Monthly Employment Reports and the Pricing of Firm-Level Earnings News

by

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Business Administration
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Dissertation submitted in partial fulfillment of
the requirements for the degree of
Doctor of Philosophy in Business Administration
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ABSTRACT

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Abstract

I use the monthly release of the Employment Situation (ES) by the Bureau of Labor Statistics to examine the impact of macroeconomic uncertainty on the pricing of firm-level earnings news. I use this setting because uncertainty about employment conditions is high the day before the employment report is released and is resolved just after the release of the report. I find a muted initial response to earnings announcements made the day before the employment report. This effect is stronger when ex-ante uncertainty about the contents of the employment report is high. The muted initial response is followed by a stronger-than-usual earning-return relation measured two days after the earnings announcement, or the day after the release of the employment report. These results are consistent with investors applying less weight to earnings signals when there is high uncertainty about macroeconomic conditions, and increasing the weight applied to these signals after the resolution of macroeconomic uncertainty. I consider earnings announcements made on employment-report Fridays and find a muted initial market response followed by greater-than-usual post-earnings-announcement drift. Finally, I find the proportion of bad news earnings announcements (negative unexpected earnings) is significantly higher on employment-report Fridays than on other days, including other Fridays.

Dedication

For Cherin, Jalen, Christian, Brooklyn, Mariah and Claire

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Acknowledgements

I thank my dissertation committee members Alon Brav, Bill Mayew, Per Olsson, Katherine Schipper (Supervisor) and Mohan Venkatachalam for helpful comments and direction. I also appreciate helpful suggestions from Dirk Black, Scott Dyreng, Yonca Ertimur, Jennifer Francis, Amanda Gonzales, Ryan Pratt and participants from workshops at Arizona State University, Brigham Young University, Dartmouth College, Duke University, Florida State University, Rice University, University of Florida, University of Georgia, University of Iowa, University of Notre Dame, University of Washington, University of Wisconsin, and Washington University.

1. Introduction

In this study I consider the effects of macroeconomic uncertainty on the pricing of earnings news. To do this, I examine how the scheduled monthly release of the Employment Situation (ES)¹ by the Bureau of Labor Statistics influences the stock market response to quarterly earnings announcements (EAs). I consider the effect of the ES² on the pricing of earnings news because the release dates of the ES are set well in advance, the report is highly anticipated by market participants, studies have shown that the report systematically resolves macroeconomic uncertainty, and the resolution of uncertainty is greater than that associated with other scheduled macroeconomic announcements (Ederington and Lee (1996) and Graham et al. (2003)).

While prior literature provides cross-sectional evidence that the market pricing of firm-level earnings news is a function of firm-specific uncertainty about the pricing implications of the news (e.g., Francis et al. (2007)), I consider the effects of time-varying macroeconomic uncertainty on the pricing of earnings news. Macroeconomic uncertainty can affect the pricing of earnings news because the effect of an earnings signal on investors' beliefs about future payoffs is a function of macroeconomic conditions (see Johnson (1999)). Therefore, uncertainty about macroeconomic conditions

¹ I use the terms Employment Situation, employment report and employment release interchangeably.

² The data in the Employment Situation come from monthly surveys distributed to households and businesses. The household survey generates the unemployment rate and employment statistics and the business survey generates payroll data such as total non-farm payrolls, average weekly hours worked, overtime and hourly earnings. Release dates of the Employment Situation are from the Bureau of Labor Statistics website.

results in uncertainty about the degree to which earnings predict future payoffs. When there is high uncertainty about macroeconomic conditions, investors receiving an earnings signal and updating their beliefs about future cash flows will place more weight on their priors about expected future cash flows and less weight on the earnings signal until the uncertainty is resolved.

To investigate the impact of macroeconomic uncertainty on the pricing of earnings news, I consider the market response to EAs occurring the day before an employment report³. Prior studies indicate that uncertainty about employment conditions is highest the day before the ES (Graham et al. (2003) and Beber and Brandt (2009)) and anecdotal evidence from the financial press suggests that investors are especially cautious on this day.⁴ Reasoning that investors face high uncertainty about macroeconomic conditions the day before the employment report, and this uncertainty affects the valuation implications of earnings news by reducing the weight investors place on this news, I predict that for EAs made the day before an ES report, the initial investor response will be muted, as compared to the initial market response to EAs made on other days.

³ Section 3.2 describes the process I follow to identify earnings announcements occurring the day before the employment report.

⁴ For example, a recent headline from CNN Money read “Stocks quiet before Friday’s jobs report” and the first line of the article noted how investors remained “in a holding pattern ahead of... [the] report.” Article by Ken Sweet, contributing writer, on Thursday, March 31, 2011. See article at: http://money.cnn.com/2011/03/31/markets/markets_newyork/index.htm.

The resolution of uncertainty at the release of the ES suggests a prediction for post-earnings-announcement returns associated with EAs occurring the day before the ES. If uncertainty about the state of the economy causes investors to place less weight on news in these EAs, then after the employment report is released and the macroeconomic uncertainty is resolved, I predict investors will increase the weight applied to earnings signals and prices will move in the direction of the earnings news.

I first investigate the relation between abnormal returns the day before and the day of EAs immediately preceding an ES and unexpected earnings, i.e. the earnings response coefficient (ERC). Using a sample of quarterly EAs from September 1998 to December 2009, I find the initial response to EAs made the day before an employment report is significantly lower than the response to EAs released on other days. If the lower response is due to macroeconomic uncertainty, then the muted response should be more pronounced when ex-ante uncertainty about employment conditions is high. To test this prediction, I use the dispersion of economists' forecasts of the unemployment rate as a proxy for ex-ante uncertainty about the employment news and find that the muted reaction to earnings news is strongest when uncertainty about the contents of the employment report is high.

If macroeconomic uncertainty causes investors to place less weight on an earnings signal due to uncertainty about the implications of earnings for future payoffs, then once the employment report is released and macroeconomic uncertainty is

resolved, investors will increase the weight they apply to the earnings signal and prices will move in the direction of the earnings news. I first examine the relation between earnings and post-earnings-announcement returns for EAs issued the day before the employment report and find a stronger relation for these announcements than for EAs issued on other days. More specifically, I find the relation between earnings and returns measured over the second day after the EA (for EAs made the day before the ES, this day corresponds to returns the day after the employment report) is stronger for EAs made the day before the ES. This is consistent with investors increasing the weight they apply to the earnings signal the day after the release of the employment report. To summarize, I document an initial muted response to EAs reported the day before the employment report and find that the muted response is strongest around employment reports characterized by high ex-ante uncertainty. I also show that shortly after the release of the employment report, prices move in the direction of the earnings news. These results are consistent with the view that uncertainty about the state of the economy affects the pricing of earnings news.

I also consider EAs issued the day of the employment report. Employment reports are released on Friday mornings before the market opens, and if investors immediately resolve the macroeconomic uncertainty and the implications of the employment news for future payoffs, then there should not be a muted initial response to EAs made the day of the employment report. Because DellaVigna and Pollet (2009)

show the initial market response to Friday EAs is abnormally low compared to non-Friday EAs, I use the initial market response to EAs made on non-employment-report Fridays as the benchmark for the response to EAs made on employment-report Fridays. I find that investors' initial response to EAs made on employment-report Fridays is weaker than that for EAs made on other Fridays. In contrast to the results for EAs made the day before the ES the muted reaction is not more pronounced when ex-ante uncertainty is higher, suggesting a factor other than macroeconomic uncertainty affects the market response to EAs made the day of the ES.

To further distinguish between the results for EAs made the day before and the day of the ES, I examine the earnings-return relation for EAs made the day of the ES using several post-earnings-announcement return windows. I find that there is a stronger-than-normal earnings-return relation, that is, a larger-than-normal post-earnings announcement drift over the 30 trading days following the EA. This result is similar to a finding in DellaVigna and Pollet (2009) who show that there is greater post-earnings-announcement drift (PEAD) for Friday EAs than other EAs, and the abnormal drift becomes significant at about 30 trading days.

Prior studies such as Damodaran (1989) show the proportion of bad news EAs is higher on Fridays than other weekdays and suggest that managers may strategically time their bad news announcements to occur on Fridays due to perceived media and investor inattention. However, Doyle and Magilke (2009) fail to find evidence that

managers strategically time bad news EAs to occur on Fridays. I analyze the proportion of bad news (negative unexpected earnings) EAs issued the day of the ES to test for evidence of managers strategically timing bad news EAs to coincide with employment reports as the earnings-return relation is weaker for EAs on these days.

I show that for my sample, there is a significantly higher proportion of bad news EAs on Fridays (30.0%) than on other weekdays (27.5%), and the proportion of bad news announcements is higher on employment-report Fridays (33.9%) than non-employment-report Fridays (29.0%), more so when ex-ante uncertainty about employment conditions is high. These results suggest that some managers may report bad earnings news on Fridays of employment reports, possibly because they believe investors are distracted by employment-report-related activities. However, in additional tests I follow the procedure in Doyle and Magilke (2009) and consider firms whose EA date in quarter t is the same day as an employment report, and in quarter $t-1$ was not. Using this sample I find no evidence that managers strategically time bad news EAs to coincide with employment reports. It is also possible that due to a lower initial market response to EAs the day of the ES, managers may experience less incentive to meet or beat earnings expectations. Consistent with managers engaging in less earnings and expectations management to achieve earnings targets, I find that when considering only firms that just meet or just miss expectations (actual EPS within two cents of expectations), the

proportion of firms that meet or beat expectations is significantly lower on employment-report Fridays (71.7%) as compared to all other Fridays (76.4%).

This paper makes the following contributions. First, extending Johnson's (1999) result that the state of the economy affects the pricing of earnings, I provide evidence that uncertainty about the state of the economy also affects the pricing of earnings. Also, Francis et al. (2007) provide cross-sectional evidence that uncertainty about the degree to which accruals provide information about cash flows affects the pricing of earnings news, whereas I present evidence that uncertainty about macroeconomic conditions also affects the pricing of earnings news.

The muted initial response for EAs made the day before the ES is also related to results from research in finance that considers the impact of the employment report on conditional return volatility measured at the market level. Motivated by claims from the financial media that investors are cautious and markets are particularly quiet the day before the release of the ES, several studies find abnormally low return volatility the day before the ES. Jones et al. (1998) label this effect the "calm before the storm" and call for further examination of the phenomenon. One explanation for this finding is that there may be fewer news events the day before the ES. However, my finding of a muted initial market response to EAs the day before the ES implies that the market responds less to earning news released the day before the ES as compared to news released on other days.

Finally, this study contributes to literature on the role of third-party information events in the pricing of earnings by investigating the effects of monthly employment reports on investor responses to EAs. Beyer et al. (2010) call for research that provides evidence on the interdependencies among factors that shape firms' information environments. I provide evidence that macroeconomic uncertainty affects the pricing of earnings and that the issuance of the monthly employment report is related to both the pricing of earnings news and the attributes of earnings announced the day of an employment report.

The remainder of this paper is organized as follows. In the next section I outline my main hypotheses. In Section 3 I describe the empirical design and data used in my tests and provide descriptive statistics. I present the main results in Section 4, and in Section 5 I offer concluding remarks.

2. Hypothesis Development

Prior theoretical research suggests that uncertainty associated with a public signal about a firm's future payoffs affects the pricing of the signal. For example, Kim and Verrecchia (1991) develop a rational expectations model in which the price reaction to a public signal about future payoffs is on average positively associated with the precision of the signal; in other words, the higher the precision of the signal about future payoffs, or the higher the certainty associated with the signal, the stronger the reaction by traders to the signal. Brav and Heaton (2002) develop a model which predicts that Bayesian investors, when uncertain about the payoff structure of an investment, rationally place a lower weight on public signals about the return of the investment. This lower weighting may appear to be an underreaction to the public signal.

