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Investor reaction to simultaneous news releases: unemployment vs. earnings

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Abstract

We examine the stock price reaction to surprises in the simultaneous releases of two types of news: macro news (captured by unemployment announcements) and corporate news (captured through earnings releases). Using financial data for the U.S. markets from 1962 to 2012, we confirm that earnings surprises and unemployment surprises significantly affect individual stock returns. Also, in line with Boyd et al. (J Bank Financ 60(2):649–672, 2005), we confirm that both surprises are significant during economic booms and contractions. However, while unemployment surprises are significant on a stand-alone basis, they are systematic events whose impact is captured within systematic risk-adjusted return models such as the Fama-French 3-factor and market models. This suggests that, for individual stocks, earnings surprises dominate unemployment surprises when dealing with simultaneous news releases. The stock market reaction to firm earnings surprises is enhanced during recessions, which can mostly be explained by systemic market functions.

Keywords Unemployment · Earnings · Surprises · Forecasts

JEL classification E24 · E44 · G11 · G14

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1 Introduction

> "*The Main Purpose of the Stock Market is to make fools of as many men as possible*" – Bernard Baruch (1870-1965), U.S. Financier.[1]

The ability to anticipate market reactions to current events has been highly valued since the dawn of commerce. As Bernard Baruch noted, regardless of the efforts of countless skilled researchers, programmers, and market enthusiasts, our understanding of underlying market mechanisms are often limited by dazzlingly complex variables. Although considerable academic work has been dedicated over the last century to event studies (beginning with Dolley (1933) examining the price effects of stock splits), only recently have we begun to delve effectively into the complicated world of simultaneous market reactions. The market relies on the continuous reevaluation of information to determine fair prices on publicly traded equities. But how does the market treat the simultaneous release of both macroeconomic events and company earnings news?

Market relevant news releases can be divided into four categories: macro news releases (which may be anticipated or unanticipated), and individual companies' news releases (which may also be anticipated or unanticipated). Earnings surprises are impressively common: during the 1st quarter of 2017, only 7% of firms reported earnings in-line with expectations. 18% reported earnings below estimates, and a substantial 75% of all firms exceeding earnings expectations.[2] Most recent academic studies have focused on the markets' reaction to the surprise components of the news releases, distinguishing between different macro announcements (such as unemployment or inflation) and different markets (equities, bonds, or commodities). For example, Boyd et al. (2005) in their seminal work investigate the effect of unemployment announcement on the stock market during economic booms and contractions. Bernanke and Kuttner (2005), Basistha and Kurov (2008), Kurov (2010, 2012), Kontonikas et al. (2013), Chuliá et al. (2010) study the reaction of the U.S. stock markets to the Federal Reserve monetary policy changes. Wang and Mayes (2012) compare the reaction of the domestic stock markets to domestic monetary policy announcements in the U.K., Australia, New Zealand and Euro area. Wei (2009) studies the reaction of the stock market to unexpected inflation announcements. Rangel (2011), Gilbert (2011) and Birz and Lott Jr. (2011) study the effects on the stock markets across the various macro variable announcements. Faust et al. (2007) investigated the effect of macro news on interest rates and exchange rates. Finally, Elder et al. (2012) study the effect of aggregate announcements on metal prices. In this paper, we extend this stream of existing macroeconomic research to incorporate earnings surprises for individual firms.

More recently, integrating earnings and macroeconomic news has been treated strongly in accounting, notably by Crawley (2015), who identified the relationship between accounting conservatism and macroeconomic indicators. Konchitchki (2016) report the relationship of macroeconomic effects and accounting valuation, while Zhao (2017) tie sector-level effects around investor pricing to a unique focus on revenue

[1] As quoted in Weiss, David. Financial Instruments: Equities, Debt, Derivatives, and Alternative Investments. Penguin, 2003.

[2] See *Earnings Insight: June 9, 2017* by Factset. Assessed here: https://insight.factset.com/hubfs/Resources/Research%20Desk/Earnings%20Insight/EarningsInsight_060917.pdf

benchmark beating. Trombetta and Imperatore (2014) examine earnings quality in response to financial crises, building on several further papers that examine this period in detail.

