteristics between metropolitan and other areas that can affect investors' information environment during religious holidays were partly responsible for the rather odd pattern responses in Table 2.3. Table 2.9 reports delayed response and immediate reaction regressions for the sample excluding the biggest metropolitan areas.

Panel A shows a statistically and economically significant PEAD after bad earnings news whereas it reports less pronounced and statistically significant PEAD after good earnings news. This pattern is more consistent with a distraction effect than that of the full sample results presented in Table 2.3. In particular, the coefficient magnitudes of the delayed response variables are very similar to the ones in Table 2.3, but more importantly, Panel B shows some statistically significant positive immediate reaction to good earnings news whereas the immediate reaction to bad earnings news is not statistically significant. Taken together, the results in Panels A and B show an asymmetric immediate and delayed response to good and bad news, which improves over the puzzling symmetric response to bad news shown in the full sample regressions in Table 2.3. One could argue that excluding metropolitan areas that arguably are hard to classify into different religious characteristics areas makes my results more consistent with a religious holiday induced distraction effect.

Next, I analyze whether investor distraction that occurs during religious holidays varies across geographic regions. Different geographic regions may have different (cultural) characteristics which may impact investors' information processing during religious holidays. In a recent study, Hong et al. (2008) examine stock-price consequences of local bias by looking at the stocks from the nine U.S. Census regions and find higher stock returns for the firms from regions with low population and fewer firms because of the only-game-in-town effect. Following Hong et al. (2008), I examine whether geographic region of firm location matters for the investor distraction induced by religious holidays or not. I divide my sample into to four big regional subsamples (Northeast, Midwest, South and West) based on Census definitions.[44] Table 2.10, Panel A displays the PEAD results for the Northeast and Midwest regions and Panel B shows the same results for the South and West regions. Panels C and D contain the corresponding immediate reactions' results.

[44] The nine U.S. Census regions in Hong et al. (2008) are sub-regions of these fmy big regions. Based on Census definitions; the nine U.S. Census region definitions are in the following: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont are in New England Region. New Jersey, New York, and Pennsylvania are in Mid-Atlantic region. Indiana, Illinois, Michigan, Ohio, Wisconsin are in East-Northcentral region. Iowa, Nebraska, Kansas, North Dakota, Minnesota, South Dakota, Missouri are in West-Northcentral region. Delaware ,District of Columbia ,Florida ,Georgia ,Maryland ,North Carolina ,South Carolina ,Virginia ,West Virginia are in South Atlantic region. Alabama, Kentucky, Mississippi, Tennessee are in East-Southcentral region. Arkansas, Louisiana, Oklahoma, Texas are in West-Southcentral region. Arizona, Colorado, Idaho, New Mexico, Montana, Utah, Nevada, Wyoming are in Mountain region. Alaska, California, Hawaii, Oregon, Washington are in Pacific region. These nine Census regions make up the fmy big region definition as in the following: New England and Mid-Atlantic regions are in Northeast big region. East-Northcentral and West –Northcentral regions are in Midwest big region. South Atlantic, East-Southcentral, and West- Southcentral regions are in South big region. Mountain and Pacific regions are in West big region definition.

Before reporting the empirical results, it is important to note that there are stark religiosity and religious affiliation differences among the geographic region subsamples. Since average religiosity (adjusted adherence rate) and Catholic-Protestant ratio (CPRATIO) show great variation across the regional subsamples, I conjecture that these characteristics may help in providing a better explanation for the results.[45]

Panel A shows that, for Northeast region, the interaction term that captures the PEAD after bad earnings news announced during Easter holiday periods is positive in one out of four regressions. Even though this result is counter-intuitive, it is only statistically significant once and just at the 10% level. It should be noted that the Northeast region has the highest religiosity rate and highest *CPRATIO* among my four geographic region subsamples. Thus the highly religious adherent and predominantly Catholic characteristics or some other cultural characteristics specific to the Northeast may be the drivers of this, otherwise weak, result. Panel A also shows that there isn't any statistically significant delayed response to either good or bad earnings surprises announced during Easter holidays in the Midwest region.

Panel C shows that among southern firms, PEAD after bad earnings is highly statistically and economically significant, with coefficients of about -9% to -10%. Note that the South is the most Protestant region (i.e. it has the lowest *CPRATIO*) with above-average religiosity rates. Underreaction to bad firm news in the South is consistent with my earlier results which show that there is strong drift following bad news in predominantly Protestant areas. Panel C also displays a statistically significant PEAD after bad earnings news issued by the firms in the West just prior

[45] Average religiosity (adjusted adherence rate) and Catholic-Protestant ratio (CPRATIO) in my Northeast subsample are 77.8% and 4.47 respectively. Average religiosity and CPRATIO for Midwest subsample are 65.1% and 1.56, respectively. Average religiosity and CPRATIO for South subsample are 68.6% and 0.65, respectively. Average religiosity and CPRATIO in West subsample is 50.2% and 2.6, respectively. On the other hand, average religiosity and CPRATIO for the entire sample of observations are 64.7 % and 2.32, respectively.

to Easter. PEAD for Western firms is also economically important with a coefficient between -10.73% and -17.09 %. The West subsample has the lowest religiosity rate, thus in the West, observing a strong PEAD after bad news is consistent with my earlier results which show that the firms located in less religious areas have higher PEAD following bad news announced during holidays. The result is also in line with my distraction argument that suggests a stronger effect for in religious areas.

Panels C and D report the corresponding immediate reaction to earnings surprises for geographic region subsamples. In Panel C, there is some statistically significant immediate reaction to good (bad) earnings news announced during Easter holiday period in the Northeast (Midwest) subsample. Panel D shows a highly statistically significant immediate reaction to bad earnings news by Southern firms when they make earnings announcements during religious holidays. In the South, there is also some positive immediate reaction to good earnings news just prior to religious holidays. Considering that the South region subsample is predominantly Protestant and is slightly more religious, these results are in line with my earlier religiosity and religious affiliation results. Panel D reports some pronounced immediate reaction to good earnings surprises and no significant immediate response to bad earnings news issued by firms located in the West region. Given that the West region subsample is the least religious, this result is consistent with my earlier religiosity subsample results which show a more pronounced immediate reaction to only good firm news in less religious areas. Briefly, the pattern in immediate reaction results is compatible with the one of the PEAD results and, most importantly, consistent with my earlier results.

2.8 CONCLUSION

This paper examines whether culture, proxied by religion, affects investors' ability to incorporate relevant information available in earnings announcements into stock prices. In theory, one expects rational investors to process and incorporate this type of information into stock prices completely and timely. However, recent studies suggest that people have limited information processing capabilities and limited attention, and therefore any distraction can lead to delayed and/or incomplete information processing. I test this hypothesis by focusing on Easter and analyzing whether this religious holiday distracts investors, essentially limits their attention, and thereby leads to a delayed inclusion of information into stock prices. I find that there is a delayed response to earnings news and an additional post-earnings announcement drift (PEAD) when earnings announcements occur during Easter week. This underreaction to earnings news and delayed incorporation of earnings news into stock prices shows that religious holidays can indeed have a distraction effect on investors. In addition, the religious holiday induced-distraction effect is not subsumed by a parallel-existing travel or vacation effect.