Francis et al. (2007) provide empirical evidence that investors place less weight on earnings signals characterized by high information uncertainty measured using Dechow and Dichev's (2002) measure of accruals quality. Their hypotheses are motivated by the model in Brav and Heaton (2002) as well as by Bayesian decision theory which shows that rational investors place less weight on low-precision investment signals (see DeGroot (1970), 167). Francis et al. show that for earnings signals characterized by low accruals quality, the initial market reaction is lower and followed by greater PEAD than for earnings signals characterized by high accruals quality.

In contrast to Francis et al. (2007), I consider how uncertainty affects the pricing of the signal when the uncertainty relates to the state of the macro economy.

Macroeconomic uncertainty can affect the pricing of an earnings signal because the impact of earnings signals on investor revisions of expected future payoffs is a function of macroeconomic conditions. For example, Johnson (1999) finds that both ERCs and earnings persistence vary with macroeconomic conditions. More specifically, Johnson shows that ERCs are greater and earnings are more persistent during economic expansions than during recessions. Because the effect of an earnings signal on investor belief revisions about future payoffs depends on macroeconomic conditions, uncertainty about the state of the macro economy generates uncertainty about the meaning of the earnings signal for future cash flows. During times of high macroeconomic uncertainty, rational investors will place greater weight on their prior beliefs and less weight on the earnings signal when updating their beliefs about future cash flows, resulting in a weaker price response to the earnings signal. If and when the macroeconomic uncertainty is resolved, investors will be more certain about the pricing implications of the earnings news and will increase the weight they apply to the earnings signal. As a result, prices, on average, will move in the direction of the earnings news.

To study the effects of macroeconomic uncertainty on the pricing of earnings news I use the scheduled release of the monthly employment report. I choose this setting for several reasons. First, the timing of the employment report is pre-

determined; the BLS issues the report once a month, typically the first Friday of the month, and the announcement dates are set well in advance. Second, the employment report resolves macroeconomic uncertainty. Anecdotal evidence from the financial press suggests that market participants face uncertainty about the employment report the day before its release. Headlines such as “Investors Cautious Ahead of Key US Jobs Data”¹ and statements like “...participants in both the bond and stock markets were proceeding cautiously as they awaited Friday’s report from the Labor Department on the employment situation...”² imply that members of the media believe that investor behavior is affected by uncertainty about employment conditions and investors anticipate a resolution of uncertainty at the release of the employment report.

In addition to this anecdotal evidence, academic research has documented a significant and systematic decline in market uncertainty, as measured by implied volatility, on the day of the employment report. For example, Graham et al. (2003) use the CBOE Market Volatility Index as a proxy for market uncertainty and show that of the 11 macroeconomic announcements they consider, employment reports account for the largest reduction in implied volatilities³. They find that on average, implied

¹ Article by Jamie Chisholm, Global Markets Commentator, and Telis Demos, both of the Financial Times – March 4, 2010. See article at: <http://www.ft.com/cms/s/0/38e21446-275a-11df-b0f1-00144feabdc0.html#axzz1BaorhMiX>.

² Article from the Los Angeles Times on October 3, 1986. See article at: http://articles.latimes.com/1986-10-03/business/fi-4102_1_employment-report.

³ Option implied volatilities are derived using option pricing models that model an option value as a function of the underlying security’s price, time to expiration and exercise price of the option, the risk-free rate of interest, and the expected volatility of the security’s price. In studies using implied volatilities, the

volatilities fall by 5% the day of employment report (Federal Open Market Committee announcements are the second most informative announcements, resulting in a 3% average reduction in implied volatilities). Beber and Brandt (2009) show that implied volatilities from options on Treasury securities increase leading up to the day before the ES, then drop substantially (10%) at the release of the report.

I use the ES as opposed to other scheduled macroeconomic announcements (such as Federal Open Market Committee announcements) because research indicates the resolution of uncertainty is greatest for the ES. The ES is also the first major economic report of the month and as such provides inputs for projecting other macroeconomic indicators. Finally, according to Carnes and Slifer (1991), who describe the employment report as the “king of kings” among economic indicators, this report is generally accepted as the most influential monthly macroeconomic report. Results from academic studies substantiate this claim. Ederington and Lee (1993) analyze the consumer price index, producer price index, employment report, durable goods orders, industrial production, construction spending - National Association of Purchasing Managers survey, and the federal budget, and find that the employment report has a much greater impact on the volatility of prices in interest rate and foreign exchange futures markets

first four factors are observed and are used to derive expected volatility, though the measure of volatility also reflects any model-omitted factors that affect option prices (see Ederington and Lee (1996)).

than the other scheduled macroeconomic announcements. Ederington and Lee (1996) find implied volatilities from option markets decline more at the release of the employment report (a 4.5% decline) than at the release of the other announcements (consumer price index reports account for the second largest decline at 2.2%). Brenner et al. (2009) find news from the employment report has a larger impact on return volatilities in stock and bond markets than news from announcements of the consumer price index and the target federal funds rate. Flannery and Protopapadakis (2002) study the effects of 17 scheduled macroeconomic announcements on stock market return volatility and trading volume and find that the employment report has the largest effect. These findings suggest that employment statistics from the monthly employment report provide more impactful information about the state of the economy than reports of other macroeconomic indicators.

Based on this evidence and research showing significant drops in implied volatilities the day of the employment report, I test whether macroeconomic uncertainty affects the pricing of news from EAs made the day before the employment report.⁴ Because macroeconomic uncertainty increases uncertainty about the impact of earnings news for investors' revisions of expected future cash flows and this uncertainty is high just before the release of the ES, my first prediction is that the immediate investor

⁴ Several studies in finance (e.g., Jones et al. (1998)) also examine market behavior the day before the ES and motivate their studies with anecdotal evidence from the financial press that investor uncertainty is high the day before the ES.

response to earnings news is lower for EAs made the day before the issuance of the employment report than for EAs on other days.

If the market response to EAs made the day before an employment report is muted due to uncertainty about the state of the economy, then after the release of the employment report when uncertainty is resolved, investors will increase the weight applied to these earnings signals and prices will move in the direction of the earnings news. Thus, my second prediction is that the magnitude of the relation between earnings and post-earnings-announcements returns measured over the days immediately following the EA is greater for EAs made the day before the ES than for EAs made on other days. This prediction allows for the possibility that the process of reweighting earnings signals does not occur entirely on the day of the employment report; investors could require time to process the information in the employment report and evaluate its meaning for the recently disclosed earnings signal.

I also examine EAs issued the day of the employment report. Because the ES is released at 8:30 AM before the market opens, if investors immediately process the implications of the employment news for future payoffs, the predicted muted initial response for EAs made the day before the ES should not exist for EAs made the day of the ES, that is, the initial market response to EAs the day of the ES should be the same as the response to EAs on other days. However, the ES is released on Fridays and DellaVigna and Pollet (2009) find the initial market response to Friday EAs is less than

that for EAs on other weekdays; they also find stronger-than-usual PEAD for Friday EAs. Due to this “Friday effect” documented in DellaVigna and Pollet (2009) I use Friday EAs as the benchmark for EAs the day of the ES and predict that the initial market response to EAs occurring on Fridays of employment reports will be no different than the response to EAs occurring on non-employment-report Fridays; once uncertainty about the employment report is resolved, employment report Fridays are no different than non-employment report Fridays and the market response to EAs the day of the ES should be the same as the response to EAs on other Fridays.

3. Empirical Design, Data and Descriptive Statistics

3.1 Empirical Design

Prior literature in accounting has identified variables that affect the earnings-return relation. For example, Freeman and Tse (1992) and Subramanyam and Wild (1996) find that the price response to earnings news is a function of the absolute magnitude of the news and the probability of firm termination, respectively. Studies such as these often employ some version of the following regression:

$$CAR_{iq} = \beta_0 + \beta_1 VOI_{iq} + \beta_2 UE_{iq} + \beta_3 UE_{iq} * VOI_{iq} + \varepsilon_{iq} \quad (1)$$

where CAR_{iq} is a measure of cumulative abnormal returns for firm i in quarter q , VOI_{iq} is the test variable of interest, and UE_{iq} is a measure of unexpected earnings for firm i in quarter q . In these studies β_3 captures the effect of the variable of interest on the relation between earnings and returns.

To test my main prediction that the timing of EAs in relation to the employment report affects the relation between earnings news and abnormal returns, or ERC, I use the following as my primary empirical specification:

$$\begin{aligned} CAR[-1,0]_{iq} = & \beta_0 + \beta_1 PRE1_{iq} + \beta_2 FRIDAY_{iq} + \beta_3 POST0_{iq} + \beta_4 UE_{iq} + \\ & \beta_5 UE_{iq} * PRE1_{iq} + \beta_6 UE_{iq} * FRIDAY_{iq} + \beta_7 UE_{iq} * FRIDAY_{iq} * POST0_{iq} + \\ & \sum_{i=8}^{14} \beta_i CONTROLS_{iq} + \sum_{i=15}^{21} \beta_i UE_{iq} * CONTROLS_{iq} + \varepsilon_{iq} \end{aligned} \quad (2)$$

where observations are at the firm-quarter level. $CAR[-1,0]_{iq}$ is the cumulative abnormal

return from the day before and the day of the quarter q earnings announcement for firm i ¹, defined as

$$CAR[-1,0]_{iq} = \sum_{k=t-1}^t Ret_{ik} - \sum_{k=t-1}^t Ret_{pk}$$

where Ret_{ik} is the raw daily return for firm i on day k , Ret_{pk} is the return of a matched size/book-to-market portfolio on day k , and t is the day of the quarter q earnings announcement for firm i . As in Hirshleifer et al. (2009), firms are matched to 1 of 25 size/book-to-market portfolios at the end of June each year. The 25 portfolios are based on 5 size and 5 book-to-market splits and the portfolio returns and cutoff values are taken from Kenneth French's website². A firm's match is determined by the firm's market value of equity at the end of June and its book-to-market ratio is calculated as the book value of equity at the fiscal year end occurring during the previous calendar year divided by the market value of equity at the end of the previous calendar year.³

UE_{iq} is a measure of unexpected earnings for firm i in quarter q calculated as actual earnings minus forecasted earnings for firm i , scaled by the stock price of firm i ,

$$UE_{iq} = \frac{ACT_{iq} - AF_{iq}}{P_{iq}}$$

¹ I also conduct a robustness check using a three-day window of $CAR[-1,1]$ and the results are similar to those presented in the tables.

² http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

³ Firm returns are obtained from CRSP and book and market equity values are from COMPUSTAT.

where ACT_{iq} is actual earnings per share (EPS) for firm i in quarter q , AF_{iq} is the median of analysts' forecasts of EPS for firm i issued within the 30 calendar days preceding the quarter q earnings announcement date (I include only the most recent forecast for each analyst), and P_{iq} is the stock price for firm i 21 trading days before the earnings announcement.⁴

$PRE1_{iq}$ is an indicator variable which equals 1 if the quarter q earnings announcement for firm i occurs the day before the employment report. $FRIDAY_{iq}$ is an indicator variable equal to 1 if the quarter q earnings announcement for firm i occurs on a Friday, and $POST0_{iq}$ is an indicator variable equal to 1 if the quarter q earnings announcement for firm i occurs on the day of the employment report.⁵

$CONTROLS_{iq}$ is a vector of the following control variables: $BADNEWS$, $PERSIST$, $PREDICT$, $BETA$, $NONLINEAR$, BTM , and $SIZE$. These controls are included to account for time-varying firm characteristics and other factors that have been shown to affect the earnings-return relation (see, for example, Blouin et al. (2003), Wilson (2008), and Hirshleifer et al. (2009)).