Our research paper occupies a unique position in financial literature for several reasons. First, we extend the framework established by Boyd et al. (2005) for unemployment surprises to include individual stock surprise announcements. We examine stock price reactions to simultaneous releases of two types of news ("dual events") – unemployment announcements and earnings announcements (captured through individual companies' earnings releases). Second, the impact of unexpected unemployment news on the stock price of companies that concurrently release their earnings is thoroughly investigated for recessions, interaction effects, and various model specifications for robustness. Lastly, we examine US firms from 1962 to 2012 – a period encompassing 50 years of varying economic cycles including the Great Recession.

The rest of the paper is organized as follows: in Section 2 we review the existing literature, in Section 3 we discuss the data and methodologies used including hypotheses and models, in Section 4 we present our main findings, Section 5 presents our robustness analysis, and Section 6 has our conclusions.

2 Literature review

There is a significant vein of literature in recent years detailing macroeconomic effects on stock market prices. Ogneva (2013) examines how macroeconomic information is imbedded in earnings forecasts. Gallo et al. (2016) examine market reactions among futures data surrounding policy actions at the Federal Reserve. They found that while the market reacts negatively to policy surprises, policy news is contained in earnings news. Similarly, equity reactions to changes in the Federal Funds Rate have been studied in great detail. Kontonikas et al. (2013) observe that stocks, despite generally reacting positively to Fed rate cuts, suffered a muted response to expansionary rate surprises during the recent financial crisis (2007–2009). Kothari et al. (2013) find that future expectations of inflation are embedded in earnings surprises. Kim et al. (2016) note the critical importance of macroeconomic uncertainty in the role of issuing management earnings forecasts. Cready and Gurun (2010) consider both aggregate and individual earnings, finding a negative relationship between earnings surprises and aggregate market returns.

Regarding employment-specific surprises in the extant literature, Hautsch and Hess (2002) examine the effects the US employment report had on Treasury bond futures, and found that this information was instantly conveyed into prices. More obliquely, Abraham and Harrington (2016) examine how the relative strength of business conditions affects the levels of earnings. Simpson et al. (2005) consider 23 different macroeconomic surprises on the effects of both the forward premium and forward exchange rates. Birz and Lott Jr. (2011) consider the effects of unemployment rates, GDP, durable goods, and retail sales surprises on S&P 500 returns using a database of newspaper headlines.

Noted efforts have been made to synergize the literature between macroeconomic and firm-level effects, with significant representation in both financial and accounting literature. McQueen and Roley (1993) find that, unlike prior research findings of little

correlation between macroeconomic news and stock prices, equities did respond to macroeconomic news when controlling for different stages of the business cycle. Bonsall et al. (2013) create an earnings decomposition framework to address this issue, but focus their results on 'bellwether' firms that provide the most timely and relevant data. Ball and Sadka (2015) conclude that earnings-related risks affect investors mostly via systematic risk, which is an interesting implication for macroeconomic analysis. Park and Shin (2015), using data for South Korean firms, find that macroeconomic variables are informative when studying earnings persistence. Lam et al. (2014) note the importance of investor sentiment in determining the 'profitability premium,' or firms that maintain market valuations inconsistent with actual profits. Rangel (2011) using a notable Poission-Gaussian-GARCH process, examines how macroeconomic releases affect market volatility; his work further reiterates the importance of macroeconomic factors on anticipating forecasted volatility.

This research occupies a unique niche in this type of market literature. By narrowing our focus to the direct effects of simultaneous unemployment and earnings releases, considerable insight is gained into how the market reacts to news of different magnitudes.

3 Methodology

3.1 Hypotheses development

The existing literature has provided a substantial background for the development of our primary hypothesis. First, we expect that both unemployment surprises and earnings surprises are individually significant. The case for the significance of employment surprises was established by a number of recent macroeconomic papers, including Flannery and Protopapadakis (2002), Boyd et al. (2005), Basistha and Kurov (2008), Birz and Lott Jr. (2011), and Rangel (2011). Likewise, the significance of earnings surprises has a long academic history, notably Latane and Jones (1977), Zacks (1979), Easton and Zmijewski (1989), Skinner and Sloan (2002) and Kothari et al. (2006). Taken together, we propose the first hypothesis:

H1: Unemployment and earnings surprises are significant on their own.