My subsample analyses also support the investor distraction effect. In the subsample tests, I find a higher PEAD effect for the firms located in less religious areas. This result suggests that religious holidays have a higher distraction effect in less religious areas because in such areas religious rituals and religious participation are not big part of daily routine.

I also find that there are some differences in the distraction effect for the firms that are located in predominantly Catholic versus predominantly Protestant areas. In particular, my paper shows that the highest distraction effect is among firms in Protestant parts of less religious areas. This result is consistent with earlier studies that suggest different cultural characteristics and different perceptions for different religious affiliations (LaPorta et al. (1999), Grullon et al.

(2010), and Kumar et al. (2011) among others). This result is also consistent with the recent literature that shows differences in individual investment decision and corporate decisions for different religious affiliations of firm locations (Hilary and Hui (2009), Kumar et al. (2011), Grullon et al. (2010) and Golombick et al. (2011) among others). In sum, my paper also shows empirical findings on the importance of local investor (in)attention. My study adds new evidence to the recent literature that studies the impact of local bias and local characteristics on stock prices. I show that local religiosity and religious affiliation is important in explaining investor inattention or distraction and delayed incorporation of information into stock prices.

2.9 TABLES

Table 2.1: Descriptive Statistics

Panel A. Summary Statistics

	Size($M)	B/M	Earnings persistence	Earnings volatility	Share turnover	Reporting Lag	Number of Analysts	Inst. ownership
Mean	3,407.52	0.53	0.28	0.328%	9.776%	27.45	4.71	56.05%
Median	559.28	0.43	0.24	0.001%	7.099%	25	3	55.33%
N	89,702	89,702	84,743	89,382	89,660	89,702	89,702	58,241

Panel B. Immediate Reaction and PEAD

	All Firms	Firms announcing earnings during Easter holidays	
	Full Sample	(-2,0) of holidays	(-3,0) of holidays
	CAR (-1,1)	CAR (-1,1)	CAR (-1,1)
Mean	0.23%	0.35%	0.77%
N	89,685	807	1,124
	CAR (E_t,E_{t+1})	CAR (E_t,E_{t+1})	CAR (E_t,E_{t+1})
Mean	-0.914%	-1.65%	-0.82%
N	89,694	807	1,124
	CAR (0,1)	CAR (0,1)	CAR (0,1)
Mean	0.12%	0.26%	0.46%
N	89,685	807	1,124
	CAR (2,61)	CAR (2,61)	CAR (2,61)
Mean	-0.89%	-1.48%	-0.71%
N	89,692	807	1,124

Panel A reports the descriptive statistics for firm variables. Panel B displays mean values of cumulative abnormal returns (CARs) for all earnings announcements and subsamples of earnings announcements issued in the (-2,0) and (-3,0) windows for Easter Holidays where day 0 represents Good Friday. In Panel B, columns 2 and 3 show only the earnings announcements issued around Easter Holidays. In all CAR event window definition, day 0 represents the day of earnings announcement. *CAR(E_t,E_{t+1})* is the cumulative abnormal return between current earnings announcement and the next one. Size is company's market value. B/M is company's book to market ratio. Earnings volatility is measured as the standard deviation of prior four year quarterly earnings from the earnings one year ago. Share turnover is the average monthly trading volume normalized by the average number of share outstanding for the one year period that ends at the end of corresponding fiscal quarter. Reporting lag is the number of days between the quarter end and earnings announcement day. Log (1+# of analysts) is logarithm of the number of analysts that follows the firm during the corresponding quarter. Earnings Persistence is the first-order autocorrelation coefficient of earnings per share (stock split-adjusted) using of prior four year quarterly earnings. Institutional ownership is the percentage of shares that institutions hold for the corresponding fiscal quarter. The sample period is from 1989 to 2006 in this table.

Table 2.2: Univariate Statistics of Easter Week Announcements

Panel A. Immediate Reaction and PEAD of Firms with Announcements During Easter Holidays								
	FE=1 (Earnings Surprise Quintile 1)				FE=5 (Earnings Surprise Quintile 5)			
Holiday event window	CAR (-1,1)	CAR (0,1)	CAR (E_t,E_{t+1})	CAR (2,61)	CAR (-1,1)	CAR (0,1)	CAR (E_t,E_{t+1})	CAR (2,61)
(-2,0)	-2.7%***	-2.44%***	-9.07%***	-9.18%***	4.27%***	3.81%***	5.31%**	4..82%**
(-3,0)	-2.29%***	-2.21%***	-7.41%***	-7.35%***	3.92%***	3.65%***	5.82%**	4.69%***
Panel B. Religiosity Subsamples								
B.1 . Firms in More Religious Areas								
	FE=1 (Earnings Surprise Quintile 1)				FE=5 (Earnings Surprise Quintile 5)			
Holiday event window	CAR (-1,1)	CAR (0,1)	CAR (E_t,E_{t+1})	CAR (2,61)	CAR (-1,1)	CAR (0,1)	CAR (E_t,E_{t+1})	CAR (2,61)
(-2,0)	-3.37%***	-3.01%**	-6.37%**	-5.05%*	3.49%***	3.16%***	3.41%	1.69%
(-3,0)	-2.16%**	-2.11%**	-4.64%**	-3.83%*	3.62%***	3.34%***	4.76%	1.99%
B.1 . Firms in Less Religious Areas								
	FE=1 (Earnings Surprise Quintile 1)				FE=5 (Earnings Surprise Quintile 5)			
Holiday event window	CAR (-1,1)	CAR (0,1)	CAR (E_t,E_{t+1})	CAR (2,61)	CAR (-1,1)	CAR (0,1)	CAR (E_t,E_{t+1})	CAR (2,61)
(-2,0)	-0.74%	-0.89%	-12.27%***	-12.94%***	4.36%**	4.24%***	8.16%**	9.07%**
(-3,0)	-1.22%	-1.41%	-10.25%***	-10.78%***	4.19%***	4.11%***	7.48%**	8.01%**
Panel C. Religious Affiliation Subsamples								
C.1 . Firms in High CPRATIO (more Catholic) Areas								
	FE=1 (Earnings Surprise Quintile 1)				FE=5 (Earnings Surprise Quintile 5)			
Holiday event window	CAR (-1,1)	CAR (0,1)	CAR (E_t,E_{t+1})	CAR (2,61)	CAR (-1,1)	CAR (0,1)	CAR (E_t,E_{t+1})	CAR (2,61)
(-2,0)	-3.02%***	-2.20%**	-5.79%**	-5.64%**	3.40%***	3.17%***	6.41%**	4.98%*
(-3,0)	-2.14%**	-1.65%**	-4.91%**	-4.74%**	3.57%***	3.55%***	7.82%***	5.37%**
C.1 . Firms in Low CPRATIO (more Protestant) Areas								
	FE=1 (Earnings Surprise Quintile 1)				FE=5 (Earnings Surprise Quintile 5)			
Holiday event window	CAR (-1,1)	CAR (0,1)	CAR (E_t,E_{t+1})	CAR (2,61)	CAR (-1,1)	CAR (0,1)	CAR (E_t,E_{t+1})	CAR (2,61)
(-2,0)	-1.77%	-2.27%*	-16.37%***	-15.07%***	6.77%***	5.62%***	2.76%	3.58%
(-3,0)	-2.34%**	-2.79%***	-12.77%***	-11.54%***	5.09%***	4.31%***	2.29%	2.79%

