Information or Distraction: The Effect of Macro-news Announcements on Analyst Forecast Properties

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Abstract:

The number of macro-news announcements has grown over time and reached to a level that is likely to cause a distracting effect on the performance of economic agents. In this study, I examine the distracting impact of macro-news announcements on analysts' forecast accuracy and informativeness. Using a sample of U.S. analysts for the years 1998-2016, I find that analysts' earnings forecasts are less accurate when the number of macro-news announcements is high. However, I find that the stock market reacts positively to the analyst forecast revision when the number of macro-news announcements is high.

JEL classification: G17; G24; G41

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1. Introduction

Living in an information society, we all suffer from information overload as the amount of information that we receive exceeds our cognitive processing capacity. Like other information, information about macro-news has grown over time. The number of macro-news announcements captured by Bloomberg Econoday has increased to 481.[1] This number indicates that the number of macro-news announcements has reached a level that may cause a distracting effect on cognitive performance of economic agents. Although macro-news contains essential information about the economy (e. g., Li, Richardson, and Tuna, 2014), which may be relevant for economic agents, processing numerous macro-news might consume significant cognitive resources. This leads to a vital question of whether macro-news announcements have become a necessary distraction for economic agents.

To test the distracting effects of macro-news announcements analyst earnings forecasting provides an ideal setting. First, the job of analysts is cognitively demanding.[2] Analysts must process various firm-specific and macro-news information. Although macro-news contains

[1] Out of 481 macro-news announcements captured by Bloomberg Econoday, the number of macro-news announcements—whose Bloomberg Relevance Index is more than zero—is 138, and among these, 13 macro-news has a significant impact on financial markets (e.g., Chen, Jiang, and Zhu, 2018).

[2] Groysberg and Healy (2013) find that analysts, on average, issue twelve notes to every report and each note requires time and mental effort. Although analyst reports may be prepared by a team of junior analysts, the senior analyst whose name appears in the I/B/E/S database would still have to devote substantial time and effort to supervise the final report.

important information about the economy (e. g., Li, Richardson, and Tuna, 2014), which may be relevant for analysts, processing numerous macro-news might consume significant cognitive resources of the analysts. Therefore, analysts left with less cognitive resources to process firm-specific information, causing less accurate forecasts. Second, the accuracy of analyst forecasts can be directly measured, allowing us to test for the distracting impact of macro-news announcements.

In this study, I investigate the distracting effects of macro-news announcements on analyst forecast accuracy and informativeness. I conduct my tests for a sample of U.S. analysts for the years 1998 to 2016. To examine the impact of the information content in macro-news, I separate macro-news announcements based on their information content using the surprise (SUR) of the macro-news as the proxy for information content.[3] I then examine the effect of high information content and zero information content macro-news announcements on analyst forecast accuracy and informativeness. The primary motivation for separating macro-news into high and zero information content is that macro-news contains relevant information about the economy (e. g., Li, Richardson, and Tuna, 2014), which is likely to be useful for analysts to forecast systematic components of earnings shocks.

This study is motivated by following arguments and observations. The finance literature has documented the evidence of the limited attention hypothesis by examining the effect of distracting information/events on price and volume behavior. For example, investors get distracted by the announcement of earnings by multiple firms on the same day (Hirshleifer, Lim, and Teoh,

[3] I define SUR, following Chen, Jiang, and Zhu (2018), as the difference between reported value of macro-news announcements and the median forecasts for respective macro-news retrieved from Bloomberg Econoday. I then deflate the absolute value of SUR by the standard deviation of the difference between reported value of macro-news announcements and the median forecasts for respective macro-news for the last 24 months.

2009) and by the upcoming weekend on Fridays (deHaan, Shevlin, and Thornock, 2015; DellaVigna and Pollet, 2009). I argue that analysts, like investors, may get distracted by a large number of macro-news announcements. If the number of macro-news announcements is high, it consumes significant mental resources of analysts. Therefore, analysts left with less mental resources to process firm-specific information that may cause less accurate forecasts.

Turning to the informativeness of analyst forecasts, it is uncertain whether analyst output is more valuable during a large number of macro-news announcements. On the one hand, there are arguments that support that the stock market will discount the analyst forecast revision. The limited attention hypothesis and investor distraction hypothesis suggest that a large number of macro-news announcements likely to divert the attention of investors from analyst forecast revision, causing a lower stock market reaction to the forecast revision. Also, new information that analysts received by macro-news announcements makes analysts' jobs tougher, and they may issue less accurate forecasts. If the stock market is efficient, investors will discount the less accurate forecast revision.

On the other hand, few studies support that the stock market will appreciate the analyst forecast revision when the number of macro-news announcements is high. First, Sheng (2019) shows macro-news announcements increases that attention of institutional investor to financial markets. He finds that stock market values more to earnings announcements that are concurrent with the macro-news announcement. Second, Chen, Jiang, and Zhu (2018) find that macro-news announcements reduce uncertainty in stock returns and enhance efficiency in stock prices. Third, as macro-news announcements provide new information, investors may find it harder to value a firm, and hence they value more to the analyst output. Because either of these effects could dominate, it is not clear whether analyst output is more valuable.