$BADNEWS$ is an indicator variable equal to 1 if UE is negative and 0 otherwise. I predict the coefficient for the interaction of UE and $BADNEWS$ will be negative as DeFond and Park (2001) report lower ERCs associated with EAs for which UE is negative. $PERSIST$ is the first-order autocorrelation coefficient of quarterly income

⁴ Actual and forecasted EPS values are collected from the IBES unadjusted file and are then split-adjusted.

⁵ Appendix A provides all variable definitions.

before extraordinary items scaled by average total assets, estimated over the previous four years with a minimum of five observations required. Kormendi and Lipe (1987) and Easton and Zmijewski (1989) show that greater persistence of earnings innovations is associated with larger ERCs. Therefore, I expect the coefficient for the interaction of UE and PERSIST to be positive. PREDICT is measured as the root mean square error from the persistence regressions. Based on Lipe's (1990) result that ERCs are increasing in the ability of past earnings to predict future earnings, I expect the coefficient on the interaction of UE and PREDICT to be negative. BETA is the market-model beta estimated using daily returns over the prior year, ending two trading days before the earnings announcement. Given findings in Collins and Kothari (1989) and Easton and Zmijewski (1989), I expect that firms with higher BETAs (a proxy for discount rates) will have lower ERCs. Freeman and Tse (1992) document the nonlinear relation between earnings news and abnormal returns, consistent with extreme earnings news being less persistent. I account for this nonlinearity by including NONLINEAR defined as the absolute value of UE.⁶ I expect the relation between NONLINEAR and the market response to earnings to be negative. I also include BTM, the book value of equity divided by the market value of equity, to control for the relation between earnings persistence and growth opportunities (see Collins and Kothari (1989)). I expect the coefficient on the interaction of UE and BTM to be negative. Finally, I include SIZE as

⁶ I do not include the main effect for NONLINEAR because it is a linear combination of UE and BADNEWS: $NONLINEAR = UE - 2*UE*BADNEWS$.

the natural log of the market value of equity (measured in millions at the end of the fiscal quarter) to control for differences in information environments (Collins and Kothari (1989)). I do not predict the sign of the coefficient on the interaction of SIZE and UE as SIZE is likely correlated with other firm characteristics.

The coefficients of interest from equation (2) are β_4 , β_5 , β_6 , and β_7 . β_4 is the ERC for all non-Friday EAs that do not occur the day before or the day of the release of an employment report (on average there are 22 trading days between employment reports). $\beta_4 + \beta_5$ is the ERC for EAs disclosed the day before an employment report; $\beta_4 + \beta_6$ is the ERC for EAs disclosed on Fridays without an employment report; and $\beta_4 + \beta_6 + \beta_7$ is the ERC for earnings announcements disclosed on Fridays of employment reports. For my first prediction I test whether β_5 is negative, indicating weaker-than-normal responses to earnings news announced the day before the ES. I also test whether β_7 is non-negative, indicating that the initial market response to EAs issued the day of the ES is at least as large as the response to EAs made on other Fridays.

To test whether the relation between earnings and post-earnings-announcement returns is stronger for EAs made the day before an employment report, I change the dependent variable in equation (2) from $CAR[-1,0]_{iq}$ to cumulative abnormal returns measured over several post-earnings-announcement windows. For these specifications the coefficient for UE captures the average earnings-return relation for EAs made on all days except Fridays and the day before and the day of employment reports. Any

difference in the magnitude of this relation for EAs made the day before an employment report is captured by the coefficient on the interaction of UE and PRE1. My prediction is that after the employment report, investors will increase the weight they apply to the earnings news (as compared to the initial under-weighting of the news), and there will be a stronger-than-usual post-announcement earnings-return relation for EAs issued the day before employment report. The post-announcement earnings-return relation for EAs made the day before the employment report should become significantly larger than the relation for EAs made on other days in the day or two immediately following the release of the ES as the macroeconomic uncertainty is resolved.

3.2 Data

My sample selection criteria are described in Table 1. I begin with all quarterly EAs for U.S. firms in the I/B/E/S database from 1995 to 2009 for which there is at least one analyst forecast. I follow DellaVigna and Pollet (2009) and eliminate all EAs prior to 1995 because my hypotheses require precise identification of EA dates. DellaVigna and Pollet (2009) use Lexis-Nexis to find EA press releases and report that EA dates from I/B/E/S and Compustat prior to 1995 are frequently different from the newswire dates. Following DellaVigna and Pollet (2009), I obtain EA dates from both I/B/E/S and COMPUSTAT for each firm-quarter and use the earlier of the two dates (when they differ), as they find that in the post-1995 period, following this rule provides a set of EAs

with highly accurate announcement dates (greater than 95% accuracy using newswire announcement dates as the benchmark).

I also adjust EA dates depending on the time of day of the announcement.

Berkman and Truong (2009) find that from 2000 to 2004 over 40% of EAs by Russell 3000 firms occurred after market hours. Price responses to these after-market-hours announcements will occur the next trading day. Berkman and Truong (2009) show that failure to adjust the event date can result in biased earnings response coefficients and estimates of PEAD. Accordingly, I use the time of day of the earnings report provided by I/B/E/S to adjust announcement dates so that the announcement date for after-market-hours announcements is the trading day following the earlier of the I/B/E/S and Compustat announcement dates⁷. I/B/E/S announcement times are available from September 1998 forward so I exclude EAs before this date. In my final sample 42% of EAs occurred after market hours.⁸

I eliminate EAs occurring on Saturdays or Sundays and I require all observations to have the necessary data to calculate cumulative abnormal returns, unexpected earnings, and all control variables. To calculate abnormal returns I use stock return data from CRSP, market values of equity and book-to-market data from COMPUSTAT, and

⁷ This design choice implies that EAs designated as occurring the day of the employment report include after-market-hours EAs the day before the employment report and exclude after-market-hours EAs the day of the employment report. (The same qualification applies to EAs designated as occurring the day before the employment report.)

⁸ Berkman and Truong (2009) obtain announcement times from WSJ.com which provides times from January 1999 forward. I select a random sample of 100 post-1999 announcement times from I/B/E/S and find that of the 100 observations, three differ from the WSJ.com times in a way that would affect event day classification.

portfolio returns and cutoff points from Kenneth French's data library.⁹ To reduce the effects of data errors and outliers and to be consistent with prior ERC literature (e.g., DeFond and Park (2001), Keung et al. (2010) and Williams (2010)) I truncate the sample at the 1st and 99th percentiles of CAR[-1,0], UE, PERSIST, PREDICT, BETA, NONLINEAR, BTM, and SIZE. The final sample contains 85,129 quarterly EAs from September 1998 to December 2009.

Table 1: Sample Selection

Criteria	Observations
Quarterly earnings announcements for U.S. firms in the I/B/E/S database from 1995 to 2009 for which there is at least one analyst forecast	264,697
With a valid announcement time (of day) in the I/B/E/S database (this eliminates announcements before September of 1998)	200,363
With the announcement not occurring on a Saturday or Sunday	199,841
With sufficient data to create the following variables: CAR[-1,0], UE, PERSIST, PREDICT, BETA, BTM, and SIZE	97,005
Within the 1st and 99th percentiles of the distributions of the following variables: CAR[-1,0], UE, PERSIST, PREDICT, BETA, BTM, and SIZE	85,129

Table 1 explains the sample selection process followed in this study. Variables referred to in the table are defined in section 3.1 and Appendix A.

3.3 Descriptive Statistics

Table 2 provides descriptive statistics for the full sample of 85,129 EAs, the 5,523 EAs made the day before the ES, and the 2,942 EAs made the day of the ES. For the full

⁹ I use the procedure discussed in Beaver, McNichols, and Price (2007) to merge the CRSP and COMPUSTAT data.

sample, the mean of UE is close to zero and the mean of CAR[-1,0] is slightly positive; these means and associated standard deviations are similar to those in prior studies using similarly defined variables (e.g. DeFond and Park (2001)). Comparisons of variable means (using two-sided t-tests) indicate mean values of PREDICT, NONLINEAR, BETA, BTM, and BADNEWS (PERSIST and SIZE¹⁰) are all statistically higher (lower) for EAs made the day before an employment report as compared to all other EAs (all differences are significant at the 1% level with the exception of PERSIST which is significant at the 5% level). The descriptive statistics also indicate that mean values for EAs made the day of an employment report are higher (lower) for PREDICT, NONLINEAR, BETA, BTM and BADNEWS (SIZE) as compared to all other EAs (all differences are significant at the 1% level). Of particular note are the differences in means for SIZE and BADNEWS. The means for SIZE (BADNEWS) for EAs the day before and the day of an employment report are 3,065 (0.30) and 2,526 (0.34), respectively, compared to 4,255 (0.28) for the full sample. These results suggest that firms announcing earnings the day before or the day of an employment report tend to be smaller and are more likely to report earnings below market expectations compared to firms announcing on other days.

¹⁰ In Table 2 SIZE is market capitalization at fiscal quarter end in millions; for the remainder of the paper SIZE is the natural log of this value.

Table 2: Descriptive Statistics

Variable	All Earnings Announcements			Earnings Announcements the Day Before an Employment Report			Earnings Announcements the Day of an Employment Report		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
CAR[-1,0]	85,129	0.003	0.067	5,523	0.003	0.069	2,942	0.000***	0.072
UE	85,129	0.000	0.008	5,523	0.000	0.009	2,942	0.000	0.010
PERSIST	85,129	0.229	0.419	5,523	0.218**	0.412	2,942	0.217	0.408
PREDICT	85,129	0.018	0.025	5,523	0.020***	0.027	2,942	0.022***	0.028
NONLINEAR	85,129	0.003	0.007	5,523	0.004***	0.007	2,942	0.005***	0.009
BETA	85,129	1.04	0.54	5,523	1.07***	0.54	2,942	1.10***	0.52
BTM	85,129	0.55	0.38	5,523	0.60***	0.41	2,942	0.57***	0.39
SIZE	85,129	4,255	10,074	5,523	3,065***	7,437	2,942	2,526***	6,284
BADNEWS	85,129	0.28	0.45	5,523	0.30***	0.46	2,942	0.34***	0.47

Table 2 presents descriptive statistics for CAR[-1,0], UE, PERSIST, PREDICT, NONLINEAR, BETA, BTM, SIZE, and BADNEWS using the full sample of 85,129 quarterly earnings announcements from September 1998 through December 2009, as well as for 5,523 earnings announcements made the day before an employment report, and for 2,942 earnings announcements made the day of an employment report. Earnings announcements, collected from I/B/E/S, with sufficient data to construct all variables are included in the sample and the sample is truncated at the 1st and 99th percentiles of these variables. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively (two-sided t-tests) for tests of means between variables associated with earnings announcements made the day before an employment report and all other earnings announcements (middle columns), and between variables associated with earnings announcements made the day of an employment report and all other earnings announcements (far right columns). Variables are defined in section 3.1 and Appendix A.