This table shows univariate statistics for earnings announcements issued only in the (-2,0) and (-3,0) windows for Easter Holidays where day 0 represents Good Friday. Cumulative abnormal returns(CARs) are defined in Table 2.1. In this table, FE represents earning surprise ranking quintiles (1 to 5 earnings surprise quintiles).Panel A shows univariate statistics only for extreme earnings surprise quintiles for the entire sample. Panels B and C show the results of extreme earnings surprise quintiles for different degrees of religiosity and different religious affiliations, respectively. In Panel B, the highest religiosity tercile of my sample represents firms located in more religious areas, and the lowest religiosity tercile of my sample represents firms located in less religious areas. Religiosity is measured by the adjusted county religious adherence rate (Finke and Scheitle (2005)) extracted from the ARDA database. In Panel C, CPRATIO represents Catholic to Protestant ratio of a county where a given firm located in. In Panel C, religious affiliation subsamples are defined based on the following CPRATIO cutoff points: if a county has a CPRATIO greater than or equal to (less than or equal to) 1.2 (0.83) then this area is classified as more Catholic (more Protestant) area. This table reports statistical significance results for t-test of whether earning surprise is equal to zero or not. (* significant at 10%; ** significant at 5%; *** significant at 1%). The sample period is from 1989 to 2006 in this table.

Table 2.3: Full Sample Tests

Panel A. Delayed Response (PEAD) Regressions				
Dependent Variable	CAR (E_t,E_{t+1})		CAR (2,61)	
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0200	-0.0105	-0.0128	-0.0024
	(0.001)***	(0.384)	(0.029)**	(0.848)
EasterHoliday*FE5	0.0374	0.0331	0.0295	0.0170
	(0.002)***	(0.011)**	(0.007)***	(0.310)
FE5	0.0305	0.0304	0.0306	0.0307
	(0.000)***	(0.000)***	(0.000)***	(0.000)***
EasterHoliday*FE1	-0.0818	-0.0709	-0.0963	-0.0789
	(0.000)***	(0.004)***	(0.000)***	(0.010)***
FE1	-0.0068	-0.0066	-0.0053	-0.0051
	(0.018)**	(0.014)**	(0.020)**	(0.019)**
Constant	-0.0501	-0.0503	-0.0359	-0.0361
	(0.018)**	(0.016)**	(0.168)	(0.163)
Controls	Yes	Yes	Yes	Yes
Observations	55303	55303	55303	55303
R-squared	0.023	0.023	0.023	0.022

Panel B. Immediate Reaction Regressions				
Dependent Variable	Car (-1, 1)		Car (0, 1)	
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0016	0.0030	-0.0002	0.0010
	(0.531)	(0.530)	(0.842)	(0.451)
EasterHoliday*FE5	0.0109	0.0030	0.0119	0.0085
	(0.008)***	(0.664)	(0.247)	(0.252)
FE5	0.0296	0.0297	0.0261	0.0261
	(0.000)***	(0.000)***	(0.000)***	(0.000)***
EasterHoliday*FE1	-0.0115	-0.0144	-0.0140	-0.0145
	(0.072)*	(0.043)**	(0.006)***	(0.002)***
FE1	-0.0299	-0.0298	-0.0268	-0.0267
	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	-0.0048	-0.0049	-0.0022	-0.0024
	(0.684)	(0.677)	(0.828)	(0.815)
Controls	Yes	Yes	Yes	Yes
Observations	55302	55302	55302	55302
R-squared	0.063	0.063	0.058	0.058

Dependent variables are *CAR(* E_t,E_{t+1}*)* and *CAR(2,61)* in Panel A and *CAR(-1,1) and CAR (0,1)* in Panel B. Cumulative abnormal returns(CARs) are defined in Table 2.1. FE represents earning surprise ranking quintiles. (1 to 5 earnings surprise quintiles).FE5 is an indicator variable that takes value of 1 for the FE=5 and value of 0 for everything else.FE1 is an indicator variable that takes value of 1 for the FE=1 and value of 0 for everything else. *EasterHoliday* represents a dummy variable that takes the value of one if an earnings announcement occurs within the [-2,0] or [-3,0] event windows, where "0" represents the date of Good Friday for the event windows, and the value of zero otherwise. Control Variables: Firm size, B/M ratio, Log(1+ #of analyst),Reporting Lag, Earnings Volatility, Share Turnover, Earnings Persistence, and Institutional ownership. Control variables are defined in Table 2.1. Other control variables are Two-digit SIC variables, Day of week, Month, Year variables. Control variables are not shown for brevity. Robust p-values in parentheses. (* significant at 10%; ** significant at 5%; *** significant at 1%). Standard errors are adjusted for heteroskedasticity and clustered by the day of announcement. The sample period is from 1989 to 2006 in this table.

Table 2.4: Easter Holiday Effect vs. Vacation Holiday Effect

Panel A. Delayed Response (PEAD) Regressions				
Dependent Variable	CAR (E_t,E_{t+1})		CAR (2,61)	
Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0200	-0.0105	-0.0127	-0.0024
	(0.001)***	(0.385)	(0.028)**	(0.849)
VacationHoliday	0.0118	0.0092	0.0141	0.0072
	(0.316)	(0.330)	(0.149)	(0.450)
EasterHoliday*FE5	0.0376	0.0333	0.0296	0.0171
	(0.002)***	(0.011)**	(0.007)***	(0.310)
VacationHoliday*FE5	0.0367	0.0165	0.0162	0.0062
	(0.122)	(0.204)	(0.222)	(0.692)
FE5	0.0302	0.0302	0.0305	0.0306
	(0.000)***	(0.000)***	(0.000)***	(0.000)***
EasterHoliday*FE1	-0.0821	-0.0712	-0.0964	-0.0792
	(0.000)***	(0.004)***	(0.000)***	(0.010)***
VacationHoliday*FE1	-0.0346	-0.0266	-0.0192	-0.0209
	(0.047)**	(0.256)	(0.136)	(0.179)
FE1	-0.0065	-0.0063	-0.0052	-0.0049
	(0.019)**	(0.017)**	(0.018)**	(0.019)**
Constant	-0.0503	-0.0510	-0.0361	-0.0365
	(0.017)**	(0.017)**	(0.167)	(0.162)
Controls	Yes	Yes	Yes	Yes
Observations	55303	55303	55303	55303
R-squared	0.023	0.023	0.023	0.022

Table 2.4 (cont.)