I measure the effect of macro-news announcements in two ways. The main proxy is the number of macro-news announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated. I use this proxy for the following reason. It is highly probable that analysts might not have prepared the forecast report on the day of the forecast, but they have prepared in the last few days. Therefore, the number of macro-news announcements over the previous two weeks would capture the maximum effect of macro-news announcements on analysts.

The second proxy that I use to test the robustness of my results is the number of macro-news announcements on the day of analyst forecast for which forecast accuracy is being evaluated. The primary motivation to use this proxy is the findings of Hirshleifer, Levi, Lourie, and Teoh (2019), who find that analysts' decision quality declines after frequent sessions of decision-making by analysts who are afflicted by decision-fatigue. It means, despite the lower possibility that analysts prepare the forecast report on the day of the forecast, decision fatigue on the day of forecasts affects their forecast accuracy. Extending this argument, I expect that the distraction on the day of analyst forecast by macro-news announcements would reduce the forecast accuracy.

I perform empirical tests of the above hypotheses. I find forecast accuracy is lower when the number of macro-news announcements is high. My results are indifferent either I normalize forecast accuracy by a stock price or by stock volatility. I further test the stock market reaction to analyst forecast revisions when the macro-news announcement is high. Despite lower forecast accuracy, I find that the stock market value more to the analyst forecast revision when the macro-news announcements are high.

I further examine the effect of macro-news announcements when information content in macro-news is high and when information content in macro-news is zero. I find that both high

information content macro-news and zero information content macro-news announcements reduce the forecast accuracy. Empirically my study is inconclusive on whether the information content of the macro-news is a deciding factor in its distracting effect on analyst forecasts. I further find that the stock market reacts positively to forecast revisions during the high surprise macro-news announcements, and the stock market reacts negatively to forecast revision when macro-announcements have zero information content.

As additional evidence, I test the effect of macro-news announcements on forecast accuracy of two earnings components: sales and the cost of goods sold. I choose these two components because they yield the largest possible sample sizes. Also, the forecast accuracy of earnings is a function of forecast accuracy of sales and the cost of goods sold. The error in sales and the cost of goods sold forecasts partially drives the error in earnings. Consistent with my expectation, I find that both sales and the cost of goods sold forecast accuracy is lower when the number of macro-news announcements is high

My study makes several contributions to the literature. First, to the best of my knowledge, my study is the first to document that macro-news announcements also have a distracting effect on analysts. My study adds to the limited attention hypothesis (e.g., Hirshleifer, Lim, and Teoh, 2009; deHaan, Shevlin, and Thornock, 2015; DellaVigna and Pollet 2009).

Second, I find that investors value more to analyst forecast revision concurrent to macro-news announcements. My results on the stock market reaction add to Chen, Jiang, and Zhu (2018) who find that macro-news reduces uncertainty in stock returns and enhances efficiency in stock prices. My results also add to the finding of Sheng (2019), who finds that price reactions to earnings news on macro-news days are 17% stronger. My conclusions on stock market reaction

remotely add to Loh and Stulz (2018), who find that analysts' forecasts are more valuable during uncertainty (i.e., recessions and crises).

Third, my findings add to prior evidence that analysts are not rational with macro-news as they do not fully incorporate macro-news in their forecasts (e.g., Basu, Markov, and Shivakumar, 2010; Hann, Ogneva, and Sapriza, 2012; Hugon, Kumar, and Lin, 2016; Li, Richardson, and Tuna, 2014). Forth, my study remotely add to the literature that macroeconomic uncertainty reduces the traditional measures of analyst forecast accuracy (Hope and Kang, 2005; Amiram, Landsman, Owens, and Stubben, 2018; Loh and Stulz, 2018)

I organize the rest of the paper as follows. Section 2 develops the hypotheses. Section 3 describes my data sources, sample selection, and variable measurement. Section 4 reports the various empirical analysis and robustness checks. Section 5 reports further analysis. Section 6 concludes.

2. Hypotheses

Attention is a scarce cognitive resource (Kahneman, 1973). The psychology literature argues that attention affects the accuracy of the task in complex task environments (e.g., Dosher and Lu, 2000; Murray and Wojciulik, 2004; Posner, Snyder, and Davidson, 1980). The finance literature has tested the limited attention hypothesis by examining the effect of distracting information/events on price and volume behavior. For example, Hirshleifer, Lim, and Teoh (2009) argue that the announcement of earnings by multiple firms on the same day can distract investor attention. Consistent with investor distraction, they find that price and volume reactions to an earnings announcement are weaker when other firms announce on the same day. Other researchers have hypothesized that investors are distracted by the upcoming weekend and hence have lower

attention on Fridays (deHaan, Shevlin, and Thornock, 2015; DellaVigna and Pollet, 2009). DellaVigna and Pollet (2009) find that trading volumes are lower by eight percent on Fridays which they argue reflects investor inattention. Louis and Sun (2010) show how market reactions have also been less strong when merger announcements were made public on a Friday, with volumes being around 30% lower.