Table 3 reports the correlations between PRE1, POST0, and the variables included Table 2. Pearson correlations are reported in the lower left of the table and Spearman correlations are in the upper right; all correlations are significant at the 5% level with the exception of the underlined values. The results in Table 3 indicate that PRE1 and POST0 are significantly correlated with most of the other variables. These correlations, along with the results reported in Table 2 and discussed above, illustrate

the importance of including the control variables when estimating the effects of PRE1 and POST0 on the earnings-return relation.

Table 3: Correlations

	1	2	3	4	5	6	7	8	9	10	11
1 PRE1		-0.05	<u>0.00</u>	0.01	<u>0.00</u>	0.03	0.05	0.02	0.03	-0.03	0.01
2 POST0	-0.05		-0.01	<u>0.00</u>	<u>0.00</u>	0.04	0.05	0.03	0.01	-0.04	0.03
3 CAR[-1,0]	<u>0.00</u>	-0.01		0.29	0.01	-0.02	0.06	<u>-0.01</u>	<u>0.00</u>	0.02	-0.24
4 UE	<u>0.00</u>	<u>0.00</u>	0.18		<u>0.00</u>	0.06	0.26	0.02	0.02	<u>0.00</u>	-0.78
5 PERSIST	-0.01	<u>-0.01</u>	0.01	<u>0.00</u>		-0.20	-0.04	-0.04	-0.01	0.06	-0.02
6 PREDICT	0.02	0.03	-0.02	-0.02	-0.17		0.20	0.22	-0.19	-0.23	0.02
7 NONLINEAR	0.03	0.04	-0.02	-0.46	-0.02	0.15		0.05	0.29	-0.29	0.23
8 BETA	0.02	0.02	-0.01	<u>0.00</u>	-0.05	0.20	0.03		-0.12	0.09	<u>0.00</u>
9 BTM	0.03	0.01	<u>0.01</u>	-0.08	<u>0.00</u>	-0.12	0.30	-0.09		-0.31	0.11
10 SIZE	-0.03	-0.04	0.01	0.07	0.06	-0.23	-0.26	0.08	-0.33		-0.11
11 BADNEWS	0.01	0.03	-0.23	-0.49	-0.01	0.02	0.22	<u>0.00</u>	0.11	-0.11	

Table 3 provides Pearson (below the diagonal) and Spearman (above the diagonal) correlations. Variable definitions are provided in section 3.1 as well as in Appendix A. All correlations are significant at the 5% level or better with the exception of the underlined values.

From September 1998 through December 2009 there are 136 releases of the ES, 132 on Fridays and 4 on Thursdays. To account for possible day-of-the-week effects¹¹ and because most employment reports are issued on Fridays, I compare variable means for Thursday EAs made the day before the ES with all other Thursday EAs and variable means for Friday EAs made the day of the ES with all other Friday EAs. The results (not tabulated) imply that the differences in means reported in Table 2 are not due to day-of-the-week effects. The mean values of PREDICT, NONLINEAR, BETA, BTM, and

¹¹ The sample distribution of EAs across weekdays is the following: Monday = 5.7%, Tuesday = 20.3%, Wednesday = 24.5%, Thursday = 33.1%, and Friday = 16.4%.

BADNEWS (PERSIST and SIZE) are statistically higher (lower) for Thursday EAs made the day before an employment report than the mean values for all other Thursday EAs. Similarly, mean values of PREDICT, NONLINEAR, BTM, and BADNEWS (SIZE) are statistically higher (lower) for Friday EAs made the day of an employment report than the mean values for all other Friday EAs. Of particular interest are the differences in means for SIZE and BADNEWS. The means for SIZE (BADNEWS) for Thursday EAs made the day before an employment report are 3,070 (0.30) compared to 4,493 (0.27) for all other Thursday EAs; the means for SIZE (BADNEWS) for Friday EAs made the day of an employment report are 2,513 (0.34) compared to 3,581 (0.29) for all other Friday EAs. In section 4.4 I explore possible explanations for the high proportion of bad-news (negative UE) EAs that occur the day of an employment report.

4. Results

4.1 Primary Specification

My hypotheses assume that managers do not determine the timing of EAs to coincide with or avoid employment reports.¹ However, firms whose managers try to avoid announcing earnings near employment reports may have characteristics that are correlated with omitted variables which affect investors' reactions to earnings news. To address this concern, I include firm fixed effects in all regressions and exploit within-firm variation to test my hypotheses. (Appendix B provides examples and distributional statistics of within-firm variation in the timing of EAs with respect to the ES.) I also control for several variables (outlined in section 3.1) shown by prior research to affect the market response to earnings news.

If investors under-respond to earnings news announced the day before or the day of the ES, managers who anticipate reporting poor earnings news may time their announcement dates to coincide with the issuance of the ES, and managers with good earnings news may avoid announcing earnings near the ES. To address this concern, I include in the regression analyses an indicator variable BADNEWS, as well as the interactive term UE*BADNEWS.

¹ EA dates are often set by management months in advance, before earnings news is known, and earnings calendars such as the following, <http://www.bloomberg.com/apps/ecal?c=US> list upcoming earnings announcements. Doyle and Magilke (2009) find no evidence of opportunism in the timing of earnings announcements to take advantage of apparent under-reactions to earnings issued on Fridays or after market hours.

To test my first prediction that investors' initial response to EAs made the day before the employment report is muted, I first estimate (using OLS with year and firm fixed effects) the following specification:

$$CAR[-1,0]_{iq} = \beta_0 + \beta_1 PRE1_{iq} + \beta_2 UE_{iq} + \beta_3 UE_{iq} * PRE1_{iq} + \varepsilon_{iq} . \quad (3)$$

Model 1 in Table 4 shows a smaller ERC for EAs made the day before an employment report, relative to other days. Specifically, the coefficient for the interaction of UE and PRE1 is -0.288 with a t-statistic of -1.986 (one-sided p-value = .02), consistent with macroeconomic uncertainty weakening the initial market response to earnings. In model 2 of Table 4 I add FRIDAY, UE*FRIDAY and UE*FRIDAY*POST0 to equation (3) to test my third prediction that the initial market response to EAs made on Fridays of employment reports is the same as the market response to EAs made on other Fridays. Contrary to my prediction, the results indicate that the coefficient for UE*FRIDAY*POST0 is -0.630 (t-statistic = -3.402) indicating a lower market response to EAs on employment-report Fridays as compared to EAs on non-employment-report Fridays.

Model 2 of Table 4 also reports evidence of a higher market response to EAs on non-employment-report Fridays as compared to all other EAs, as the coefficient for UE*FRIDAY is positive (0.220) and significant (t-statistic = 1.727 and one-sided p-value = .04). This result contradicts the lower ERC for Friday EAs reported in DellaVigna and Pollet (2009). One reason for this difference relates to the abnormal return window used

in this study. I use a two-day abnormal return window consisting of the day before and the day of the EA, whereas DellaVigna and Pollet (2009) use a two-day window consisting of the day of and the day after the EA. When I re-estimate model 2 using $CAR[0,1]$ as the dependent variable and omit $UE*FRIDAY*POST0$, the coefficient for $UE*FRIDAY$ is negative as in DellaVigna and Pollet (2009), but not significant (the coefficient is -0.113 and the t-statistic = -0.846). This result differs from the 15% under-reaction DellaVigna and Pollet (2009) document for Friday EAs as compared to EAs on other weekdays. When I include $UE*FRIDAY*POST0$ in model 2 and use $CAR[0,1]$ as the dependent variable, the coefficient for $UE*FRIDAY$ is 0.014 with a t-statistic of 0.089 while $UE*FRIDAY*POST0$ remains negative (-0.439) and significant (t-statistic = -1.923), results not tabulated.

The results from model 2 imply that for my sample and research design the market response to EAs on non-employment-report Fridays is not weaker than the response to EAs on non-Fridays but the market response to EAs on employment-report Fridays is significantly weaker than the response to non-employment-report Fridays. In model 3 I add $BADNEWS$ and $UE *BADNEWS$ to model 2 and show that the inferences from estimating model 2 are unaffected when I control for the sign of the earnings news. Specifically, the coefficient (t-statistic) for $UE*PRE1$ is -0.256 (-2.249) and for $UE*FRIDAY*POST0$ is -0.568 (-3.534) indicating both coefficients are more significant in model 3 than model 2.

To this point I have included firm fixed effects to control for time-invariant firm characteristics that may affect how investors process earnings news. In model 4 I add PERSIST, PREDICT, BETA, NONLINEAR², BTM, and SIZE to account for time-varying firm characteristics and other factors that have been shown to affect ERCs (see section 3.1). The results of estimating model 4, presented in Table 4, indicate that after controlling for ERC determinants identified by previous research, the estimated coefficients (t-statistics) for the interactive terms of UE*PRE1 and UE*FRIDAY*POST0 are -0.255 (-2.65) and -0.471 (-2.74), similar to the estimates obtained using models 1, 2 and 3. The signs of the coefficients for the control variables are all as hypothesized with the exception of the coefficient for UE*BETA. In summary, the results in Table 4 indicate a lower ERC for EAs the day before the ES, consistent with uncertainty about state of the economy affecting the initial market response to earnings. Results in Table 4 also show that contrary to my prediction, the market response to EAs made the day of the employment report is significantly lower than the response to EAs made on other Fridays; in contrast to the “Friday effect” documented by DellaVigna and Pollet (2009), I find no evidence of a weaker initial market reaction to EAs on non-employment-report Fridays.

² I do not include the main effect for NONLINEAR because it is a linear combination of UE and BADNEWS: $\text{NONLINEAR} = \text{UE} - 2 * \text{UE} * \text{BADNEWS}$.

Table 4: Market Response to Earnings Announcements Made the Day Before and the Day of the Release of the Employment Situation

Independent Variables	Model 1	Model 2	Model 3	Model 4
PRE1	0.002* [1.668]	0.002* [1.557]	0.001 [1.291]	0.001 [1.037]
FRIDAY		0.000 [0.259]	0.000 [0.007]	0.000 [-0.200]
POST0		-0.001 [-0.926]	-0.002 [-1.289]	-0.002 [-1.334]
UE	1.600*** [35.061]	1.594*** [31.589]	2.307*** [25.352]	2.328*** [10.33]
UE*PRE1	-0.288** [-1.986]	-0.282** [-1.937]	-0.256** [-2.249]	-0.255*** [-2.654]
UE*FRIDAY		0.220** [1.727]	0.256** [2.222]	0.262** [2.245]
UE*FRIDAY*POST0		-0.630*** [-3.402]	-0.568*** [-3.534]	-0.471*** [-2.742]
UE*BADNEWS			-2.167*** [-19.998]	-1.107*** [-8.787]
UE*PERSIST				0.181** [2.301]
UE*PREDICT				-5.587*** [-4.107]
UE*BETA				0.242*** [3.605]
UE*NONLINEAR				-18.63*** [-9.380]
UE*BTM				-0.209*** [-2.946]
UE*SIZE				0.025 [0.904]
Observations	85,129	85,129	85,129	85,129
Adj. R-squared	0.125	0.125	0.157	0.161

$$\begin{aligned}
 \text{Model: } CAR[-1,0]_{iq} = & \beta_0 + \beta_1 PRE1_{iq} + \beta_2 FRIDAY_{iq} + \beta_3 POST0_{iq} + \beta_4 UE_{iq} + \\
 & \beta_5 UE_{iq} * PRE1_{iq} + \beta_6 UE_{iq} * FRIDAY_{iq} + \beta_7 UE_{iq} * FRIDAY_{iq} * POST0_{iq} + \\
 & \sum_{k=8}^{13} \beta_k CONTROLS_{iq} + \sum_{k=14}^{19} \beta_k UE_{iq} * CONTROLS_{iq} + \varepsilon_{iq}
 \end{aligned}$$

Table 4 reports estimated ERCs for quarterly earnings announcements from September 1998 to 2009 announced around the issuance of the Employment Situation by the Bureau of Labor Statistics using

variations of the model above. Models 1 and 2 are estimated without control variables; in model 3 BADNEWS is used as a control variable and in model 4 PERSIST, PREDICT, NONLINEAR, BETA, BTM, and SIZE are used as control variables (variable definitions are in Appendix A). All regressions use OLS with year fixed effects, firm fixed effects, and standard errors clustered by the day of the earnings announcement. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively (one-sided tests) and t-statistics are reported below the coefficient estimates.