Panel B. Immediate Reaction Regressions				
Dependent Variable	Car (-1, 1)		Car (0, 1)	
Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0016	0.0030	-0.0002	0.0010
	(0.526)	(0.531)	(0.840)	(0.446)
VacationHoliday	-0.0025	-0.0012	-0.0004	0.0004
	(0.642)	(0.792)	(0.920)	(0.916)
EasterHoliday*FE5	0.0111	0.0031	0.0119	0.0084
	(0.007)***	(0.650)	(0.246)	(0.251)
VacationHoliday*FE5	0.0170	0.0081	0.0006	-0.0034
	(0.160)	(0.382)	(0.945)	(0.602)
FE5	0.0295	0.0296	0.0261	0.0261
	(0.000)***	(0.000)***	(0.000)***	(0.000)***
EasterHoliday*FE1	-0.0115	-0.0144	-0.0140	-0.0145
	(0.074)*	(0.044)**	(0.006)***	(0.002)***
VacationHoliday*FE1	0.0067	0.0048	0.0089	0.0034
	(0.228)	(0.521)	(0.180)	(0.681)
FE1	-0.0300	-0.0299	-0.0268	-0.0267
	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	-0.0048	-0.0051	-0.0022	-0.0023
	(0.683)	(0.671)	(0.828)	(0.819)
Controls	Yes	Yes	Yes	Yes
Observations	55302	55302	55302	55302
R-squared	0.063	0.063	0.058	0.058

Dependent variables are $CAR(E_t,E_{t+1})$ and *CAR(2,61)* in Panel A and *CAR(-1,1) and CAR (0,1)* in Panel B. Cumulative abnormal returns(CARs) are defined in Table 2.1. FE5 (FE1) and *EasterHoliday* variables are defined in Table 2.3. *VacationHoliday* is a dummy variable that takes value of one if a given earnings announcement occurs during Thanksgiving, 4th of July or Memorial day event window, otherwise the value of zero. All control variables are defined in Table 2.3. Control variables are not shown for brevity. Robust p-values in parentheses. (* significant at 10%; ** significant at 5%; *** significant at 1%). Standard errors are adjusted for heteroskedasticity and clustered by the day of announcement. The sample period is from 1989 to 2006 in this table.

Table 2.5: Easter Holiday Effect vs. Travel Volume Effect

Panel A. Delayed Response (PEAD) Regressions				
Dependent Variable	CAR (E_t,E_{t+1})		CAR (2,61)	
Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0266	-0.0153	-0.0187	-0.0065
	(0.002)***	(0.309)	(0.019)**	(0.659)
AirPassengerVol	-0.0000	-0.0000	-0.0000	-0.0000
	(0.309)	(0.315)	(0.494)	(0.505)
EasterHoliday*FE5	0.0411	0.0344	0.0358	0.0180
	(0.002)***	(0.023)**	(0.005)***	(0.410)
AirPassengerVol*FE5	-0.0000	-0.0000	0.0000	0.0000
	(0.356)	(0.353)	(0.753)	(0.764)
FE5	0.0493	0.0493	0.0251	0.0254
	(0.085)*	(0.084)*	(0.129)	(0.119)
EasterHoliday*FE1	-0.0747	-0.0743	-0.0938	-0.0861
	(0.000)***	(0.000)***	(0.001)***	(0.002)***
AirPassengerVol*FE1	0.0000	0.0000	-0.0000	-0.0000
	(0.961)	(0.965)	(0.691)	(0.686)
FE1	-0.0074	-0.0068	0.0092	0.0097
	(0.867)	(0.876)	(0.799)	(0.786)
Constant	0.0242	0.0235	0.0148	0.0137
	(0.717)	(0.725)	(0.832)	(0.844)
Controls	Yes	Yes	Yes	Yes
Observations	44164	44164	44164	44164
R-squared	0.019	0.019	0.019	0.019

Table 2.5 (cont.)

Panel B. Immediate Reaction Regressions				
Dependent Variable	Car (-1, 1)		Car (0, 1)	
Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0032	0.0029	-0.0007	0.0012
	(0.220)	(0.623)	(0.208)	(0.490)
AirPassengerVol	-0.0000	-0.0000	-0.0000	-0.0000
	(0.452)	(0.512)	(0.853)	(0.872)
EasterHoliday*FE5	0.0155	0.0052	0.0136	0.0091
	(0.001)***	(0.572)	(0.117)	(0.190)
AirPassengerVol*FE5	0.0000	0.0000	0.0000	0.0000
	(0.008)***	(0.008)***	(0.014)**	(0.014)**
FE5	0.0083	0.0086	-0.0045	-0.0045
	(0.142)	(0.127)	(0.614)	(0.620)
EasterHoliday*FE1	-0.0100	-0.0133	-0.0127	-0.0142
	(0.153)	(0.067)*	(0.022)**	(0.006)***
AirPassengerVol*FE1	-0.0000	-0.0000	-0.0000	-0.0000
	(0.034)**	(0.033)**	(0.011)**	(0.011)**
FE1	-0.0027	-0.0025	0.0133	0.0134
	(0.794)	(0.807)	(0.265)	(0.257)
Constant	0.0009	-0.0002	-0.0035	-0.0039
	(0.941)	(0.989)	(0.812)	(0.787)
Controls	Yes	Yes	Yes	Yes
Observations	44163	44163	44163	44163
R-squared	0.066	0.066	0.063	0.063

Dependent variables are *CAR(* E_t,E_{t+1}*)* and *CAR(2,61)* in Panel A and *CAR(-1,1) and CAR (0,1)* in Panel B. Cumulative abnormal returns (CARs) are defined in Table 2.1. FE5(FE1) and *EasterHoliday* variables are defined in Table 2.3. AirPassengerVol is a variable that proxies monthly total number of passenger enplanements. AirPassengerVol is in 1000s. All control variables are defined in Table 2.3. Control variables are not shown for brevity. Robust p-values in parentheses. (* significant at 10%; ** significant at 5%; *** significant at 1%). Standard errors are adjusted for heteroskedasticity and clustered by the day of announcement. The sample period is from 1991 to 2006 in this table.

Table 2.6: Religiosity Subsample Tests

Panel A. Delayed Response (PEAD) regressions								
Dependent Variable	CAR (E_t,E_{t+1})		CAR (2,61)		CAR (E_t,E_{t+1})		CAR (2,61)	
Religiosity subsamples	More Religious Areas				Less Religious Areas			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0285	-0.0200	-0.0186	-0.0119	-0.0024	-0.0030	0.0149	0.0161
	(0.009)***	(0.209)	(0.085)*	(0.361)	(0.573)	(0.448)	(0.232)	(0.057)*
EasterHoliday*FE5	0.0287	0.0277	0.0061	-0.0039	0.0616	0.0576	0.0561	0.0440
	(0.039)**	(0.085)*	(0.666)	(0.839)	(0.193)	(0.163)	(0.346)	(0.387)
FE5	0.0329	0.0328	0.0342	0.0343	0.0241	0.0241	0.0253	0.0254
	(0.002)***	(0.002)***	(0.004)***	(0.004)***	(0.004)***	(0.005)***	(0.010)**	(0.010)***
EasterHoliday*FE1	-0.0504	-0.0388	-0.0649	-0.0420	-0.1628	-0.1265	-0.1752	-0.1413
	(0.364)	(0.231)	(0.399)	(0.358)	(0.029)**	(0.084)*	(0.036)**	(0.064)*
FE1	-0.0090	-0.0088	-0.0054	-0.0053	-0.0007	-0.0007	-0.0015	-0.0014
	(0.024)**	(0.022)**	(0.023)**	(0.022)**	(0.915)	(0.917)	(0.686)	(0.698)
Constant	0.0066	0.0070	0.0417	0.0429	-0.0395	-0.0399	-0.0418	-0.0422
	(0.679)	(0.670)	(0.006)***	(0.007)***	(0.493)	(0.488)	(0.483)	(0.479)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	21070	21070	21070	21070	16923	16923	16923	16923
R-squared	0.029	0.029	0.028	0.028	0.031	0.031	0.031	0.031

Table 2.6 (cont.)