Peng and Xiong (2006) show that limited investor attention leads to category-learning behavior—investors process macroeconomic information before processing firm-specific information. I expect that security analysts, like investors, may also exhibit category-learning behavior. If the number of macro-news announcements is high, it consumes a significant mental resource of analysts. Therefore, analysts left with less mental resources to process firm-specific information, which may reduce the accuracy of forecasts.

On the other hand, macro-news announcements also contain relevant information about economic fundamentals (e. g., Li, Richardson, and Tuna, 2014). This information about economic fundamentals probably relevant to analyst forecasts. Analyst attention to macro-news announcement helps analysts to forecast systematic components as earning shocks contain both systematic and firm-specific components. Therefore, macro-news announcements might help analysts to improve their forecast accuracy.

Because either of these influences could dominate, I state my first hypothesis in the null form:

H1: The forecast accuracy is not correlated with the number of macro-news announcements.

Macro-news announcements provide a signal for the systematic component as earning shocks. Li, Richardson, and Tuna (2014) show that macro-news announcements contain relevant information about economic fundamentals that probably relevant to forecast earnings. Chen, Jiang,

and Zhu (2018) empirically show that macro-news reduces uncertainty in stock returns and enhances efficiency in stock prices. They further document that stock returns following earnings announcements with concurrent macro-news announcements have significantly lower realized volatility. Adding to the findings of Chen, Jiang, and Zhu (2018), Sheng (2017) find that on macro-news announcement days, the stock market reaction to earnings news is 17% stronger and the post-earnings announcement drift is 71% weaker. He also reports that institutional investor attention is higher on macro-news announcement days. Extending these arguments, I posit that investor attention is higher during the high macro-news announcement period. Therefore, I expect that the stock market positively reacts to the forecast revision when macro-news announcements are high.

As macro-news announcements provide new information, investors may find it harder to value the firm. Therefore investors' value for analysts' report increases. However, new information provided by macro-news announcements also makes analysts' jobs tougher, and I hypothesize that analysts issue less accurate forecasts. Based on the above discussion, I expect that the stock market negatively reacts to the less precise forecast revision when the number of macro-news announcements is high.

Because either of these effects could dominate, I state my second hypothesis in the null form:

H2: The Stock market reactions to the forecast revision is not related to macro-news announcements.

3. Data Sources, Sample Selection, and Variable Measurement

In this section, I describe the data sources, sample selection, and variable measurement.

3.1 Data sources

I retrieve data on earnings forecasts and reported earnings per share from I/B/E/S, stock prices from CRSP, and firm-specific from COMPUSTAT. Earnings forecasts, reported earnings, and stock prices are adjusted for stock splits. Macro-news announcement data are from the Bloomberg Econoday. I retrieve the median forecasts for respective macro-news on the macro-news forecast day from Bloomberg Econoday CBOE volatility index values (VIX), economic policy uncertainty index (EPU), and market-level uncertainty index values (EUI) are from FRED (Federal Reserve Bank of St. Louis). My sample period consists of the years 1998-2016.

3.2 Sample selection

The basic unit of observation is analyst-firm-quarter. My final sample consists of 573,568 analyst-firm-quarters. To arrive at this sample, I impose the following six filters. First, I/B/E/S data should have non-missing values for CUSIP, analyst code, currency code, reported earnings per share, reported earnings announcement dates, and date and time of forecasted earnings. This filter causes the sample to drop by 476,049 observations. Second, to remove stale forecasts from the sample, for each analyst-firm-quarter tuple, I retain only the most recent forecast before the earnings announcement date. This exclusion reduces the sample by 858,722 observations. Third, I retain only analyst-firm-quarters for which values of the dependent, independent, and control variables are non-missing. This screen reduces the sample by 1,237,126 observations. Fourth, I exclude firms without an industry SIC code; this causes my sample size to drop by 15,265 observations. Fifth, I exclude financial firms (SIC 6000-6999) and utilities (SIC 4900-4999); this exclusion causes the sample size to drop by 141,636 observations. Sixth, I retain only forecasts issued between the prior quarter's and current quarter's earnings announcement date. This exclusion reduces the sample by 2,101 analyst-firm-quarters. Panel A of Table 1 presents the sample selection procedure. In Panel B of Table 1, I report sample frequencies by year.

3.3. Variable measurement

3.3.1. Forecast Accuracy

In this paper, I examine the effect of Macro-news announcements on forecast accuracy. My dependent variable is the forecast accuracy of individual analysts. Following past research, for each analyst *j*, firm *i*, and quarter *t*, I define a forecast error as the difference between reported earnings per share and that analyst's pre-announcement forecast earnings per share. I then deflate the absolute value of the forecast error by the stock price at the end of the month that immediately precedes the month in which an analyst issued a forecast. As a variance stabilizing transformation, I compute the natural log of the deflated forecast error. Thus, I define forecast accuracy for each analyst-firm-quarter as:

$$Forecast\ Error_{jit} = ln\left(\frac{|eps_{it} - feps_{jit}|}{P_{it}}\right)$$

eps_{it} = reported earnings per share for firm i in quarter t;

$feps_{jit}$ = forecast earnings per share of analyst j for firm i in quarter t;

P_{it} = stock price at the end of the month before the analyst forecast month.