Secondly, to examine the effect of unemployment surprises on the state of the economy, McQueen and Roley (1993), Kothari et al. (2006), and Jenkins et al. (2009) all address the importance of the business cycle in regard to market responses to earnings releases. Basistha and Kurov (2008) focus on the importance of economic state in regard to macroeconomic surprises, which motivates the second hypothesis:

H2: The stock price impact of unemployment surprises depends on the state of the economy.

Lastly, when incorporating both unemployment and earnings surprises, begs the question, "which effect will predominate?" While unemployment surprises are diffused across an entire economy, it is expected that individual earnings surprises will be

stronger than unemployment surprises for an individual firm. This leads to the third hypothesis:

H3: Unemployment surprises are less significant than simultaneous earnings surprises

3.2 Modeling unemployment surprises

Following Boyd et al. (2005), we use the following equation to forecast unemployment surprises:

$$D_{unemp_t} = \beta_0 + \beta_1 Ind_{Prod_{t-1}} + \beta_2 Ind_{Prod_{t-2}} + \beta_3 Ind_{Prod_{t-3}} + \beta_4 Ind_{Prod_{t-4}} + \beta_5 D_{unemp_{t-1}} + \beta_6 D_{TB_t} + \beta_7 D_{BA_t} + e_t \quad (1)$$

where, D_{unempt} is the change in the unemployment rate at date t, Ind_{Prodt} is the growth of monthly industrial production, D_{TBt} is the change in the 3-month T-bill rate, and $D_{BAt}$is the change in the default yield spread between Baa and Aaa corporate bonds. Regression is estimated by first using monthly data from 1957 to 1961 to obtain initial values for the coefficients in our regression model. These estimated coefficients are then used to forecast the value for change in unemployment for January 1962. The 'surprise' component of unemployment is then constructed by taking the difference between the actual change in unemployment between January 1962 and December 1961, and the forecasted change. The regression coefficient estimates are then updated by using actual unemployment change between January 1962 and December 1961. A new forecast is then made accordingly by using updated coefficients for February 1962, repeating the process until the end of 2000. The difference between actual unemployment change and the forecasted change comprises the 'unemployment surprise.'

3.3 Model to test hypotheses

The I/B/E/S database was used to obtain both average analyst forecasts and actual earnings for each sample firm. In the sample, only the companies that make their earnings announcements around the unemployment announcements (day 0) within a three-day window (day −1 to day +1) were selected. Figure 1 provides a graphical representation of the sample creation methodology. Earnings surprises were merged with the unemployment surprises using the sample dates for unemployment announcements.

We test our hypotheses using our benchmark model with the following specifications:

$$R_{it} = b_o + b_1\, EARNSURP_{it} + b_2\, UNEMPSURP_{it} + b_3\, RECDUM_{it} + b_4\, X_{it} + e_t \quad (2)$$

where, R_{it} is the cumulative return (CR) or cumulative abnormal return (CAR) during the event window, $EARNSURP_{it}$ is the earnings surprise during the event window,

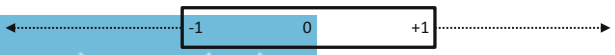

Fig. 1 Sample Creation

$UNEMPSURP_{it}$ is the unemployment surprise during the event window, and $RECDUM_{it}$ is the dummy variable for recession. X_{it}, the control variables in the model are commonly used in the finance and accounting literature to control for a firm's specific characteristics that drive stock returns. Since Fama and French (1993), firm size (measured as total assets TALOG) and firm value (calculated as market-to-book ratio MB here) are accepted as common risk factors affecting asset returns and are used as control variables in the literature.

4 Results

In Table 1, we present descriptive statistics for the variables used in our research models. We find that, on average, firm stock prices in our model exhibit a positive reaction to both earnings and unemployment surprises; as expected, the magnitude of the stock reaction is much lower once systematic effects are factored out (as evidenced by the mean CAR compared to the mean CR). Also as expected, the positive sign on the EARNSURP variable confirms that firms more typically report positive earnings surprises.