Panel B. Immediate Reaction Regressions								
Dependent Variable	CAR (-1,1)		CAR (0,1)		CAR (-1,1)		CAR (0,1)	
Religiosity subsamples	More Religious Areas				Less Religious Areas			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0029	0.0016	0.0003	0.0034	0.0034	0.0115	-0.0032	-0.0018
	(0.086)*	(0.666)	(0.853)	(0.320)	(0.777)	(0.356)	(0.799)	(0.830)
EasterHoliday*FE5	0.0012	0.0014	0.0021	0.0028	0.0057	-0.0023	0.0197	0.0168
	(0.786)	(0.747)	(0.674)	(0.476)	(0.038)**	(0.775)	(0.012)**	(0.061)*
FE5	0.0270	0.0270	0.0229	0.0229	0.0324	0.0325	0.0295	0.0295
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
EasterHoliday*FE1	-0.0179	-0.0134	-0.0222	-0.0178	-0.0041	-0.0136	-0.0038	-0.0050
	(0.260)	(0.140)	(0.087)*	(0.036)**	(0.314)	(0.314)	(0.517)	(0.261)
FE1	-0.0298	-0.0297	-0.0268	-0.0267	-0.0320	-0.0319	-0.0283	-0.0282
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	-0.0271	-0.0273	-0.0292	-0.0296	0.0040	0.0039	0.0088	0.0088
	(0.044)**	(0.047)**	(0.022)**	(0.021)**	(0.796)	(0.799)	(0.502)	(0.504)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	21069	21069	21069	21069	16923	16923	16923	16923
R-squared	0.063	0.063	0.058	0.058	0.069	0.069	0.063	0.063

Table 2.6 displays the multivariate test results of delayed response and immediate market reaction for different religiosity subsamples Dependent variables are *CAR(* E_t,E_{t+1}*)* and *CAR(2,61)* in Panel A and *CAR(-1,1) and CAR (0,1)* in Panel B. Cumulative abnormal returns (CARs) are defined in Table 2.1. In this table, religiosity is measured by the adjusted county religious adherence rate (Finke and Scheitle (2005)) extracted from the ARDA database. The highest religiosity tercile of my sample represents firms located in more religious areas, and the lowest religiosity tercile of my sample represents firms located in less religious areas.. FE5(FE1) and *EasterHoliday* variables are defined in Table 2.3. All control variables are defined in Table 2.3. Control variables are not shown for brevity. Robust p-values in parentheses. (* significant at 10%; ** significant at 5%; *** significant at 1%). Standard errors are adjusted for heteroskedasticity and clustered by the day of announcement. The sample period is from 1989 to 2006 in this table.

Table 2.7: Religious Affiliation Subsample Tests

Panel A. Delayed Response (PEAD) regressions								
Dependent Variable	CAR (E_t,E_{t+1})		CAR (2,61)		CAR (E_t,E_{t+1})		CAR (2,61)	
CPRATIO subsamples	High CPRATIO (More Catholic) Areas				Low CPRATIO(More Protestant) Areas			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0190	-0.0081	-0.0085	0.0017	-0.0363	-0.0279	-0.0342	-0.0211
	(0.013)**	(0.507)	(0.210)	(0.886)	(0.003)***	(0.091)*	(0.005)***	(0.255)
EasterHoliday*FE5	0.0418	0.0405	0.0263	0.0152	0.0353	0.0211	0.0403	0.0181
	(0.003)***	(0.001)***	(0.011)**	(0.156)	(0.017)**	(0.362)	(0.000)***	(0.509)
FE5	0.0294	0.0293	0.0289	0.0290	0.0321	0.0322	0.0332	0.0333
	(0.000)***	(0.001)***	(0.001)***	(0.001)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
EasterHoliday*FE1	-0.0504	-0.0441	-0.0647	-0.0525	-0.1413	-0.1177	-0.1323	-0.1104
	(0.000)***	(0.007)***	(0.000)***	(0.014)**	(0.029)**	(0.022)**	(0.015)**	(0.017)**
FE1	-0.0080	-0.0078	-0.0059	-0.0058	-0.0058	-0.0054	-0.0059	-0.0056
	(0.063)*	(0.062)*	(0.089)*	(0.090)*	(0.147)	(0.146)	(0.104)	(0.110)
Constant	-0.0695	-0.0694	-0.0578	-0.0578	0.0270	0.0283	0.0531	0.0540
	(0.032)**	(0.033)**	(0.051)*	(0.051)*	(0.130)	(0.121)	(0.041)**	(0.036)**
Observations	34393	34393	34393	34393	17102	17102	17102	17102
R-squared	0.021	0.021	0.020	0.020	0.050	0.050	0.048	0.048

Table 2.7 (cont.)

Panel B. Immediate Reaction Regressions								
Dependent Variable	CAR (-1,1)		CAR (0,1)		CAR (-1,1)		CAR (0,1)	
CPRATIO subsamples	High CPRATIO (More Catholic) Areas				Low CPRATIO(More Protestant) Areas			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	0.0003	0.0060	0.0017	0.0034	-0.0001	-0.0016	-0.0008	-0.0022
	(0.893)	(0.232)	(0.513)	(0.075)*	(0.962)	(0.383)	(0.807)	(0.401)
EasterHoliday*FE5	0.0009	-0.0017	0.0052	0.0077	0.0378	0.0163	0.0313	0.0145
	(0.833)	(0.630)	(0.607)	(0.365)	(0.000)***	(0.289)	(0.029)**	(0.331)
FE5	0.0307	0.0308	0.0272	0.0272	0.0282	0.0283	0.0243	0.0244
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
EasterHoliday*FE1	-0.0228	-0.0189	-0.0180	-0.0134	0.0027	-0.0059	-0.0061	-0.0144
	(0.141)	(0.055)*	(0.101)	(0.087)*	(0.367)	(0.550)	(0.062)*	(0.142)
FE1	-0.0303	-0.0303	-0.0270	-0.0270	-0.0283	-0.0282	-0.0258	-0.0256
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	0.0080	0.0081	0.0098	0.0099	-0.0248	-0.0258	-0.0235	-0.0243
	(0.271)	(0.262)	(0.192)	(0.188)	(0.036)**	(0.017)**	(0.047)**	(0.026)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	34392	34392	34392	34392	17102	17102	17102	17102
R-squared	0.062	0.062	0.057	0.057	0.076	0.075	0.071	0.071