My second measure of forecast accuracy is the *Forecast Error*, normalized by stock volatility. Loh and Stulz (2018) argue that the traditional measure of forecast accuracy, scaled by stock price or absolute reported earnings, does not account for an increase in the underlying uncertainty surrounding the firm. They further aruge that *Forecast Error,* normalized by stock volatility better account for the increased uncertainty. I use this alternate measure of forecast accuracy because macro-news announcements may increase macroeconomic uncertainty.

3.3.2. Cumulative Abnormal Return

I also examine the stock market reaction to analyst forecast revisions when the number of macro-news announcements is high. The proxy that captures the stock market reaction is

Cumulative Abnormal Return, which is defined as a post-two-day market-adjusted excess return from the forecast day. I use days (0, +1) for forecasts issued before the ending of regular trading (4 pm) and days (+1, +2) if the forecast is issued after 4 pm. The market adjusted return is based on the valued weighted return retrieved from CRSP

I define forecast revision as the difference between the current pre-announcement period earnings forecast and the earnings forecast issued immediately before the current forecast by the same analyst, scaled by the standard deviation of forecasts of all analysts.

3.3.3. Macro-news announcements news announcements

Following Chen, Jiang, and Zhu (2018), I include only those macro-news announcements that have a significant impact on financial markets. The list includes gross domestic product (GDP) growth, the unemployment rate, the Consumer Confidence Index, initial jobless claims, changes in nonfarm payrolls, the Federal Open Market Committee (FOMC) rate decision, the ISM Manufacturing Index, the Consumer Price Index, the University of Michigan Consumer Sentiment Index, durable goods orders, new home sales, housing starts, and retail sales.

My proxy that captures the effect of macro-news announcements is the number of macro-news announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated (*# Macro Annc*). The reason to use *# Macro Annc* as the main proxy to capture the effect of macro-news announcements is as followed. It is highly unlikely that analysts prepare the forecast report on the day of the forecast. The most likely scenario is that they prepare the forecast report in two weeks. So, the number of macro-news announcements during the last two weeks would capture the maximum effect of macro-news announcements on analysts.

For robustness test, I examine my main empirical findings with an alternate proxy. I replace *# Macro Annc* with an alternate proxy *# Macro Annc on Forecast Day*, which is defined as the

number of macro-news announcements on the day of analyst forecast for which forecast accuracy is being evaluated. The primary motivation to use *# Macro Annc on Forecast Day* is the findings of Hirshleifer, Levi, Lourie, and Teoh (2019). They find that analysts' decision quality declines after frequent sessions of decision-making by analysts who are afflicted by decision-fatigue when they have multiple decisions to make on the day of the forecasts. It means, in spite of the lower possibility that analysts prepare the forecast report on the day of the forecast, decision fatigue on the day of forecasts affects their forecast accuracy. Extending this argument, I posit that distraction on the day of analyst forecast for which forecast accuracy is being evaluated would reduce the forecast accuracy.

To examine the effect of the information content in macro-news announcements on analyst forecast accuracy and informativeness, I separate macro-news announcements based on their information content. I use surprise (SUR) of the announced value as the proxy for information content. Following prior studies (e.g., Chen, Jiang, and Zhu 2018), I define SUR as

$$SUR = \frac{|(A - E)|}{\sigma_{(A-E)}}$$

Where A is the actual announcements and E is the median forecasts for respective macro-news retrieved from Bloomberg Econoday. $\sigma_{(\mathrm{A-E})}$ is the standard deviation of the difference between the reported value of macro-news announcements and the median forecasts for respective macro-news for the last 24 months.

I define *# High SUR Macro Annc* as the number of macro-news announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated when SUR of announced value is equal to or more than one. I further define *# Zero SUR Macro Annc* as the number of macro-news announcements during the last two weeks from the day of

analyst forecast for which forecast accuracy is being evaluated when SUR of announced value is equal to zero.

3.3.4. Control Variables

I include the following six variables as firm-specific control variables for *Forecast Error*.

1. SUE: the seasonally differenced reported earnings in a quarter, scaled by the standard deviation of the seasonally differenced announced earnings of the most recent eight quarters. Following Basu, Markov, and Shivakumar (2010), I include lagged values of SUE for the last four quarters in my regressions (*One-Quarter Lag SUE* to *Four-Quarter Lag SUE*).
2. *Size*: the logarithm of the product of shares outstanding and the stock price at the end of the month before the analyst forecast month. I include firm size, to control for the aggregate demand for and supply of analyst services (Bhushan, 1989).
3. *Book-to-Market*: the ratio of the book value of equity at the end of the last fiscal year to the market value of equity at the end of the month before the analyst forecast month (Fama and French, 2008).
4. *Stock Return*: compounding twelve-monthly returns ending on the month before the analyst forecast month. Abarbanell (1991) shows that analysts do not fully incorporate prior price changes in their forecasts.
5. *Volatility of Stock Return:* standard deviation of monthly returns over the twelve months ending on the month before the analyst forecast month.
6. *Loss*: a dummy variable that equals one when reported earnings is negative in the previous quarter and zero otherwise. Hwang, Jan, and Basu (1996) find that analysts' forecasts for loss-making firms are less accurate than those for profit-making firms.