In Fig. 2, we plot the cumulative returns (CR and CAR) in various event windows around the unemployment announcement date. As shown in the CR graphic line, typically the dual announcements have a positive impact on stock prices event 2 days before the event cumulating to 0.671% in the entire event window [−2,+1]. However, these returns are reduced significantly in the CAR plot once systematic effects are factored out using the Fama-French 3-factor model; the average excess return is 0.059% for the entire event window [−2,+1].

The results in Table 2 hold for the entire time period (1962–2012) that data is available in the CRSP database. In this model, standard errors are grouped at firm level using PERMNO. As Panel A shows, during dual event periods, cumulative stocks price returns (CRs) are significantly positively related to both earnings surprises and unemployment surprises; both better than anticipated earnings and higher than expected unemployment numbers drive stock prices higher (the latter is in line with Boyd et al.

Table 1 Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
CR	15,050	0.00671	0.091971	−0.81031	1.478429
CAR	15,053	0.000588	0.089028	−0.75357	1.46428
EARNSURP	15,019	0.115548	7.122372	−37.632	650.191
UNEMPSURP	15,348	−0.03137	0.163629	−0.64743	0.554028
TALOG	14,680	6.061839	1.880793	0.13715	13.99783
MB	14,603	2.037579	55.14094	−3118.42	1541.096

Where CR is the cumulative return and CAR is the cumulative abnormal return in event window [−2,+1]; EARNSURP is the earning surprise which is calculated as a difference between actual EPS and estimated EPS scaled by the stock price; UNEMPSURP is the calculated as a difference between the actual unemployment and forecasted unemployment; TALOG is the natural log of total assets; MB is the market-to-book ratio; Event window [−2,+1] is 2 days before and 1 day after actual unemployment announcement date. The data to calculate UNEMPSURP comes from BLS and Federal Reserve for the period 1957 to 2012; the financial data comes from the CRSP, COMPUSTAT, and I/B/E/S databases for the U.S. for the period 1962 to 2012

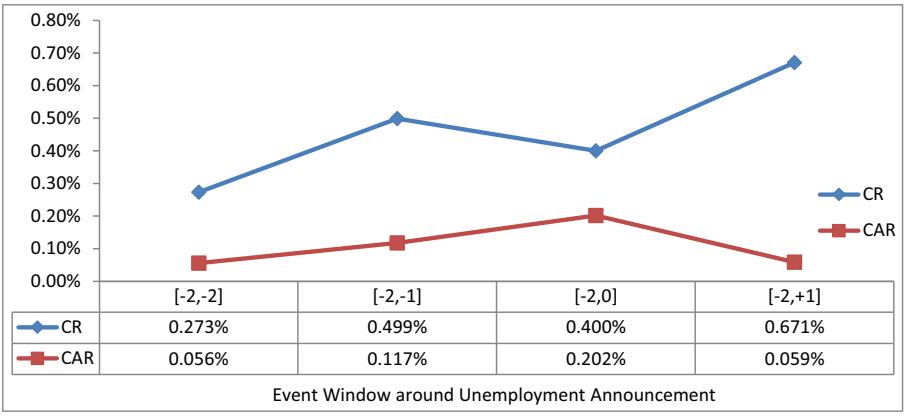

Fig. 2 Stock Price Impact around Unemployment Announcement. Where CR is the cumulative return and CAR is the cumulative abnormal return as in an event window around the unemployment announcement date. The the financial data comes from the CRSP database for the U.S. for the period 1962 to 2012

(2005)). These impacts are muted during recessions as indicated by the statistical significance on the recession indicator RECDUM. The significantly positive coefficient on control variable TALOG indicates that the reaction is greater for larger firms. Control variable MB is not significant. In Panel B, we report results using *cumulative abnormal returns* (CARs) calculated using the Fama-French 3-factor model specifications. Again, stock prices are always significantly positively related to earnings surprises, but unemployment news is not statistically significant. The findings for recessions (RECDUM), firm-size (TALOG), and firm-value (MB) are as earlier.

In Table 3, we add additional interaction variables for earnings and unemployment surprises, as well as for recessions. The results are similar to those in Table 2 – earnings surprises are significant when using CRs and CARs, but unemployment surprises are only significant with CRs. Again, as expected, the recession dummy is significantly negative, indicating a downward bias to stock returns in poor economic times. While the interaction variable of earnings surprise and the recession indicator is statistically significant with CRs, there is no significance in the CAR model.