To provide additional evidence that the results for EAs made the day before and the day of the ES are not driven by the sign (positive or negative) of the earnings news I estimate model 4 using only observations for which UE is non-negative, and separately using only observations for which UE is negative. My hypothesis development implies that macroeconomic uncertainty causes investors to apply a lower weight to earnings news irrespective of the sign of the news; therefore, I predict that the muted response for EAs the day before the ES will exist for both subsamples. Consistent with my prediction, results (not tabulated) indicate a muted response for both good news and bad news announcements (the coefficient for UE*PRE1 using good news EAs is -0.402 with a t-statistic of -1.571 and a one-sided p-value of .06 and the coefficient using bad news EAs is -0.377 with a t-statistic of -1.995 and a one-sided p-value of .02). I also find the lower response for EAs on Fridays of the ES as compared to all other Fridays, reported in Table 4, exists in both subsamples (results not tabulated).

Based on Kinney et al.'s (2002) finding that ERCs are negatively associated with a firm-specific proxy for uncertainty in the market's expectations of earnings, analyst forecast dispersion, I add as an additional control variable to model 4 the interaction of UE and analyst forecast dispersion. Similar to Kinney et al. (2002), I calculate forecast

dispersion as the standard deviation of analyst forecasts issued within 30 days of the EA (requiring at least two analyst forecast to calculate the standard deviation reduces the sample to 72,234 observations). I do not expect the inclusion of analyst forecast dispersion to affect the results reported in Table 4 for EAs the day before the ES for two reasons. First, my hypotheses are based on the effects of macroeconomic uncertainty as opposed to firm-level uncertainty. Second, as Kinney et al. (2002) point out, analyst forecast dispersion is positively correlated with the size of the earnings surprise and the results in Table 4 for EAs made the day of the ES are robust to the inclusion of NONLINEAR, which captures the size of the earnings surprise. While the estimation results (not tabulated) show a negative relation between analyst forecast dispersion and ERCs (the coefficient on the interaction of UE and forecast dispersion is negative (-1.326) and significant (t-statistic = -3.899)), the coefficient for UE*PRE1 remains negative (-0.275) and significant (t-statistic of -2.45).

The results in the preceding analyses indicate that EAs made the day before and the day of an employment report have lower ERCs than the average ERC for all other announcements. It is possible, however, that these results are due to day-to-day variation in the earnings-return relation unrelated to macroeconomic uncertainty. If so, the results in Table 4 are not attributable to the issuance of the employment report but, rather, some other unidentified factor or factors affecting ERCs. To test this possibility I conduct 20 estimations of the following regression:

$$CAR[-1,0]_{iq} = \beta_0 + \beta_1 DAY_{iq} + \beta_2 UE_{iq} + \beta_3 UE_{iq} * DAY_{iq} + \sum_{i=4}^{10} \beta_i CONTROLS_{iq} + \sum_{i=11}^{17} \beta_i UE_{iq} * CONTROLS_{iq} + \varepsilon_{iq} \quad (4)$$

where for each estimation, the variable DAY takes one of the following values: PRE10, PRE9, ..., POST8, or POST9.³ PRE(j)_{iq} is an indicator variable equal to 1 if the quarter q earnings announcement for firm i occurs j trading days before the closest employment report and 0 otherwise (j ranges from 1 to 10). POST(k)_{iq} is an indicator variable equal to 1 if the quarter q earnings announcement for firm i occurs k trading days after the closest employment report, and 0 otherwise (k ranges from 0 to 9). CAR[0,1]_{iq} is the abnormal return for the day before and the day of the quarter q EA for firm i. This specification allows a comparison of the ERC for each event-time day, PRE10 to POST9, against a baseline ERC generated by all other earnings announcements in the sample. The results of these 20 estimations are presented by row in Table 5. Results indicate that 6 of the 20 daily-event-time ERCs, those for PRE10, PRE7, PRE5, PRE1, POST4 and POST7, are statistically different at the 10% level from the average ERC for all other days. The ERC for PRE1 is the only coefficient significant at the 1% level.

My primary analyses are based on the market reaction to EAs the day before the ES. As discussed above, I consider the day before the ES because anecdotal evidence

³ I use 20 daily event-time indicators because there are usually 20 trading days between monthly employment reports as the reports are typically released four weeks after the previous report (though reports are occasionally released five weeks after the previous report, resulting in an average of 22 trading days between employment reports). The PRE10 to POST9 indicator variables identify over 90% of EAs in my sample.

from the financial press as well as findings from academic research indicate that ex-ante uncertainty about employment conditions is highest the day before the release of the ES. It is possible that uncertainty could also be sufficiently high on other days leading up to the ES to generate a muted initial market response to EAs on these days. The results in Table 5, however, indicate that the muted response to earnings news exists only for EAs the day before the ES, as no coefficient from PRE2 to PRE10 is significantly negative at conventional levels (though the coefficient for PRE3 (-0.289) has a one-sided p-value of .103). Future research could investigate the reasons for why the muted response appears only on the day before the release of the ES, and not on days -2 and -3 relative to the ES.

Table 5: The Market Response to Earnings Announcements Before and After the Release of the Employment Situation

DAY	UE	tstat	UE*DAY	tstat	Obs.	Adj. R2
PRE10	3.206***	[14.12]	0.634**	[2.070]	85,129	0.147
PRE9	3.229***	[14.20]	-0.159	[-0.491]	85,129	0.146
PRE8	3.228***	[14.18]	0.002	[0.0126]	85,129	0.146
PRE7	3.217***	[14.14]	0.346**	[2.276]	85,129	0.147
PRE6	3.227***	[14.18]	0.104	[0.793]	85,129	0.146
PRE5	3.200***	[14.09]	0.296*	[1.707]	85,129	0.147
PRE4	3.232***	[14.26]	-0.405	[-1.191]	85,129	0.146
PRE3	3.250***	[14.31]	-0.289	[-1.632]	85,129	0.146
PRE2	3.228***	[14.24]	0.149	[0.875]	85,129	0.147
PRE1	3.228***	[14.23]	-0.302***	[-3.285]	85,129	0.147
POST0	3.242***	[14.17]	-0.205	[-1.288]	85,129	0.147
POST1	3.244***	[14.25]	-0.633	[-1.555]	85,129	0.147
POST2	3.236***	[14.16]	-0.104	[-0.675]	85,129	0.146
POST3	3.220***	[14.16]	0.089	[0.460]	85,129	0.146
POST4	3.249***	[14.30]	-0.259*	[-1.656]	85,129	0.147
POST5	3.235***	[14.20]	-0.087	[-0.418]	85,129	0.146
POST6	3.239***	[14.24]	-0.292	[-1.151]	85,129	0.146
POST7	3.268***	[14.31]	-0.465**	[-2.508]	85,129	0.147
POST8	3.229***	[14.26]	0.172	[0.883]	85,129	0.146
POST9	3.227***	[14.10]	0.006	[0.0312]	85,129	0.146

$$\text{Model: } CAR[-1,0]_{iq} = \beta_0 + \beta_1 DAY_{iq} + \beta_2 UE_{iq} + \beta_3 UE_{iq} * DAY_{iq} + \sum_{k=4}^{10} \beta_k CONTROLS_{iq} + \sum_{k=11}^{17} \beta_k UE_{iq} * CONTROLS_{iq} + \varepsilon_{iq}$$

Table 5 reports the results from 20 estimations of equation (4) using quarterly earnings announcements from September 1998 to 2009. In each regression DAY takes a different value of one of the following: PRE10, PRE9, ..., POST8, POST9. The estimated ERCs are for quarterly earnings announcements announced before and after the issuance of the Employment Situation by the Bureau of Labor Statistics. BADNEWS, PERSIST, PREDICT, NONLINEAR, BETA, BTM, and SIZE are used as control variables (variables are defined in Appendix A) and regressions use OLS with year fixed effects, firm fixed effects, and standard errors clustered by the day of the earnings announcement. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively (one-sided tests) and t-statistics are reported below the coefficient estimates. The table reports estimates and significance levels for only the primary variables of interest, β_2 and β_3 .

4.2 Uncertainty and the Employment Report

The results in section 4.1 indicating a lower ERC for EAs the day before the employment report are consistent with the hypothesis that macroeconomic uncertainty causes a muted response to earnings news. In this section I provide additional evidence on this relation by considering variation in the level of ex-ante uncertainty about the employment report.

If the lower reaction to earnings news from announcements occurring the day before the employment report is attributable to uncertainty about information in the employment report, then the muted reaction should be more pronounced when the uncertainty about the news contained in the employment report is high. Following prior literature (e.g. Anderson et al. (2003)) I use the dispersion of unemployment forecasts as a proxy for ex-ante uncertainty about the employment report. I obtain forecasts of unemployment from the quarterly Survey of Professional Forecasters administered by the Federal Reserve Bank of Philadelphia. The survey contains forecasts of expected average unemployment rate for the upcoming quarter; for example, in February, an economist participating in the survey would forecast the average civilian unemployment rate during April, May, and June. I calculate forecast dispersion as the standard deviation of forecasts scaled by the mean forecast and use this measure as a proxy for the uncertainty about unemployment.⁴ I then assign each EA a quarterly measure of

⁴ The average number of forecasts used to calculate the measure of dispersion is 40.

forecast dispersion using the quarter of the employment report closest to the EA. For example, EAs for which the closest employment report is the January 2009 ES will be assigned the forecast dispersion value calculated for the first quarter of 2009 (generated by economists' forecasts made in the fourth quarter of 2008).

I test whether the muted response to EAs made the day before an employment report is more pronounced when ex-ante uncertainty about the unemployment rate is high. I divide the sample into low- and high-dispersion subsamples split at the median value of dispersion, and estimate the following equation for the two subsamples:

$$CAR[-1,0]_{iq} = \beta_0 + \beta_1 PRE1_{iq} + \beta_2 POST0_{iq} + \beta_3 UE_{iq} + \beta_4 UE_{iq} * PRE1_{iq} + \beta_5 UE_{iq} * POST0_{iq} + \sum_{i=6}^{12} \beta_i CONTROLS_{iq} + \sum_{i=13}^{19} \beta_i UE_{iq} * CONTROLS_{iq} + \varepsilon_{iq} \quad (5)$$

where CONTROLS is the same as in equation (2). Table 6 displays the results, which indicate that a muted response to EAs made the day before the ES occurs only in the high-dispersion subsample. The estimated coefficient (t-statistic) for UE*PRE1 using the low-dispersion subsample is -0.078 (-0.532) and the coefficient (t-statistic) using the high-dispersion subsample is -0.312 (-2.064). These results provide additional evidence that the muted ERC for earnings news released the day before an employment report is attributable to ex-ante uncertainty about the information in the ES. I also estimate equation (5) using the full sample and including the interaction term UE*PRE1*DISPERSION where DISPERSION is the quintile of economists' forecast dispersion minus three (so DISPERSION takes the values of -2, -1, 0, 1 and 2).