Table 2.7 displays the multivariate test results of delayed response and immediate market reaction for different religious affiliation subsamples. Dependent variables are *CAR*(E_t,E_{t+1}) and *CAR(2,61)* in Panel A and *CAR(-1,1) and CAR (0,1)* in Panel B. Cumulative abnormal returns (CARs) are defined in Table 2.1. In this table, religious affiliation is measured CPRATIO. CPRATIO represents Catholic to Protestant ratio of a county where a given firm located in. Religious affiliation areas are defined based on the following CPRATIO cutoff points: if a county has a CPRATIO greater than or equal to (less than or equal to) 1.2 (0.83) then this area is classified as more Catholic (more Protestant) area. FE5(FE1) and *EasterHoliday* variables are defined in Table 2.3. All control variables are defined in Table 2.3.Control variables are not shown for brevity. Robust p-values in parentheses. (* significant at 10%; ** significant at 5%; *** significant at 1%). Standard errors are adjusted for heteroskedasticity and clustered by the day of announcement. The sample period is from 1989 to 2006 in this table.

Table 2.8: Religiosity and Religious Affiliation Subsample Tests

Panel A. Delayed Response (PEAD) regressions								
Dependent Variable	CAR (E_t,E_{t+1})		CAR (2,61)		CAR (E_t,E_{t+1})		CAR (2,61)	
Religiosity & CPRATIO subsamples	High CPRATIO parts of More Religious Areas				Low CPRATIO parts of More Religious Areas			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0277	-0.0173	-0.0207	-0.0108	-0.0329	-0.0266	-0.0089	-0.0111
	(0.003)***	(0.288)	(0.191)	(0.537)	(0.104)	(0.264)	(0.424)	(0.358)
EasterHoliday*FE5	0.0250	0.0343	0.0041	-0.0012	0.0444	-0.0145	0.0248	-0.0270
	(0.145)	(0.072)*	(0.733)	(0.921)	(0.527)	(0.856)	(0.759)	(0.683)
FE5	0.0333	0.0331	0.0337	0.0338	0.0322	0.0326	0.0376	0.0379
	(0.003)***	(0.003)***	(0.006)***	(0.006)***	(0.000)***	(0.000)***	(0.001)***	(0.001)***
EasterHoliday*FE1	-0.0133	-0.0222	-0.0312	-0.0278	-0.2107	-0.1241	-0.2107	-0.1187
	(0.809)	(0.476)	(0.692)	(0.530)	(0.002)***	(0.186)	(0.007)***	(0.230)
FE1	-0.0093	-0.0091	-0.0063	-0.0061	-0.0083	-0.0083	-0.0011	-0.0012
	(0.020)**	(0.020)**	(0.035)**	(0.038)**	(0.482)	(0.481)	(0.903)	(0.895)
Constant	-0.0828	-0.0826	-0.1513	-0.1511	0.0043	0.0072	0.0211	0.0234
	(0.002)***	(0.002)***	(0.001)***	(0.001)***	(0.936)	(0.893)	(0.545)	(0.509)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16616	16616	16616	16616	4077	4077	4077	4077
R-squared	0.027	0.027	0.026	0.026	0.063	0.063	0.062	0.061

Table 2.8 (cont.)

Panel B. Delayed Response (PEAD) regressions

Dependent Variable	CAR (E_t,E_{t+1})		CAR (2,61)		CAR (Et,Et+1)		CAR (2,61)	
Religiosity & CPRATIO subsamples	High CPRATIO parts of Less Religious Areas				Low CPRATIO parts of Less Religious Areas			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0005	0.0003	0.0294	0.0291	-0.0150	-0.0218	-0.0206	-0.0191
	(0.863)	(0.920)	(0.288)	(0.128)	(0.063)*	(0.028)**	(0.040)**	(0.072)*
EasterHoliday*FE5	0.0499	0.0397	0.0327	0.0184	0.1130	0.0919	0.1239	0.0849
	(0.392)	(0.431)	(0.684)	(0.782)	(0.002)***	(0.036)**	(0.000)***	(0.127)
FE5	0.0229	0.0229	0.0223	0.0225	0.0321	0.0322	0.0362	0.0365
	(0.049)**	(0.048)**	(0.072)*	(0.068)*	(0.010)***	(0.010)***	(0.009)***	(0.009)***
EasterHoliday*FE1	-0.1420	-0.0999	-0.1431	-0.1090	-0.2512	-0.1927	-0.2338	-0.1801
	(0.126)	(0.288)	(0.190)	(0.258)	(0.000)***	(0.010)***	(0.000)***	(0.011)**
FE1	0.0035	0.0034	0.0034	0.0034	-0.0038	-0.0035	-0.0040	-0.0037
	(0.756)	(0.764)	(0.692)	(0.691)	(0.567)	(0.579)	(0.548)	(0.571)
Constant	-0.0649	-0.0651	-0.0868	-0.0869	0.2275	0.2272	0.2683	0.2679
	(0.276)	(0.275)	(0.197)	(0.196)	(0.002)***	(0.002)***	(0.000)***	(0.000)***
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9991	9991	9991	9991	4775	4775	4775	4775
R-squared	0.042	0.042	0.041	0.040	0.062	0.061	0.059	0.058

Table 2.8 (cont.)

Panel C. Immediate Reaction Regressions

Dependent Variable	CAR (-1,1)		CAR (0,1)		CAR (-1,1)		CAR (0,1)	
Religiosity & CPRATIO subsamples	High CPRATIO parts of More Religious Areas				Low CPRATIO parts of More Religious Areas			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0073	-0.0001	-0.0009	0.0031	0.0161	0.0095	0.0057	0.0057
	(0.026)**	(0.985)	(0.617)	(0.281)	(0.008)***	(0.144)	(0.507)	(0.388)
EasterHoliday*FE5	0.0048	0.0037	0.0022	0.0043	-0.0130	-0.0137	0.0042	-0.0099
	(0.253)	(0.372)	(0.684)	(0.370)	(0.110)	(0.266)	(0.491)	(0.066)*
FE5	0.0270	0.0270	0.0231	0.0230	0.0279	0.0280	0.0232	0.0233
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.002)***	(0.002)***
EasterHoliday*FE1	-0.0217	-0.0116	-0.0155	-0.0089	-0.0050	-0.0243	-0.0507	-0.0584
	(0.457)	(0.452)	(0.235)	(0.258)	(0.895)	(0.264)	(0.000)***	(0.000)***
FE1	-0.0282	-0.0282	-0.0253	-0.0252	-0.0353	-0.0351	-0.0322	-0.0319
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.003)***	(0.002)***	(0.003)***	(0.003)***
Constant	0.0028	0.0029	0.0035	0.0036	-0.0222	-0.0227	-0.0282	-0.0286
	(0.999)	(0.999)	(0.999)	(0.999)	(0.009)***	(0.010)**	(0.002)***	(0.003)***
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16615	16615	16615	16615	4077	4077	4077	4077
R-squared	0.061	0.061	0.056	0.056	0.098	0.098	0.095	0.096

Table 2.8 (cont.)