5 Robustness tests

In the various test of robustness that follow, we test our model using additional empirical specifications such as clustering by industry in Table 4, and firm-level fixed effects in Table 5. In Table 6, we explore the impact of Sarbanes-Oxley on news surprises, and in Table 7 we confirm that the results of Boyd et al. (2005) hold for individuals stocks using the time period of their study.

First off, in Table 4, we cluster by industry using SIC codes.[3] In line with our earlier findings, earnings surprises remain significant using CRs or CARs. Unemployment surprises are not significant even with CRs since the industry clusters capture industry-

[3] In reported tests using industry clusters (Table 4), we ignore firms with a SIC code of 0000 which signifies either an unknown or unreported industry. However, the findings are similar for unreported tests where we use all the data including firms with SIC codes of 0000 classified as their own industry group.

Table 2 Benchmark models: clustering by firm

Panel A: Tests using CR					
EARNSURP	0.0002 (4.54)***		0.0002 (4.28)***	0.0002 (4.37)***	0.0002 (4.35)***
UNEMPSURP		0.0147 (3.46)***	0.0141 (3.29)***	0.0139 (3.24)***	0.0138 (3.20)***
TALOG			0.0062 (1.65)*	0.0008 (2.03)**	0.0008 (2.04)**
RECDUM				−0.0111 (−3.55)***	−0.0111 (−3.53)***
MB					0.0001 (1.00)
Constant	0.0066 (8.61)***	0.0072 (9.06)***	0.0030 (1.17)	0.0035 (1.32)	0.0034 (1.30)
R^2	0.00	0.00	0.00	0.00	0.00
N	15,019	15,050	14,646	14,646	14,592
Panel B: Tests using CAR					
EARNSURP	0.0003 (7.36)***		0.0003 (6.93)***	0.0003 (7.01)	0.0003 (6.85)***
UNEMPSURP		0.0008 (0.19)	0.0001 (0.02)	−0.0001 (−0.02)	−0.0004 (−0.11)
TALOG			0.0009 (2.45)**	0.0010 (2.69)***	0.0010 (2.69)***
RECDUM				−0.0072 (−2.36)**	−0.0071 (−2.34)**
MB					−0.0000 (−0.02)
Constant	0.0005 (0.72)	0.0006 (0.81)	−0.0052 (−2.02)**	−0.0049 (−1.92)*	−0.0050 (−1.94)
R2	0.00	0.00	0.00	0.00	0.00
N	15,019	15,053	14,646	14,646	14.592

OLS regression with clustering by firm (PERMNO used to identify firm), where, CR is the cumulative return and CAR is the cumulative abnormal return in event window [−2,+1]; EARNSURP is the earning surprise which is calculated as a difference between actual EPS and estimated EPS scaled by the stock price; UNEMPSURP is the calculated as a difference between the actual unemployment and forecasted unemployment; RECDUM is the dummy variable for U.S. recessions; TALOG is the natural log of total assets; MB is the market-to-book ratio; SURP_INTERACT is the interaction between the two surprises, defined as their product; RECDUM_EARNSURP is the interaction between RECDUM and EARNSURP, defined as their product; RECDUM_UNEMPSURP is the interaction between RECDUM and UNEMPSURP, defined as their product. Event window [−2,+1] is two days before and one day after actual unemployment announcement date. The data to calculate UNEMPSURP comes from BLS and Federal Reserve for the period 1957 to 2012; the financial data comes from the CRSP, COMPUSTAT, and I/B/E/S databases for the U.S. for the period 1962 to 2012

*** significance at 1%, ** significance at 5%, *significance at 10% (test statistics in brackets)

level systemic effects further reducing the impact of individual firm-level reactions. Results for the dummy variable, control variables, and the various interaction terms are similar to those in Tables 2 and 3.