Untabulated results, consistent with those in reported in Table 6, yield estimated coefficients (t-statistics) for UE*PRE1 of -0.303 (-3.304) and -0.125 (-2.321) for UE*PRE1*DISPERSION. (Results using DISPERSION deciles are nearly identical to those using quintiles.)

Table 6: Dispersion of Unemployment Forecasts and the Market Response to Earnings Announcements the Day Before and the Day of the Release of the Employment Situation

Independent Variables	Low Dispersion	High Dispersion
PRE1	0.000 [0.610]	0.003* [1.504]
POST0	-0.001 [-0.776]	-0.002 [-1.080]
UE	3.499*** [9.706]	3.955*** [11.80]
UE*PRE1	-0.078 [-0.532]	-0.312** [-2.064]
UE*POST0	-0.458** [-1.669]	-0.309* [-1.462]
UE*PERSIST	0.152 [1.100]	0.127 [1.152]
UE*PREDICT	-3.732* [-1.522]	-9.941*** [-4.985]
UE*BETA	0.351*** [3.528]	0.07 [0.683]
UE*NONLINEAR	-49.521*** [-15.66]	-41.147*** [-13.82]
UE*BTM	-0.347*** [-3.085]	-0.301*** [-2.853]
UE*SIZE	0.084** [1.935]	0.008 [0.197]
UE*BADNEWS	-0.534*** [-2.990]	-0.432*** [-2.448]
Observations	43,827	41,302
Adj. R-squared	0.207	0.219

$$\text{Model: } CAR[-1,0]_{iq} = \beta_0 + \beta_1 PRE1_{iq} + \beta_2 POST0_{iq} + \beta_3 UE_{iq} + \beta_4 UE_{iq} * PRE1_{iq} + \beta_5 UE_{iq} * POST0_{iq} + \sum_{k=6}^{12} \beta_k CONTROLS_{iq} + \sum_{k=13}^{19} \beta_k UE_{iq} * CONTROLS_{iq} + \varepsilon_{iq}$$

Table 6 reports estimated ERCs for quarterly earnings announcements from September 1998 to 2009. Control variables used in the model are BADNEWS, PERSIST, PREDICT, BETA, NONLINEAR, BTM and SIZE (variables are defined in Appendix A). The sample is divided into low dispersion and high dispersion subsamples (split at the median value of dispersion) where dispersion is measured as the coefficient of variation of quarterly unemployment rate forecasts collected from the Survey of

Professional Forecasters (administered by the Federal Reserve Bank of Philadelphia). Each earnings announcement is assigned a value of dispersion based on the quarter of the closest employment report. Regressions use OLS with year fixed effects, firm fixed effects, and standard errors clustered by the day of the earnings announcement. ***, **, and * indicate significance at the 1, 5, and 10% levels (one-sided tests) and t-stats are reported below the coefficient estimates. For control variables, only interactive effects are reported (i.e., β_6 to β_{12} are not reported).

The coefficients for UE*POST0 highlight the difference in the factors that generate the muted initial responses to EAs the day before and the day of the employment report. For EAs the day of the employment report, I do not expect the initial muted response to vary with the level of ex-ante uncertainty about employment conditions because this uncertainty is resolved before trading opens for EAs the day of the ES. As expected, and in contrast to the results for EAs made the day before the ES, the muted reaction to EAs made the day of the ES is similar across the low and high dispersion subsamples (and actually less pronounced for the high-uncertainty sample). The coefficient for UE*POST0 using the low dispersion subsample is -0.458 (t-statistic = -1.67 and one-sided p-value = .05) and using the high dispersion subsample is -0.309 (t-statistic = -1.46 and one-sided p-value = .07). These findings are consistent with the market response to EAs the day before the ES being affected by ex-ante uncertainty about the employment report while the market response to EAs the day of the ES is not.

4.3 Earnings News and Post-Earnings-Announcement Returns

In this section I examine post-earnings-announcement returns for EAs made the day before and the day of an employment report. My second prediction is that for EAs made the day before an employment report, the magnitude of the earnings-return

relation measured over the days immediately following the EA is greater than the magnitude of this relation for EAs made on other days – as macroeconomic uncertainty is resolved, investors increase the weight applied to earnings signals made the day before the ES and prices move in the direction of the signal. I predict that this effect is incremental to the well-documented post-earnings-announcement drift that exists unconditional on macroeconomic uncertainty; I refer to this incremental effect as “abnormal PEAD.”

To test this prediction I use the high-dispersion sample described in section 4.2, omitting EAs made the day of the ES. I use this sample for two reasons. First, the muted initial response for EAs the day before the ES is concentrated in the high-dispersion sample. Second, Beber and Brandt (2009) show that ex-ante uncertainty about employment conditions is positively related to the ex-post resolution of this uncertainty in financial markets. More specifically, they find that declines in implied volatilities (calculated using stock and bond options) that occur at the release of the ES are greater when there is high ex-ante uncertainty about the contents of the ES. Because I hypothesize that abnormal PEAD results when investors increase the weight applied to the earnings news after the resolution of macroeconomic uncertainty, I expect abnormal PEAD to be greater when there is high ex-ante uncertainty about employment conditions as compared to when there is low ex-ante uncertainty.

I first estimate equation (5) using $CAR[1,1]$ as the dependent variable. The untabulated coefficient (t-statistic) for UE is 0.667 (9.924) and for $UE*PRE1$ is -0.327 (-2.958) indicating that for EAs made the day before the ES, the earnings-return relation at the day after the EA (which for EAs made the day before the ES is the day of the ES) is lower than that for other EAs. This result could be due to investors taking time to process the information in the employment report and its interaction with earnings news released the preceding day. I next estimate equation (5) using $CAR[2,2]$ as the dependent variable; results (not tabulated) indicate the coefficient (t-statistic) for UE is -0.177 (-1.011) and for $UE*PRE1$ is 0.234 (2.879). These results indicate that for EAs made the day before an employment report, the earnings-return relation estimated two days after the EA is greater than that for EAs made on other days. This is consistent with investors processing the employment information released the day of the employment report (Friday) and on Monday increasing the weight they apply to earnings signals received the day before the employment report.

Table 7 presents the results of estimating equation (5) using the following as dependent variables: $CAR[2,2]$, $CAR[2,3]$, $CAR[2,4]$, $CAR[2,6]$, and $CAR[2,11]$. Panel A reports the results from estimating equation (5) excluding control variables. In Panel B, I include all the control variables in equation (5) (in this analysis I demean the control variables to ease the interpretation of the coefficients for UE). Consistent with prior PEAD literature, the results in Panels A and B indicate that on average there is a positive

relation between earnings and post-earnings-announcement returns which increases over time (the coefficients for UE are positive and increase as the CAR window lengthens). Both panels also indicate this relation is stronger for EAs made the day before an employment report than for other EAs (since results in both panels are similar I refer below to those presented in Panel B). Again, using CAR[2,2] as the dependent variable, the coefficient (t-statistic) for UE*PRE1 is 0.234 (2.879) indicating that the stronger earnings-return relation begins the day after the employment report is released. The magnitude of the coefficient for UE*PRE1 increases as the CAR window lengthens and by the fifth trading day after the release of the employment report, the magnitude of the difference in the earnings-return relation is 0.441 (t-statistic of 2.71). This difference peaks 10 trading days after the ES; the coefficient (t-statistic) for UE*PRE1 using CAR[2,11] as the dependent variable is 0.707 (2.13). Untabulated results show the coefficients for UE*PRE1 when using CAR[2,21] CAR[2,31] as the dependent variable are 0.443 and 0.430, respectively, but neither is significant at conventional levels.

Table 7: Post-Earnings-Announcement Returns for Earnings Announcements Made the Day Before the Release of the Employment Situation

PANEL A (WITHOUT CONTROLS)

Independent Variables	CAR[2,2]	CAR[2,3]	CAR[2,4]	CAR[2,6]	CAR[2,11]
PRE1	-0.001** [-1.878]	-0.003*** [-2.349]	-0.005*** [-3.031]	-0.003** [-1.880]	-0.007** [-2.064]
UE	0.046* [1.406]	0.087** [1.880]	0.049 [0.934]	0.118* [1.599]	0.201** [1.928]
UE*PRE1	0.251*** [3.153]	0.344*** [2.745]	0.418*** [2.772]	0.416** [2.222]	0.699** [1.929]
Observations	39,968	39,966	39,964	39,958	39,931
Adj. R-squared	0.196	0.193	0.195	0.199	0.217

PANEL B (WITH CONTROLS, DEMEANED)

Independent Variables	CAR[2,2]	CAR[2,3]	CAR[2,4]	CAR[2,6]	CAR[2,11]
PRE1	-0.001** [-1.960]	-0.003*** [-2.532]	-0.006*** [-3.229]	-0.004** [-2.193]	-0.008*** [-2.378]
UE	0.255*** [4.853]	0.450*** [5.370]	0.503*** [5.243]	0.706*** [6.105]	0.895*** [5.737]
UE*PRE1	0.234*** [2.879]	0.337*** [2.534]	0.441*** [2.705]	0.413** [2.126]	0.707** [2.125]
Observations	39,968	39,966	39,964	39,958	39,931
Adj. R-squared	0.198	0.197	0.199	0.204	0.226

$$\text{Model: } CAR[2,X]_{iq} = \beta_0 + \beta_1 PRE1_{iq} + \beta_2 UE_{iq} + \beta_3 UE_{iq} * PRE1_{iq} + \sum_{k=4}^{10} \beta_k CONTROLS_{iq} + \sum_{k=11}^{17} \beta_k UE_{iq} * CONTROLS_{iq} + \varepsilon_{iq}$$

Table 7 reports estimated abnormal PEAD associated with earnings announced the day before the release of the Employment Situation. The sample includes earnings announcements from September 1998 to December 2009 associated with employment reports for which the dispersion of economists' forecasts of the unemployment rate is above the median level of dispersion. Earnings announcements disclosed the day of the release of the Employment Situation are excluded from the sample. Panel A reports results of estimating the model without control variables. Panel B reports results of estimating the model using as control variables BADNEWS, PERSIST, PREDICT, BETA, NONLINEAR, BTM and SIZE, though estimated coefficients for the control variables (β_4 to β_{17}) are not included in the panel. Regressions use OLS with year fixed effects, firm fixed effects, and standard errors clustered by the

day of the earnings announcement. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively (one-sided tests) and t-statistics are reported below the coefficient estimates.

I also estimate equation (5) using one-day windows from CAR[2,2] to CAR[11,11] (results are untabulated). My second prediction is that investors increase the weight applied to EAs made the day before the ES shortly after the release of the ES, when macroeconomic uncertainty is resolved. The results indicate that the magnitude of the coefficient for UE*PRE1 is greatest and most significant for CAR[2,2] (coefficient of 0.234 and t-statistic of 2.879) and is significant at the 10% level for one other one-day window, CAR[8,8] (coefficient of 0.138 and t-statistic of 1.821). This result indicates that the abnormal PEAD for EAs made the day before the employment report is concentrated on the day after the employment report (Monday), and there is little evidence of abnormal drift occurring after Monday. These results and those in Table 7, combined with the muted initial response as reported in Tables 4 and 6, are consistent with investors placing less weight on EAs made on Thursday, the day before high-uncertainty employment reports, until Monday, the day after the employment report, at which point investors place greater weight on the earnings signals and prices move in the direction of the earnings news.