Consistent with prior research, I also include four analyst-level controls in my *Forecast Error* regressions:

1. *Analyst Experience*: the logarithm of the difference in years between an analyst's first forecast as reported in I/B/E/S and the current forecast.
2. *Brokerage Size*: the logarithm of the number of analysts employed by brokerage house during last quarter.
3. *Analyst Coverage*: the number of analysts that issued a forecast for a firm during the quarter before the quarter in which Forecast Error is measured.
4. *Analyst Busy*: the number of forecasts issued by an analyst in the quarter before the quarter in which *Forecast Error* is measured.

I control for macroeconomic uncertainty as macro-news announcements may increase macroeconomic uncertainty; I include three variables measured on the analyst forecast date. My first proxy of macroeconomic uncertainty is the value of the VIX Index on the analyst forecast date. VIX is measured as the expected annualized change in the S&P 500 index over the next thirty days, using current options-market data.[4] My second and third measures of macroeconomic uncertainty are the Economic Policy Uncertainty Index (EPU) (Bloom (2009) and the equity market-related Economic Uncertainty Index (EUI). Because the three proxies for macroeconomic uncertainty are highly correlated, I apply principal component analysis on them and define the first principal component as my overall indicator of macroeconomic uncertainty (*Macro Uncertainty*).[5]

Overall, my empirical model of forecast accuracy is as follows:

$$Forecast\ Accuracy = \beta_0 + \beta_1\ Macro\ News\ Announcement\ Proxy + \beta_4\ Firm\text{-}specific\ Controls$$

[4] Chang and Choi (2017) find that analysts issue optimistic earnings forecasts when VIX is high.

[5] The pairwise Spearman correlations among VIX, EPU, EUI are 0.441, 0.465, and 0.343.

$$+ \beta_5 \textit{ Analyst-specific Controls} + \beta_6 \textit{ Macro Uncertainty}$$
$$+ \textit{ Industry Fixed Effects} + \textit{ Year Fixed Effects} + \textit{ error} \quad (1)$$

Detailed variable definitions are contained in Appendix A. I winsorize all continuous variables at 1% and 99% levels. I include year and industry fixed effects in my regressions. Industry effects are based on the Fama and French 48-industry classification. Additionally, I cluster standard errors by firm and quarter.

3.4. Descriptive statistics

Panel A of Table 2 presents descriptive statistics for the dependent, independent, and control variables. I find that mean *Forecast Error,* scaled by stock price (multiplied by 100) is 0.375 and *Forecast Error,* scaled by stock volatility (multiplied by 100) is 0.744. The mean value of *Cumulative Abnormal Return* (%) is -0.363. The median value of *# Macro Annc* is 9, ranging from 5 to 13. The median value of *# Macro Annc on Forecast Day* is 2, ranging from 1 to 4.

Turning to the firm-specific control variables, the mean value of market capitalization (*Size*) is $13.458 billion.[6] The mean value of the book-to-market ratio (*Book-to-Market*) is 0.470. The mean one-year prior return ending on the last day of the month before the analyst forecast month (*Stock Return*) is 14.3%. About 11.4% of my sample report a quarterly loss in the previous quarter. For the analyst-specific control variables, the median value of the number of firms followed by an analyst in the quarter before the forecast month (*Analyst Busy*) is 13. The mean analyst firm-specific forecasting experience (*Analyst Experience*) is close to ten years. The median value of the number of analysts covering a firm is 13. The mean number of analysts employed by

[6] Mean value of *SIZE* is larger than that of previous studies (for example, Amiram, Landsman, Owens, and Stubben, 2017: $7.893 billion; Chang and Choi, 2017: $7.667 billion). The reason for higher mean *SIZE* is the requirement that firms have lagged values of standardized unexpected earnings for four quarters.

a brokerage firm (*Brokerage Size*) is 48.35. *Macro Uncertainty,* which is the first principal component *of CBOE Volatility Index (VIX), Economic* Policy Uncertainty Index (EPU), equity market-related Economic Uncertainty Index (EUI), is -0.012.

Panel B of Table 2 describes *Forecast Error*, scaled by stock price, and *Forecast Error*, scaled by stock volatility by *# Macro Annc*. *Forecast Error,* scaled by stock price, is 0.32 when *# Macro Annc* is 5, and is 0.445 when *# Macro Annc* is 13. *Forecast Error*, scaled by stock volatility, is 0.726 when *# Macro Annc* is 5, and is 0.791 when *# Macro Annc* is 13. Panel C of Table 2 reports the summary statistics of Macro-news announcements. I also provide descriptive statistics of Macro-news announcements when SUR is equal to 1 and when SUR is equal to zero. Panel D of Table 2 reports the Spearman correlation matrix of variables. I find that the correlation between *Forecast Error* and *# Macro Annc* is 0.07.