Table 3 Benchmark models: clustering by firm with interactions

	CR	CAR
EARNSURP	0.0003 (15.36)***	0.0003 (18.74)***
UNEMPSURP	0.0138 (3.16)***	−0.0009 (−0.20)
TALOG	0.0008 (2.04)**	0.0010 (2.70)***
MB	0.0000 (1.00)	−0.0000 (−0.02)
SURP_INTERACT	−0.0016 (−1.03)	−0.0017 (−0.99)
RECDUM	−0.0110 (−3.46)***	−0.0069 (−2.25)**
RECDUM_EARNSURP	−0.0006 (−3.97)***	−0.0002 (−1.40)
RECDUM_UNEMPSURP	−0.0006 (−0.03)	0.0041 (0.22)
Constant	0.0034 (1.30)	−0.0050 (−1.95)*
R2	0.00	0.00
N	14,592	14,592

OLS regression with clustering by firm (PERMNO used to identify firm), where, CR is the cumulative return and CAR is the cumulative abnormal return in event window [−2,+1]; EARNSURP is the earning surprise which is calculated as a difference between actual EPS and estimated EPS scaled by the stock price; UNEMPSURP is the calculated as a difference between the actual unemployment and forecasted unemployment; RECDUM is the dummy variable for U.S. recessions; TALOG is the natural log of total assets; MB is the market-to-book ratio; SURP_INTERACT is the interaction between the two surprises, defined as their product; RECDUM_EARNSURP is the interaction between RECDUM and EARNSURP, defined as their product; RECDUM_UNEMPSURP is the interaction between RECDUM and UNEMPSURP, defined as their product. Event window [−2,+1] is 2 days before and 1 day after actual unemployment announcement date. The data to calculate UNEMPSURP comes from BLS and Federal Reserve for the period 1957 to 2012; the financial data comes from the CRSP, COMPUSTAT, and I/B/E/S databases for the U.S. for the period 1962 to 2012

*** significance at 1%, ** significance at 5%, *significance at 10% (test statistics in brackets)

In Table 5, we further test our empirical specifications by controlling for firm-level fixed effects. Given the nature of the model, fixed effects such as UNEMPSURP and RECDUM to not appear in the table since they are differenced out. Although we report somewhat weaker t-statistics, our findings hold –earnings surprise and size (total assets) are significant further confirming our primary findings.

Our next robustness test addresses the Sarbanes-Oxley Act, the 2002 legislation that created a number of new standards for public companies. An analysis of prior literature suggests this may affect results post-2002 results. Notably, Hsieh et al. (2014) study CEO overconfidence and earnings management, and Kim et al. (2016) find that Sabarnes-Oxley increases the cost for managers to issue management earnings forecasts. Campbell et al. (2014) note that reduced financial reporting equality occurs when stock-option incentives are provided to members of the independent audit committee

Table 4 Robustness tests: CRs with clustering by industry

	CR	CAR
EARNSURP	0.0003 (14.72)***	0.0003 (17.77)***
UNEMPSURP	0.0068 (1.38)	−0.0031 (−0.66)
TALOG	0.0008 (1.95)*	0.0011 (2.66)***
MB	0.0000 (1.43)	0.0000 (0.49)
SURP_INTERACT	−0.0017 (−1.04)	−0.0017 (−1.04)
RECDUM	−0.0115 (−3.13)***	−0.0072 (−2.05)**
RECDUM_EARNSURP	−0.0006 (−4.01)***	−0.0002 (−1.51)
RECDUM_UNEMPSURP	0.0059 (0.31)	0.0067 (0.36)
Constant	0.0033 (1.24)	−0.0056 (−2.02)**
R^2	0.00	0.00
N	13,211	13,211

OLS regression with clustering by industry (using SIC codes to identify industry), where, CR is the cumulative return and CAR is the cumulative abnormal return in event window [−2,+1]; EARNSURP is the earning surprise which is calculated as a difference between actual EPS and estimated EPS scaled by the stock price; UNEMPSURP is the calculated as a difference between the actual unemployment and forecasted unemployment; RECDUM is the dummy variable for U.S. recessions; TALOG is the natural log of total assets; MB is the market-to-book ratio; SURP_INTERACT is the interaction between the two surprises, defined as their product; RECDUM_EARNSURP is the interaction between RECDUM and EARNSURP, defined as their product; RECDUM_UNEMPSURP is the interaction between RECDUM and UNEMPSURP, defined as their product. Event window [−2,+1] is 2 days before and 1 day after actual unemployment announcement date. The data to calculate UNEMPSURP comes from BLS and Federal Reserve for the period 1957 to 2012; the financial data comes from the CRSP, COMPUSTAT, and I/B/E/S databases for the U.S. for the period 1962 to 2012