I also examine the earnings-return relation measured over several post-earnings-announcement windows for EAs made the day of an employment report. Because employment reports are released on Fridays, I expect this relation to be similar to the pattern of PEAD for Friday EAs documented in DellaVigna and Pollet (2009). They

report greater PEAD for Friday EAs, beginning around 30 days after the EA and plateauing about 60 days after the announcement.

Table 8 reports the results of estimating equation (5) using CAR[2,11], CAR[2,21], CAR[2,31], CAR[2,41] as dependent variables. (As in Table 7, Panel A excludes control variables and Panel B includes demeaned control variables; I discuss only the results reported in Panel B as they are similar to those in Panel A.) Similar to the PEAD pattern shown in DellaVigna and Pollet (2009), the relation between earnings and post-earnings-announcement returns for EAs made the day of an employment report does not become significantly positive until 30 trading days after the employment report. The coefficients (t-statistics) for UE*POST0 using CAR[2,31] and CAR[2,41] as dependent variables are 0.782 (1.58) and 0.956 (2.21) with one-sided p-values equal to .06 and .08, respectively. As the post-earnings-announcement window lengthens the coefficient for UE*PRE1 stays roughly constant but becomes less significant (e.g., the coefficient (t-statistic) for UE*POST0 using CAR[2,51] as the dependent variable is 0.751 (1.42)). In contrast to the results presented in Table 7 for EAs made the day before the ES, when using CAR[2,11] as the dependent variable, the earnings-return relation is negative (-0.552) and significant (t-statistic = -2.412). This result is consistent with different factors generating the initial muted response for EAs made the day before the ES and EAs made the day of the ES.

Table 8: Post-Earnings-Announcement Returns for Earnings Announcements Made the Day of the Release of the Employment Situation

PANEL A (WITHOUT CONTROLS)

Independent Variables	CAR[2,11]	CAR[2,21]	CAR[2,31]	CAR[2,41]
POST0	-0.000 [-0.491]	0.001 [0.399]	0.001 [0.435]	0.006 [1.154]
UE	0.366*** [5.096]	0.452*** [4.741]	0.315*** [2.746]	0.182* [1.361]
UE*POST0	-0.624*** [-2.958]	0.0469 [0.117]	0.697* [1.422]	0.810** [1.889]
Observations	79,542	77,554	77,400	77,258
Adj. R-squared	0.137	0.143	0.145	0.138

PANEL B (WITH CONTROLS, DEMEANED)

Independent Variables	CAR[2,11]	CAR[2,21]	CAR[2,31]	CAR[2,41]
POST0	-0.002 [-0.845]	0.000 [0.0156]	0.000 [0.0170]	0.004 [0.724]
UE	0.817*** [7.983]	0.984*** [6.928]	0.732*** [4.169]	0.815*** [3.823]
UE*POST0	-0.552*** [-2.412]	0.149 [0.365]	0.782* [1.576]	0.956** [2.213]
Observations	79,542	77,554	77,400	77,258
Adj. R-squared	0.145	0.156	0.159	0.158

$$\text{Model: } CAR[2,X]_{iq} = \beta_0 + \beta_1 PRE1_{iq} + \beta_2 UE_{iq} + \beta_3 UE_{iq} * PRE1_{iq} + \sum_{k=4}^{10} \beta_k CONTROLS_{iq} + \sum_{k=11}^{17} \beta_k UE_{iq} * CONTROLS_{iq} + \varepsilon_{iq}$$

Table 8 reports estimated abnormal PEAD associated with earnings announced the day of the release of the Employment Situation. The sample includes earnings announcements from September 1998 to December 2009. Earnings announcements disclosed the day before the release of the Employment Situation are excluded from the sample. Panel A reports results of estimating the model without control variables. Panel B reports results of estimating the model using as control variables BADNEWS, PERSIST, PREDICT, BETA, NONLINEAR, BTM and SIZE (variables are defined in Appendix A); estimated coefficients for the control variables (β_4 to β_{17}) are not included in the panel. Regressions use OLS with year fixed effects, firm fixed effects, and standard errors clustered by the

day of the earnings announcement. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively (one-sided tests) and t-statistics are reported below the coefficient estimates.

4.4 Bad News Earnings Announcements

In this section I compare the proportion of bad news (negative unexpected earnings) EAs on Fridays of employment reports to the proportion of bad news EAs on other days. Several studies including Damodaran (1989) and Penman (1987) find a higher proportion of bad news EAs on Fridays than on other weekdays. Damodaran (1989) suggests the decision to announce earnings on a Friday is a function of the sign of the earnings news. In other words, managers may time their earnings reports to release bad news on Friday, when media and investor attention could be low. If managers prefer to make bad news announcements on days of reduced investor attention, it is possible there will be an unusually high proportion of bad news EAs on days of employment reports.

In Table 9 I compare proportions of bad news EAs for several groups of EAs using t-tests. Panel A shows that for my sample, and consistent with prior literature, the percentage of bad news EAs is significantly higher (t-statistic = 5.934) for Friday EAs (30.0%) than non-Friday EAs (27.5%). Panel B shows that the proportion of bad news announcements is significantly higher (t-statistic = 5.147) for employment-report Fridays (33.8%) than non-employment-report Fridays (29.0%). This result is consistent with managers viewing the release of the employment report as a distracting event and strategically announcing poor earnings news on the day of the employment report.

To provide additional evidence of the strategic timing of EAs, I compare the proportion of bad news EAs on Fridays of employment reports to the proportion of bad news EAs on other days when there is high ex-ante uncertainty about the employment report, and separately when there is low ex-ante uncertainty about the report. Panel C of Table 9 shows that the proportion of bad news announcements is higher on employment-report Fridays when ex-ante uncertainty about employment conditions is high (36.5%) versus low (31.8%) (t-statistic = 2.648). To control for the possibility that there are more bad news announcements on days other than employment report Fridays when ex-ante uncertainty about the employment report is high, I calculate the difference between the proportions of bad news announcements on non-employment-report Fridays when uncertainty is high versus low. Panel D indicates that there is no significant difference between these proportions (29.4% when uncertainty is high and 28.7% when uncertainty is low with a t-statistic of 0.805); in untabulated results I find that the proportion of bad news announcements for non-Friday EAs is actually (27.0%) when ex-ante uncertainty is high than when it is low (28.0%). In summary, these results provide evidence consistent with managers timing bad news EAs to coincide with the release of the employment report.

Table 9: Daily Proportions of Negative Earnings Surprises*Panel A: Fridays versus non-Fridays*

	Fridays	Non-Fridays	Difference	tstat
% Negative earnings surprises	0.300	0.275	0.025***	5.934
Observations	13,942	71,187		

Panel B: Employment Situation Fridays versus non-Employment Situation Fridays

	ES	non-ES	Difference	tstat
% Negative earnings surprises	0.339	0.290	0.049***	5.147
Observations	2,906	11,036		

Panel C: Employment Situation Fridays - high versus low uncertainty

	High	Low	Difference	tstat
% Negative earnings surprises	0.365	0.318	0.047***	2.648
Observations	1,301	1,605		

Panel D: Non-Employment Situation Fridays - high versus low uncertainty

	High	Low	Difference	tstat
% Negative earnings surprises	0.294	0.287	0.007	0.805
Observations	5,072	5,964		

Table 9 reports the percentages of negative earnings surprises (unexpected earnings less than zero) for various days of interest. The sample includes IBES earnings announcements from September 1998 to December 2009. Panel A compares the difference between the percentages of negative earnings surprises for Friday announcements and non-Friday announcements. Panel B compares the percentages for employment-report Fridays with non-employment-report Fridays. Panel C compares the percentages of negative earnings surprises for employment-report-Fridays when uncertainty is high versus low (where uncertainty is measured as the dispersion of economists' forecasts of the unemployment rate). Panel D compares the percentages of negative earnings surprises for non-employment-report Fridays when dispersion is high versus low using the high and low uncertainty samples described in section 4.2. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively (two-sided t-tests of means).

Doyle and Magilke (2009) test the strategic timing hypothesis by analyzing firms that switch from announcing earnings on a non-Friday in quarter (t-1) to a Friday in

quarter (t). They find no reliable evidence that these switching firms are more likely to announce bad earnings news in quarter (t) than in quarter (t-1). To further investigate the possibility of strategic timing in my setting, I follow the procedure of Doyle and Magilke (2009). Consistent with their results and contradicting the strategic disclosure hypothesis, I find no evidence indicating that firms switching from a non-employment-report day to the day of an employment report are more likely to release negative earnings news (the proportion of bad news EAs in quarter (t-1) is 0.33 and in quarter (t) is 0.32).

Another potential explanation for the higher proportion of bad news EAs on the day of the ES is related to earnings management and the management of earnings expectations. Prior literature (see Dechow et al. (2010) for a review) suggests that managers manage both earnings and earnings expectations to achieve earnings targets. This behavior results in an abnormally large number of earnings reports with zero or slightly positive unexpected earnings as compared to earnings reports with slightly negative unexpected earnings. This “kink” in the earnings distribution has been used as an indicator of earnings and expectations management in prior studies. Given the muted initial market response to EAs the day of the ES, managers could perceive a reduced incentive to meet earnings targets and respond by engaging in less earnings management and management of earnings expectations when they are scheduled to announce earnings the day of an employment report.

To test this conjecture I consider the proportion of firms that meet or just beat earnings expectations by examining EAs for which the reported EPS is within two cents of expectations (I use the same measure of expectations as in UE and use t-tests when compare proportions). Panel A of Table 10 shows a significantly higher proportion of firms meet or beat expectations on Fridays (76.9%) than on non-Fridays (75.6%) (t-statistic = 2.275). Panel B indicates that firms reporting earnings on non-employment-report Fridays (76.4%) are significantly more likely to meet or beat expectations than those reporting earnings on employment-report Fridays (71.7%) (t-statistic = 3.465). These results are consistent with managers engaging in less earnings and expectations management when scheduled to report earnings on the day of the ES. Panel C compares the likelihood of meeting or beating expectations on employment-report Fridays when ex-ante uncertainty is high (70.2%) versus low (72.8%). The difference in these proportions is not significant at conventional levels (t-statistic = 0.978), although the sign of the difference is consistent with less earnings and expectations management on employment-report Fridays when there is high ex-ante uncertainty about the ES. Finally, the results in Panel D indicate that ex-ante uncertainty about the ES has almost no impact on the proportion of firms that meet or beat expectations on non-employment-report Fridays. Overall, the results in Table 10 are consistent with managers engaging in less earnings managements and less expectations management when they are scheduled to announce earnings on the day of the ES.

Table 10: Daily Proportions of Positive Earnings Surprises for Earnings Announcements with Reported EPS Within Two Cents of Expectations

Panel A: Fridays versus non-Fridays

	Fridays	Non-Fridays	Difference	tstat
% Meet or Beat	0.756	0.769	0.013***	2.275
Observations	6,618	33,773		

Panel B: Employment Situation Fridays versus non-Employment Situation Fridays

	ES	non-ES	Difference	tstat
% Meet or Beat	0.717	0.764	0.047***	3.456
Observations	1,198	5,420		

Panel C: Employment Situation Fridays - high versus low uncertainty

	High	Low	Difference	tstat
% Meet or Beat	0.702	0.728	0.026	0.978
Observations	507	691		

Panel D: Non-Employment Situation Fridays - high versus low uncertainty

	High	Low	Difference	tstat
% Meet or Beat	0.762	0.766	0.004	0.349
Observations	6,618	33,773		

Table 10 reports the percentages of firms that meet or beat earnings expectations for firms reporting actual earnings-per-share within 2 cents of expectations. The sample includes IBES earnings announcements from September 1998 to December 2009. Panel A compares the difference between the percentages of firms that meet or beat expectations for Friday announcements and non-Friday announcements. Panel B compares the percentages of firms that meet or beat expectations for employment-report Fridays with non-employment-report Fridays. Panel C compares the percentages of firms that meet or beat expectations for employment-report-Fridays when uncertainty is high versus low (where uncertainty is measured as the dispersion of economists' forecasts of the unemployment rate). Panel D compares the percentages of firms that meet or beat expectations for non-employment-report Fridays when dispersion is high versus low. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively (two-sided t-tests of means).