4. Results

4.1. Effect of macro-news announcements on forecast accuracy

My first hypothesize is that analyst forecast accuracy is low when the number of macro-news announcements is high. To test this hypothesis, I employ two proxies for forecast accuracy. The first proxy is the absolute forecast error, scaled by stock price. However, Loh and Stulz (2018) suggest that absolute forecast errors, scaled by the stock volatility, would better account for the increased macro uncertainty that a firm faces. So, I employ the second proxy for forecast accuracy—the absolute forecast error, scaled by stock volatility. As an independent variable, I employ the proxy that captures the effect of macro-news announcements is the number of macro-announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated (*# Macro Annc*).

In column (1) of Table 3, I employ the absolute *Forecast Error*, scaled by stock price as a dependent variable and *# Macro Annc* as an independent variable. The first observation is that the coefficient of *# Macro Annc* is positive and significant (t-statistics = 6.74). This result suggests that analysts make more error in their forecasts when the number of macro-news announcements during the last two weeks is high. As I use a log-log regression model where both dependent and the independent variable is log transformed, the coefficient of 0.05 indicates that Forecast Error increases by .05 percent when *# Macro Annc* increases by 1 percent. As minimum and the maximum value of *# Macro Annc* is 5 and 13 respectively, the minimum and maximum percentage increase are 8.33 to 20. For example, if *# Macro Annc* increases from 5 to 6, the percentage increase of *# Macro Annc* is 20%, which leads to 1 % (0.05 × 20) in *Forecast Error*. This is an economically significant effect.

In column (2) of Table 3, I normalize the absolute forecast error by the stock's daily return volatility. With this alternative dependent variable, I find that *Forecast Error* is still positively and significantly related to *# Macro Annc* (*t*-statistics = 7.80). This finding further substantiates that *# Macro Annc* positively affects Forecast Error.

[Insert Table 3 here]

4.2. Effect of macro-news announcements on the stock market reaction to forecast revision

To test my second hypothesis, I employ the two-day market-adjusted return around the forecast date (*Cumulative Abnormal Return*) as the dependent variable.[7] The interaction between *Forecast Revision* and *# Macro Annc* is employed as the main independent variable. I also include

[7] The return interval is defined as day (0, +1) for forecasts issued before the ending of regular trading (4 pm). Days (+1, +2) if the forecast is issued after 4 pm. The market adjusted return is based on the valued weighted return retrieved from CRSP.

Forecast Revision and *Macro-news announcements* as separate independent variables. *Forecast Revision* is measured as the difference between the current quarterly earnings forecast for analyst and the quarterly earnings forecast issued immediately before the current quarterly earnings forecast, scaled by the standard deviation of forecasts of all analysts. To compute *Forecast Revision,* I require a minimum of two forecasts from the same analyst for a firm-quarter and Stock price data to calculate *Cumulative Abnormal Return*. Thus, my sample size drops further, and the final sample consists of 168,086 firm-analyst-quarters.

Table 4 contains the results of the test if the market impounds information on forecast accuracy when *# Macro Annc* is high. Consistent with my hypothesis, I find that the coefficient of the interaction of *Forecast Revision* and *# Macro Annc* is positive and significant (6.16). This finding suggests that the stock market reacts positively to forecast revisions during the high macro-news announcements. Interestingly, I find that the coefficient on *Forecast Revision* is not significant (*t*-statistic = -0.96). The economic significance of the coefficient of the interaction of *Revision* and *# Macro Annc* is large. The coefficient of the interaction of *Forecast Revision* and *# Macro Annc* is 0.186 that is equal to more than 36% of the coefficient of *# Macro Annc*.

[Insert Table 4 here]

4.3 Robustness Tests

In this subsection, I re-examine the validity of my findings on the effect of macro-news announcements on forecast accuracy and informativeness. To conduct robustness checks, I replace the continuous version of the proxy of macro-news announcements with another continuous version. Instead of *# Macro Annc*, which is the number of macro-announcements during the last

two weeks from the day of analyst forecast, I use *# Macro Annc on Forecast Day,* which is the number of macro-announcements on the day of analyst forecast for which forecast accuracy is being evaluated.

First, I conduct robustness checks of the results in Table 3 and report in Table 5. My conclusions are unchanged when I use I use *# Macro Annc on Forecast Day* as an independent variable. In column (1) of Table 5, I employ the absolute *Forecast Error*, scaled by stock price as a dependent variable. I find that the coefficient of *# Macro Annc on Forecast Day* is positive and significant (t-statistics = 6.47). This result suggests that analysts make more error in their forecasts when the number of macro-news announcements on analyst forecast day is high. As I use log-log regression model where both dependent and the independent variable is log transformed, the coefficient of 0.016 indicates that Forecast Error increases by .016 percent when *# Macro Annc on Forecast Day* increases by 1 percent. As the minimum and the maximum value of *# Macro Annc* is 1 and 4 respectively, the minimum and maximum percentage increase are 33.33 to 100. For example, if *# Macro Annc on Forecast Day* increases from 1 to 2, the percentage increase of *# Macro Annc on Forecast Day* is 100%, which leads to 1.6 % (0.016 × 100) in *Forecast Error*. This is an economically meaningful impact.

In column (2) of Table 5, I normalize the absolute forecast error by the stock's daily return volatility. With this alternative dependent variable, I find that *Forecast Error* is still positively and significantly related to *# Macro Annc on Forecast Day* (*t*-statistics = 6.13). This finding further substantiates that *# Macro Annc on Forecast Day* positively affects Forecast Error.