*** significance at 1%, ** significance at 5%, *significance at 10% (test statistics in brackets)

even in a post-Sarbanes Oxley world. While the literature on the consequences of Sarbanes-Oxley is mixed, we consider the enactment of the Sarbanes-Oxley to be seminal enough to justify further investigation. In Table 6, we divide our sample in two parts: 1962–2002 and 2003–2012. We find that our results are consistent even after the enactment of the Sarbanes-Oxley act. The effect of earnings surprise in a CAR framework is consistent with our prior expectations. Interestingly, we also find greater significance for the earnings and recession interaction variable in our 2003–2012 subsample; in our full sample in Table 3, this variable was not significant using CARs, but did have significance with CRs. As earlier, we find no significance in our unemployment and recession interaction variable in either period.

In the final robustness check and to extend the findings of Boyd et al. (2005), we constrained our data set only to the January 1962 to December

Table 5 Robustness tests: firm-level fixed effects

	CR	CAR
EARNSURP	0.0002 (1.98)*	0.0003 (2.54)*
TALOG	0.0009 (2.09)*	0.0014 (3.12)**
MB	0.0000 (0.69)	0.0000 (0.17)
SURP_INTERACT	−0.0008 (0.41)	−0.0016 (0.79)
RECDUM_EARNSURP	−0.0003 (0.93)	−0.0001 (0.40)
Constant	0.0010 (0.35)	−0.0081 (2.89)**
R^2	0.00	0.00
N	13,211	13,211

OLS regression with firm-level fixed effects (PERMNO used to identify firm), where, CR is the cumulative return and CAR is the cumulative abnormal return in event window [−2,+1]; EARNSURP is the earning surprise which is calculated as a difference between actual EPS and estimated EPS scaled by the stock price; UNEMPSURP is the calculated as a difference between the actual unemployment and forecasted unemployment; RECDUM is the dummy variable for U.S. recessions; TALOG is the natural log of total assets; MB is the market-to-book ratio; SURP_INTERACT is the interaction between the two surprises, defined as their product; RECDUM_EARNSURP is the interaction between RECDUM and EARNSURP, defined as their product; RECDUM_UNEMPSURP is the interaction between RECDUM and UNEMPSURP, defined as their product. Event window [−2,+1] is 2 days before and 1 day after actual unemployment announcement date. The data to calculate UNEMPSURP comes from BLS and Federal Reserve for the period 1957 to 2012; the financial data comes from the CRSP, COMPUSTAT, and I/B/E/S databases for the U.S. for the period 1962 to 2012.

*** significance at 1%, ** significance at 5%, *significance at 10% (test statistics in brackets)

2000 period, and also separated economic booms and economic contractions. Boyd et al. (2005) found that an announcement of rising unemployment is positive news for the S&P 500 stock index during booms and negative news during recessions. In Table 7, we report results for individual stocks (instead of the S&P 500 stock index) during the Boyd et al. period of study (1962–2000). In line with their findings, we also find that stocks react positively to rising unemployment news during booms, and negatively during recessions. In additional findings, we confirm that stocks also react positively to higher unexpected earnings in all economic conditions.

6 Conclusion

Unsystematic events (known as earnings surprises) significantly affect individual stock returns. While unemployment surprises are significant, they are systematic events whose impact is captured within the Fama-French 3-factor and market models. Consequently, when dealing with simultaneous news releases, we confirm that earnings surprises dominate unemployment surprises for individual

Table 6 Robustness tests: CARs for 1962–2002 and 2003–2012

	1962–2002	2003–2012
EARNSURP	0.0004 (15.64)**	0.0001 (3.63)**
UNEMPSURP	−0.0015 (0.29)	−0.0100 (0.88)
TALOG	0.0009 (1.93)	0.0021 (2.73)**
MB	0.0000 (0.65)	−0.0000 (0.09)
SURP_INTERACT	−0.0064 (1.06)	0.0005 (1.40)
RECDUM	−0.0026 (0.49)	−0.0085 (1.80)
RECDUM_EARNSURP	0.0446 (0.82)	0.0002 (3.07)**
RECDUM_UNEMPSURP	0.0034 (0.18)	0.0012 (0.03)
Constant	−0.0030 (0.94)	−0.0150 (2.66)**
R^2	0.00	0.00
N	7805	5406