Panel D. Immediate Reaction Regressions

Dependent Variable	CAR (-1,1)		CAR (0,1)		CAR (-1,1)		CAR (0,1)	
Religiosity & CPRATIO subsamples	High CPRATIO parts of Less Religious Areas				Low CPRATIO parts of Less Religious Areas			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	0.0116	0.0194	0.0006	0.0005	-0.0082	-0.0095	-0.0064	-0.0095
	(0.425)	(0.149)	(0.973)	(0.966)	(0.094)*	(0.020)**	(0.179)	(0.016)**
EasterHoliday*FE5	-0.0144	-0.0204	0.0054	0.0075	0.0521	0.0429	0.0567	0.0486
	(0.030)**	(0.027)**	(0.254)	(0.379)	(0.019)**	(0.069)*	(0.002)***	(0.018)**
FE5	0.0337	0.0338	0.0312	0.0312	0.0332	0.0332	0.0274	0.0273
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.001)***	(0.001)***	(0.000)***	(0.000)***
EasterHoliday*FE1	-0.0200	-0.0273	-0.0068	-0.0049	0.0169	0.0107	0.0033	0.0012
	(0.496)	(0.247)	(0.840)	(0.834)	(0.394)	(0.639)	(0.869)	(0.951)
FE1	-0.0335	-0.0334	-0.0293	-0.0294	-0.0264	-0.0264	-0.0241	-0.0241
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	-0.0033	-0.0034	0.0043	0.0043	-0.1050	-0.1051	-0.0776	-0.0777
	(0.824)	(0.818)	(0.748)	(0.748)	(0.010)***	(0.010)***	(0.010)**	(0.010)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9991	9991	9991	9991	4775	4775	4775	4775
R-squared	0.069	0.069	0.062	0.062	0.097	0.097	0.088	0.088

Table 2.8 displays the multivariate test results of delayed response and immediate market reaction for different combination of religiosity degrees and religious affiliations. Dependent variables are $CAR(E_t,E_{t+1})$ and *CAR(2,61)* in Panels A and B. Dependent variables are *CAR(-1,1) and CAR (0,1)* in Panels C and D. Cumulative abnormal returns (CARs) are defined in Table 1. Religiosity degree definitions are based on Table 2.6. Religious affiliation definitions are based on Table 2.7. CPRATIO represents Catholic to Protestant ratio of a county where a given firm located in. Religious affiliation areas are defined based on the following CPRATIO cutoff points: if a county has a CPRATIO greater than or equal to (less than or equal to) 1.2 (0.83) then this area is classified as more Catholic (more Protestant) area. FE5(FE1) and *EasterHoliday* variables are defined in Table 2.3. All control variables are defined in Table 2.3. Control variables are not shown for brevity. Robust p-values in parentheses. (* significant at 10%; ** significant at 5%; *** significant at 1%). Standard errors are adjusted for heteroskedasticity and clustered by the day of announcement. The sample period is from 1989 to 2006 in this table.

Table 2.9: Stock Response Tests excluding Metropolitan Areas

Panel A. Delayed Response (PEAD) regressions				
Dependent Variable	CAR (E_t,E_{t+1})		CAR (2,61)	
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0179	-0.0066	-0.0104	0.0015
	(0.006)***	(0.666)	(0.020)**	(0.921)
EasterHoliday*FE5	0.0654	0.0426	0.0564	0.0281
	(0.015)**	(0.198)	(0.034)**	(0.441)
FE5	0.0284	0.0285	0.0298	0.0300
	(0.000)***	(0.000)***	(0.001)***	(0.001)***
EasterHoliday*FE1	-0.0855	-0.0705	-0.1007	-0.0758
	(0.000)***	(0.009)***	(0.000)***	(0.034)**
FE1	-0.0047	-0.0045	-0.0046	-0.0045
	(0.196)	(0.196)	(0.097)*	(0.098)*
Constant	-0.0508	-0.0513	-0.0322	-0.0327
	(0.010)***	(0.010)***	(0.288)	(0.281)
Controls	Yes	Yes	Yes	Yes
Observations	40158	40158	40158	40158
R-squared	0.024	0.024	0.024	0.024
Panel B. Immediate Reaction Regressions				
Dependent Variable	Car (-1, 1)		Car (0, 1)	
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0030	0.0038	-0.0039	0.0001
	(0.394)	(0.608)	(0.013)**	(0.980)
EasterHoliday*FE5	0.0119	0.0026	0.0128	0.0080
	(0.005)***	(0.753)	(0.097)*	(0.198)
FE5	0.0294	0.0294	0.0259	0.0259
	(0.000)***	(0.000)***	(0.000)***	(0.000)***
EasterHoliday*FE1	0.0009	-0.0093	-0.0058	-0.0110
	(0.877)	(0.453)	(0.117)	(0.115)
FE1	-0.0297	-0.0296	-0.0263	-0.0262
	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	-0.0044	-0.0046	-0.0060	-0.0061
	(0.774)	(0.767)	(0.668)	(0.661)
Controls	Yes	Yes	Yes	Yes
Observations	40158	40158	40158	40158
R-squared	0.063	0.063	0.057	0.057

Dependent variables are *CAR(* E_t,E_{t+1}*)* and *CAR(2,61)* in Panel A and *CAR(-1,1) and CAR (0,1)* in Panel B. Cumulative abnormal returns (CARs) are defined in Table 2.1. FE5(FE1) and *EasterHoliday* variables are defined in Table 2.3. This table shows multivariate test results for a sample that excludes firms whose location is within 100 miles of the biggest metropolitan areas (New York City, Chicago, and Los Angeles) All control variables are defined in Table 2.3. Control variables are not shown for brevity. Robust p-values in parentheses. (* significant at 10%; ** significant at 5%; *** significant at 1%). Standard errors are adjusted for heteroskedasticity and clustered by the day of announcement. The sample period is from 1989 to 2006 in this table.

Table 2.10: Subsample Tests: Geographic Regions

Panel A. Delayed Response (PEAD) regressions								
Dependent Variable	CAR (Et,Et+1)		CAR (2,61)		CAR (Et,Et+1)		CAR (2,61)	
Geographic region subsamples	Northeast				Midwest			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0183	-0.0036	-0.0063	0.0101	-0.0273	-0.0171	-0.0294	-0.0210
	(0.042)**	(0.818)	(0.774)	(0.644)	(0.004)***	(0.267)	(0.001)***	(0.143)
EasterHoliday*FE5	-0.0135	0.0164	-0.0314	-0.0076	-0.0068	-0.0152	-0.0023	-0.0184
	(0.493)	(0.579)	(0.008)***	(0.711)	(0.870)	(0.627)	(0.932)	(0.480)
FE5	0.0344	0.0342	0.0340	0.0339	0.0319	0.0321	0.0311	0.0315
	(0.002)***	(0.002)***	(0.003)***	(0.003)***	(0.002)***	(0.002)***	(0.001)***	(0.001)***
EasterHoliday*FE1	0.0495	0.0120	0.0149	-0.0173	-0.0768	-0.0578	-0.0809	-0.0581
	(0.097)*	(0.777)	(0.773)	(0.726)	(0.222)	(0.259)	(0.231)	(0.292)
FE1	-0.0100	-0.0097	-0.0044	-0.0041	-0.0147	-0.0146	-0.0118	-0.0117
	(0.058)*	(0.060)*	(0.367)	(0.394)	(0.007)***	(0.007)***	(0.051)*	(0.052)*
Constant	-0.1047	-0.1044	-0.0639	-0.0635	-0.0762	-0.0762	-0.0644	-0.0647
	(0.000)***	(0.000)***	(0.264)	(0.263)	(0.092)*	(0.093)*	(0.102)	(0.102)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12222	12222	12222	12222	10451	10451	10451	10451
R-squared	0.030	0.030	0.028	0.028	0.051	0.051	0.046	0.045

Table 2.10 (cont.)