[Insert Table 5 here]

Next, I test the robustness of the results in Table 4 and report the robustness test in Table 6. I find that the coefficient on the interaction of *Forecast Revision* and *# Macro Annc on Forecast*

Day is positive and significant (*t*-statistic = 4.31). This finding suggests that the stock market reacts positively to forecast revisions during the high macro-news announcements. The economic significance of the coefficient of the interaction of *Forecast Revision* and *# Macro Annc* is substantial. The coefficient of the interaction of *Forecast Revision* and *# Macro Annc* is 0.055 that is equal to 17.5% of the coefficient of forecast revision.

[Insert Table 6 here]

4.4. Effect of information content in macro-news on Forecast error

To examine the effect of the information content in macro-news announcements on analyst forecast accuracy, I separate macro-news announcements based on their information content. I use surprise (SUR) of the announced value as the proxy for information content. I define *# High SUR Macro Annc* as the number of macro-news announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated when SUR of announced value is equal to more than one. I further define *# Zero SUR Macro Annc* as the number of macro-news announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated when SUR of announced value is equal to zero.

Column (1) to column (3) of Table 7 contains the results where absolute forecast error, deflated by stock price per share, and column (4) to column (6) include the results where forecast error, deflated by stock volatility, as the dependent variables. *# High SUR Macro Annc* and *# Zero SUR Macro Annc* are the independent variables. Column (3) and (6) contain the results when both *# High SUR Macro Annc* and *# Zero SUR Macro Annc.* To conserve space, I discuss the results in the final column (3) and (6). I observe that the coefficient of *# High SUR Macro Annc* is positive and significant (t-statistics = 2.78), and also the coefficient of *# Zero SUR Macro Annc* is positive and significant (t-statistics = 3.39). The interesting observation is that the coefficient of *# High SUR Macro Annc* is lower than that of *# Zero SUR Macro Annc.* However, I find that the coefficient of *# High SUR Macro Annc* is greater

than that of *# Zero SUR Macro Annc*. Empirically my study is inconclusive on whether the information content of the macro-news is a deciding factor in its distracting effect on analyst forecasts.

[Insert Table 7 here]

4.5. *Effect of information content in macro-news on the stock market reaction to analyst forecast revisions*

In this sub-section, I examine the effect of the information content in macro-news announcements on analyst forecast informative. Similar to sub-section 4.4, I separate macro-news announcements based on their information content. I use surprise (SUR) of the announced value as the proxy for information content. I use *# High SUR Macro Annc* and *# Zero SUR Macro Annc* as independent variables. However, my main independent variables are the interaction of *Forecast Revision* and *# High SUR Macro Annc* and *# Zero SUR Macro Annc* respectively.

Consistent with my hypothesis, I find that the coefficient of the interaction of *Forecast Revision* and *# High SUR Macro Annc* is positive and significant (t-statistics = 4.29). This finding suggests that the stock market reacts positively to forecast revisions during the high surprise macro-news announcements. I find that the coefficient on the interaction of *Forecast Revision* and *# High SUR Macro Annc* is negative and significant (*t*-statistics = -1.97). These findings reveal that the stock market reacts negatively to forecast revision when macro-announcements have zero information content. However, these results are not economically significant.

[Insert Table 8 here]

5. Further Analysis

5.1 Effect of macro-news announcements on sales forecast error and the cost of goods sold forecast error

To estimate earnings, analysts must forecast components of earnings: sales, cost of goods sold, other costs, depreciation, interest payment, and tax payment. The forecast accuracy of

earnings is a function of forecast accuracy of components of earnings. Therefore, as additional evidence, I examine whether macro-news announcements affect forecast accuracy for two components of earnings: sales and cost of goods sold. I choose these two components because they yield the largest possible sample sizes.

I predict that both sales and cost of goods sold forecast accuracy is lower when the macro-news announcements are high.[8] To test this prediction, in columns (1) and (2) of Table 9, I use the absolute sales forecast error and absolute cost of goods sold forecast error as dependent variables, respectively. Consistent with my findings on earnings forecasts, I find that absolute sales forecast error is positively and significantly related *# Macro Annc* (*t*-statistic = 5.71). I also find that the absolute cost of goods sold error is positively and significantly related to Macro-news announcements (*t*-statistic = 2.75).

[Insert Table 9 here]

6 Conclusion

The number of macro-news announcements has grown over time and reached to a level that may cause a distracting effect on our cognitive performance. In this study, using a sample of U.S. analysts for the years 1998 to 2016, I investigate the distracting effects of macro-news announcements on analyst forecast accuracy and informativeness. I also examine the effect of high

[8] Changes in macro uncertainty will lead to uncertainty in cost of production, making the cost of production forecasts difficult for analysts. Also, uncertainty in cost of production leads to uncertainty in revenue. The reasoning is as follows. Changes in expected costs pose a pricing and output dilemma for firms. First, firms will change output when fixed costs are expected to change. Alternately, firms could also change prices without changing the output. Thirdly, firms could do nothing in the face of changing costs. Because it is unclear what action managers will take in response to expected inflation, uncertainty about revenue rises, rendering difficult the task of generating revenue forecasts.

information content and zero information content macro-news announcements on analysts forecasts accuracy and informativeness.