4.5 Robustness Checks

In this section I report results from several robustness checks. As discussed in section 2, I consider the market response to EAs occurring the day before the employment report because research in finance has examined the reduction in macroeconomic uncertainty associated with numerous scheduled macroeconomic announcements and found the reduction to be the greatest at the release of the monthly employment report. Graham et al. (2003) find that the second largest reduction in uncertainty is associated with scheduled Federal Open Market Committee (FOMC) announcements. Given this finding, I test for a muted initial response to earnings announced the day before the FOMC announcement. Estimating equation (2) (model 4 from Table 4) yields a coefficient (t-statistic) for $UE*PRE1$ of -0.367 (-1.40) while the coefficient (t-statistic) for UE is 2.365 (10.59). These results provide some evidence of a muted response to EAs the day before an FOMC announcement as the one-sided p-value for the coefficient of $UE*PRE1$ is 0.08. I also test for evidence of a stronger post-earnings announcement earnings-return relation associated with EAs the day before an FOMC announcement, where returns are measured over several post-earnings announcement windows. I conduct 10 estimations of equation (2) using several one-day abnormal return windows as the dependent variable (i.e. $CAR[1,1]$, $CAR[2,2]$, ..., $CAR[10,10]$). The coefficient (t-statistic) for $UE*PRE1$ is 0.405 (2.02) using $CAR[1,1]$ as the dependent variable; the only other estimation for which $UE*PRE1$ has a significant

coefficient (at conventional levels) is when $CAR[5,5]$ is the dependent variable (the coefficient is 0.23 and t-statistic is 2.72). Overall, the above results are generally consistent with investors placing a lower weight on earnings news announced the day before FOMC announcements, and increasing the weight they apply to the earnings news after the FOMC report is released and uncertainty about its contents is resolved.

In additional tests I add several additional control variables to equation (2) estimated as model 4 in Table 4. I include the log of analyst coverage⁵ as an additional control for differences in information environments. I also include an indicator variable equal to 1 if reported earnings are negative (and 0 otherwise) because Hayn (1995) shows that negative earnings are less informative than positive earnings. In addition, I include an indicator variable equal to 1 if the EA is for the final fiscal quarter (and 0 otherwise) as Mendenhall and Nichols (1988) find lower market reactions to fourth-quarter earnings news. When I include these additional control variables, the coefficients for the interactions of $UE*PRE1$ and $UE*POST0$ are of similar magnitude as those in Table 4 and generally have smaller standard errors. I re-estimate the specifications used in Tables 6, 7, and 8 including these additional control variables and find results similar to those presented in the tables.

I also examine whether the results are robust to the definitions of cumulative abnormal returns. I first estimate equation (2) using $CAR[-1,0]$ where returns are

⁵ I define analyst coverage as the number of analysts who issue or confirm an earnings forecast within 30 days of the earnings announcement.

adjusted by the CRSP value-weighted market return as opposed to a matched size/btm portfolio return. The results using this abnormal returns measure are similar to those presented in the tables. I also use a three-day CAR window, $CAR[-1,1]$, and cluster standard errors at the firm level and find similar results.

As a final robustness check and following Easton and Zmijewski (1989) I add $CAR[-20,-2]$ as an independent variable to equation (2). The inclusion of this variable helps control for news released in the 20 days leading up to the EA that is not reflected in my measure of UE. The coefficient on $CAR[-20,-2]$ is negative and significant as expected and the magnitudes and significance levels of the coefficients of interest are similar to those reported in the tables.

5. Conclusion

I use a prominent scheduled macroeconomic announcement, the monthly employment report issued by the Bureau of Labor Statistics, to examine the effects of macroeconomic uncertainty on investor responses to earnings news. Because employment reports are significant market events, have pre-determined timing, and resolve uncertainty about the state of the economy, they create a setting in which to examine the effects of macroeconomic uncertainty on the pricing of earnings news. I find that the initial market response to EAs made the day before the employment report (when uncertainty about the report is high) is muted, and this effect is strongest around employment reports characterized by high ex-ante uncertainty about the employment news as measured by the dispersion of economists' forecasts of the unemployment rate. These findings are consistent with macroeconomic uncertainty creating uncertainty about the degree to which earnings news reveals information about future payoffs and investors rationally placing less weight on these lower precision signals.

I document a stronger-than-usual post-announcement earnings-returns relation for EAs made the day before an employment report, where returns are measured two days after the EA (for EAs made the day before the ES, this corresponds to the Monday after the Friday release of the ES). This result is consistent with the resolution of macroeconomic uncertainty causing investors to increase the weight they apply to the earnings signal, thereby moving prices to move in the direction of the earnings news.

I also consider the market response to EAs made the day of the employment report. Because employment reports are released on Fridays and previous research has documented an initial muted reaction to earnings announced on Fridays (DellaVigna and Pollet (2009)), I compare the initial market reaction to EAs made on Fridays of employment reports with the market reaction to EAs made on all other Fridays. Because the employment report is released before the market opens, allowing for the resolution of macroeconomic uncertainty, I predict the initial market response to these EAs will be the same as the response to EAs made on all other Fridays. Contrary to my prediction, I find that initial response for EAs the day of ES is lower than the initial response to EAs on all other Fridays. In separate analysis I follow the research design of DellaVigna and Pollet (2009) and find no reliable evidence that the initial market response to EAs the day of the employment report is lower than the initial market response to all other Friday EAs. This difference in results is due to several differences in research design choices including the abnormal return window used for the dependent variable, the sample period for the study, the inclusion control variables in regression analyses, and the treatment of outliers.

To differentiate between the market reactions for EAs the day before and the day of the ES, I show that in contrast to the initial response to EAs made the day before the ES, the initial reaction to EAs made the day of the ES does not vary with ex-ante uncertainty about the employment report. I also show that there is stronger-than-usual

PEAD associated with EAs made the day of the ES, but this abnormal PEAD does not become significant until after 30 trading days; this pattern is consistent with results in DellaVigna and Pollet (2009) for Friday EAs.

Finally, I show that the proportion of bad news announcements (negative unexpected earnings) is higher on employment-report Fridays than non-employment-report Fridays, especially when there is high ex-ante uncertainty about employment conditions. I also find evidence that this result is not due to strategic timing of EAs by managers but could be due to less earnings management and earnings expectations management. This is consistent with managers experiencing lower incentives to meet or beat expectations when they announce earnings the day of the ES, because of a weak initial market reaction to EAs the day of the ES.

Taken together the findings in this study are consistent with the release of the employment report affecting investor responses to earnings news. The results in this study speak to how macroeconomic uncertainty and scheduled macroeconomic information events affect the pricing of earnings news.

Appendix A

Variable	Definition
CAR[a,b]	Cumulative abnormal return defined as the sum of a firm's daily raw returns minus the sum of the daily returns from 1 of 25 size/book-to-market portfolios created at the end of June each year. At the end of each June in year t firms are matched to a portfolio based on the firm's market capitalization at the end of June in year t and the firm's book-to-market value calculated using the book value of equity from the fiscal year end in year t-1 and market capitalization at the end of December of year t-1. Returns are calculated over the period from t+a to t+b where t is the day of the earnings announcement.
UE	Unexpected earnings defined as actual EPS minus the median analyst forecast scaled by price 21 trading days before the earnings announcement. Actual EPS and analyst forecasts are from I/B/E/S and only the latest forecast per analyst issued within 30 days of the earnings announcement is used.
PRE(i)	An indicator variable equal to 1 if the earnings announcement occurs i days before the release of the employment report and 0 otherwise (i takes values from 1 to 10).
POST(j)	An indicator variable equal to 1 if the earnings announcement occurs j days after the release of the employment report and 0 otherwise (j takes values from 0 to 9).
SIZE	The log of the market value of equity in millions at the end of the fiscal quarter.
BTM	The book value of equity at the end of the fiscal quarter divided by the market value of equity at the end of the fiscal quarter.
BADNEWS	An indicator variable equal to 1 if unexpected earnings is negative and 0 otherwise.
FRIDAY	An indicator variable equal to 1 if the earnings announcement is on a Friday and 0 otherwise.
PERSIST	Earnings persistence measured as the first-order autocorrelation coefficient of quarterly income before extraordinary items scaled by average total assets, estimated over the previous four years (a minimum of five observations required).
PREDICT	Earnings predictability measured as the root mean squared error from the regression used to obtain the persistence measure.
NONLINEAR	The absolute value of unexpected earnings.
BETA	The market-model beta estimated using daily returns over the prior year and ending two trading days before the earnings announcement.
LOSS	An indicator variable equal to 1 if reported earnings is negative and 0 otherwise.

COVERAGE	The natural log of analyst coverage measured as the number of forecasts used to compute unexpected earnings.
Q4	An indicator variable equal to 1 if the earnings announcement is for the fourth quarter and 0 otherwise.

Appendix B

I estimate all regressions using firm fixed effects which require within-firm variation in the timing of earnings announcements with respect to employment reports. Inspection of the data indicates that most firms exhibit variation in the timing of earnings announcements with respect to employment reports. Below I provide several examples of this timing variation within firms.

Firm	Fiscal Period End Date	Earnings Announcement Date Minus Employment Report Date (Trading Days)
Alcoa Inc.	3/31/99	-6
	6/30/99	-6
	9/30/99	-6
	12/31/99	4
	3/31/00	0
	6/30/00	-2
	9/30/00	-7
	12/31/00	4
Alliance Data Systems Corp.	3/31/06	8
	6/30/06	9
	9/30/06	9
	12/31/06	-1
	3/31/07	8
	3/31/07	9
	9/30/07	9
	12/31/07	-1
Exxon Mobil Corp.	3/31/07	-6
	6/30/07	-6
	9/30/07	-1
	12/31/07	0
	3/31/08	-1

Exxon Mobil Corp.	6/30/08	-1
	9/30/08	-6
	12/31/08	-5

I also provide the sample distributions for the following firm-level measures:

AVG PRE1, calculated as the number of EAs made the day before an employment report divided by the total number of EAs; COUNT PRE1, equal to the number of EAs made the day before an employment report; AVG POST0, defined as the number of EAs made the day of an employment report divided by the total number of EAs; COUNT POST0, equal to the number of EAs made the day of an employment report. The median for COUNT PRE1 equals 1, indicating more firms make at least one EA the day before an employment report than do not. The median for COUNT POST0 equals 0, indicating that more firms never make an EA on the day of an employment report than do.

<u>Percentile</u>	<u>AVG PRE1</u>	<u>COUNT PRE1</u>	<u>AVG POST0</u>	<u>COUNT POST0</u>
1 st	0	0	0	0
25 th	0	0	0	0
50 th	0.022	1	0	0
75 th	0.093	2	0.036	1
99 th	0.500	11	0.385	8

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Biography

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