Panel B. Delayed Response (PEAD) regressions

Dependent Variable	CAR (Et,Et+1)		CAR (2,61)		CAR (Et,Et+1)		CAR (2,61)	
Geographic region subsamples	South				West			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0604	-0.0476	-0.0454	-0.0320	0.0310	0.0271	0.0461	0.0435
	(0.001)***	(0.050)**	(0.004)***	(0.120)	(0.025)**	(0.038)**	(0.023)**	(0.003)***
EasterHoliday*FE5	0.0742	0.0398	0.0528	0.0198	0.0350	0.0663	0.0255	0.0443
	(0.217)	(0.412)	(0.422)	(0.684)	(0.405)	(0.244)	(0.688)	(0.439)
FE5	0.0259	0.0261	0.0267	0.0269	0.0250	0.0245	0.0260	0.0258
	(0.001)***	(0.001)***	(0.000)***	(0.000)***	(0.004)***	(0.006)***	(0.015)**	(0.017)**
EasterHoliday*FE1	-0.0889	-0.0888	-0.1000	-0.0845	-0.1525	-0.1073	-0.1709	-0.1298
	(0.021)**	(0.002)***	(0.003)***	(0.005)***	(0.001)***	(0.092)*	(0.025)**	(0.068)*
FE1	-0.0023	-0.0018	-0.0037	-0.0033	-0.0003	-0.0005	-0.0009	-0.0009
	(0.640)	(0.715)	(0.438)	(0.483)	(0.965)	(0.944)	(0.858)	(0.849)
Constant	0.0268	0.0289	0.0484	0.0502	-0.0455	-0.0455	-0.0461	-0.0462
	(0.180)	(0.144)	(0.015)**	(0.017)**	(0.505)	(0.505)	(0.537)	(0.536)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13982	13982	13982	13982	14338	14338	14338	14338
R-squared	0.048	0.048	0.046	0.046	0.031	0.031	0.031	0.031

Table 2.10 (cont.)

Panel C. Immediate Reaction Regressions								
Dependent Variable	CAR (-1,1)		CAR (0,1)		CAR (-1,1)		CAR (0,1)	
Geographic region subsamples	Northeast				Midwest			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	-0.0166	-0.0041	-0.0099	-0.0020	-0.0032	-0.0032	0.0084	0.0052
	(0.003)***	(0.712)	(0.008)***	(0.773)	(0.450)	(0.408)	(0.045)**	(0.377)
EasterHoliday*FE5	0.0167	0.0268	0.0097	0.0227	0.0025	-0.0062	0.0012	-0.0035
	(0.005)***	(0.122)	(0.466)	(0.218)	(0.631)	(0.487)	(0.903)	(0.674)
FE5	0.0298	0.0296	0.0257	0.0255	0.0272	0.0274	0.0227	0.0228
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
EasterHoliday*FE1	-0.0093	-0.0136	-0.0132	-0.0190	-0.0180	-0.0178	-0.0236	-0.0267
	(0.696)	(0.337)	(0.446)	(0.161)	(0.273)	(0.169)	(0.124)	(0.052)*
FE1	-0.0287	-0.0286	-0.0266	-0.0264	-0.0289	-0.0288	-0.0259	-0.0258
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	-0.0278	-0.0275	-0.0225	-0.0223	0.0095	0.0093	0.0157	0.0155
	(0.579)	(0.581)	(0.529)	(0.530)	(0.424)	(0.434)	(0.191)	(0.196)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12221	12221	12221	12221	10451	10451	10451	10451
R-squared	0.067	0.067	0.064	0.064	0.081	0.081	0.073	0.073

Table 2.10 (cont.)

Panel D. Immediate Reaction Regressions								
Dependent Variable	CAR (-1,1)		CAR (0,1)		CAR (-1,1)		CAR (0,1)	
Geographic region subsamples	South				West			
Easter Holiday event window	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)	(-2,0)	(-3,0)
EasterHoliday	0.0034	0.0033	-0.0005	0.0010	0.0088	0.0148	-0.0008	-0.0022
	(0.362)	(0.216)	(0.949)	(0.856)	(0.492)	(0.194)	(0.944)	(0.769)
EasterHoliday*FE5	0.0138	-0.0004	0.0148	0.0011	0.0051	-0.0034	0.0155	0.0175
	(0.009)***	(0.968)	(0.076)*	(0.925)	(0.441)	(0.760)	(0.072)*	(0.094)*
FE5	0.0263	0.0264	0.0230	0.0231	0.0334	0.0335	0.0311	0.0311
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
EasterHoliday*FE1	-0.0160	-0.0214	-0.0171	-0.0212	0.0028	-0.0044	-0.0004	0.0025
	(0.037)**	(0.012)**	(0.001)***	(0.003)***	(0.421)	(0.653)	(0.891)	(0.483)
FE1	-0.0282	-0.0281	-0.0255	-0.0254	-0.0333	-0.0332	-0.0291	-0.0291
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	-0.0276	-0.0281	-0.0259	-0.0262	-0.0005	-0.0005	0.0039	0.0039
	(0.009)***	(0.007)***	(0.026)**	(0.023)**	(0.977)	(0.975)	(0.792)	(0.791)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13982	13982	13982	13982	14338	14338	14338	14338
R-squared	0.070	0.070	0.065	0.066	0.069	0.069	0.063	0.064

Table 2.10 displays the multivariate test results of delayed response and immediate market reaction for different geographic regions. Four main geographic region (Northeast, Midwest, South, and West) definitions are based on CENSUS definitions. Dependent variables are $CAR(E_t, E_{t+1})$ and *CAR(2,61)* in Panels A and B. Dependent variables are *CAR(-1,1) and CAR (0,1)* in Panels C and D. Cumulative abnormal returns (CARs) are defined in Table 2.1. FE5 (FE1) and *EasterHoliday* variables are defined in Table 2.3. All control variables are defined in Table 2.3. Control variables are not shown for brevity. Robust p-values in parentheses. (* significant at 10%; ** significant at 5%; *** significant at 1%). Standard errors are adjusted for heteroskedasticity and clustered by the day of announcement. The sample period is from 1989 to 2006 in this table.

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