OLS regression with clustering by industry (SIC code used to identify industry), where, CR is the cumulative return and CAR is the cumulative abnormal return in event window [−2,+1]; EARNSURP is the earning surprise which is calculated as a difference between actual EPS and estimated EPS scaled by the stock price; UNEMPSURP is the calculated as a difference between the actual unemployment and forecasted unemployment; RECDUM is the dummy variable for U.S. recessions; TALOG is the natural log of total assets; MB is the market-to-book ratio; SURP_INTERACT is the interaction between the two surprises, defined as their product; RECDUM_EARNSURP is the interaction between RECDUM and EARNSURP, defined as their product; RECDUM_UNEMPSURP is the interaction between RECDUM and UNEMPSURP, defined as their product. Event window [−2,+1] is 2 days before and 1 day after actual unemployment announcement date. The data to calculate UNEMPSURP comes from BLS and Federal Reserve for the period 1957 to 2012; the financial data comes from the CRSP, COMPUSTAT, and I/B/E/S databases for the U.S. for the period 1962 to 2012

*** significance at 1%, ** significance at 5%, *significance at 10% (test statistics in brackets)

stocks. Our findings are robust for firm clustering, industry clustering, firm-level fixed effects, and were not substantially affected by the Sarbanes-Oxley Act of 2002. We also confirm that the Boyd et al. (2005) findings hold for individual stocks instead of market indices, but extend their findings to highlight the dominance of earnings surprises over unemployment surprises.

These findings are important to professional and individual investors for several reasons. First, unique firm news such as earnings surprises have a material impact on stock prices; the only way to minimize the impact is through efficient diversification. Second, though unemployment news is subsumed by firm-level surprises in our models that capture systematic effects, such macroeconomic news is still a key factor that affects all stock prices and should be considered when developing an equity investment strategy. Third, our findings highlight the key variables that traders need to profit from

Table 7 Robustness tests: CRs for 1962–2000

	Economic expansions	Economic contractions
EARNSURP	0.0003 (2.68)***	0.0817 (1.63)
UNEMPSURP	0.0160 (2.91)***	−0.1421 (−5.67)***
TALOG	0.0005 (0.94)	0.0037 (1.38)
MB	0.0000 (0.65)	−0.0000 (−0.69)
Constant	0.0080 (2.57)**	−0.0255 (−1.59)
R^2	0.00	0.11
N	7660	279

OLS regression, where CR is the cumulative return in event window [−2,+1]; EARNSURP is the earning surprise which is calculated as a difference between actual EPS and estimated EPS scaled by the stock price; UNEMPSURP is the calculated as a difference between the actual unemployment and forecasted unemployment; TALOG is the natural log of total assets; MB is the market-to-book ratio. Event window [−2,+1] is 2 days before and 1 day after actual unemployment announcement date. The data to calculate UNEMPSURP comes from BLS and Federal Reserve for the period 1957 to 2012; the financial data comes from the CRSP, COMPUSTAT, and I/B/E/S databases for the U.S. for the period 1962 to 2000

*** significance at 1%, ** significance at 5%, *significance at 10% (test statistics in brackets)

changes in stock prices when firms release earnings simultaneously with key macroeconomic data.

The policy implications are also noteworthy. Unemployment announcements generally occur in the first week after the end of the prior (measured) month. Concurrent information released about a firm and the overall economy occurs only four times per year (during quarterly releases). Since firm-level information dominates unemployment surprises, firms would not gain strategic advantage in timing earnings releases to correspond with unemployment announcements. Any form of earnings management or mitigation of earnings surprises would therefore also be ineffective. Consequently, there is no evidence to support regulation on the timing of macroeconomic or firm-level news releases.

In extensions to our study, we propose that other domestic and global macroeconomic news (such as GDP growth, housing starts, central bank policy changes) should be combined with simultaneous news releases using a similar model framework.

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