I measure the effect of macro-news announcements in two ways. The main proxy is the number of macro-news announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated. The second proxy that I use to test the robustness of my results is the number of macro-news announcements on the day of analyst forecast for which forecast accuracy is being evaluated.

I find forecast accuracy is lower when the number of macro-news announcements is high. My results are indifferent of whether I normalize forecast accuracy with stock price or stock volatility. I further test the stock market reaction to analyst forecast revisions when the macro-news announcement is high. I find that stock market value more to the analyst forecast revision when the macro-news announcements are high, in spite of lower forecast accuracy.

My study makes several contributions to the literature. First, to the best of my knowledge, my study is the first to document that macro-news announcements also have a distracting effect on analysts. My study adds to the limited attention hypothesis (e.g., Hirshleifer, Lim, and Teoh, 2009; deHaan, Shevlin, and Thornock, 2015; DellaVigna and Pollet 2009). Second, My results on the stock market reaction add to Chen, Jiang, and Zhu (2018) who find that macro-news reduces uncertainty in stock returns and enhances efficiency in stock prices. Third, my study adds to the previous findings that analysts are not rational with macro-news as they do not fully incorporate macro-news in their forecasts (e.g., Basu, Markov, and Shivakumar, 2010; Hann, Ogneva, and Sapriza, 2012; Hugon, Kumar, and Lin, 2016; Li, Richardson, and Tuna, 2014).

References

Abarbanell, J. (1991). Do analysts' earnings forecasts incorporate information in prior stock price changes? *Journal of Accounting and Economics*, 14, 147–165.

Amiram, D., Landsman, W. R., Owens, E. L., & Stubben, S. R. (2018). How are analysts' forecasts affected by high uncertainty?. *Journal of Business Finance & Accounting*, 45(3-4), 295-318.

Basu, S., Markov, S., & Shivakumar, L. (2010). Inflation, earnings forecasts, and post-earnings announcement drift. *Review of Accounting Studies*, 15(2), 403-440.

Bhushan, R. (1989). Firm characteristics and analyst following. *Journal of Accounting and Economics*, 11(2-3), 255-274.

Bloom, N. (2014). Fluctuations in uncertainty. *Journal of Economic Perspectives*, 28(2), 153-76.

Chang, J. W., & Choi, H. M. (2017). Analyst Optimism and Incentives under Market Uncertainty. *Financial Review*, 52(3), 307-345.

Chen, L. H., Jiang, G. J., & Zhu, K. X. (2018). Total attention: The effect of macroeconomic news on market reaction to earnings news. *Journal of Banking & Finance*, 97, 142-156.

DeHaan, E., Shevlin, T. J., & Thornock, J. R. (2015). Market (in) attention and the strategic scheduling and timing of earnings announcements. *Journal of Accounting and Economics*, 60(1), 36-55.

DellaVigna, S., & Pollet, J. M. (2009). Investor inattention and Friday earnings announcements. *Journal of Finance*, 64(2), 709-749.

Dosher, B. A., & Lu, Z. L. (2000). Noise exclusion in spatial attention. *Psychological Science*, 11(2), 139-146.

Fama, E. F., & French, K. R. (2008). Dissecting anomalies. *Journal of Finance*, 63(4), 1653-1678.

Groysberg, B., & Healy, P. M. (2013). Wall Street research: Past, present, and future. Stanford University Press.

Hann, R., Ogneva, M., & Sapriza, H. (2012). Forecasting the macroeconomy: Analysts versus economists. *Working paper*, University of Maryland and University of Southern California

Hirshleifer, D., Levi, Y., Lourie, B., & Teoh, S. H. (2019). Decision fatigue and heuristic analyst forecasts. *Journal of Financial Economics*. doi: 10.1016/j.jfineco.2019.01.005

Hirshleifer, D., Lim, S. S., & Teoh, S. H. (2009). Driven to distraction: Extraneous events and underreaction to earnings news. *Journal of Finance*, 64(5), 2289-2325.

Hope, O. K., & Kang, T. (2005). The Association between Macroeconomic Uncertainty and Analysts' Forecast Accuracy. *Journal of International Accounting Research*, 4(1), 23-28.

Hugon, A., Kumar, A., & Lin, A. P. (2015). Analysts, macroeconomic news, and the benefit of active in-house economists. *The Accounting Review*, 91(2), 513-534.

Hwang, L., Jan, C., & Basu, S. (1996). Loss firms and analysts' earnings forecast errors, *Journal of Financial Statement Analysis*, 1 (2), 18-30

Kahneman, D. (1973). Attention and effort (Vol. 1063). Englewood Cliffs, NJ: Prentice-Hall.

Li, N., Richardson, S., & Tuna, İ. (2014). Macro to micro: Country exposures, firm fundamentals and stock returns. *Journal of Accounting and Economics*, 58(1), 1-20.

Loh, R. K., & Stulz, R. M. (2018). Is Sell-Side Research More Valuable in Bad Times?. *Journal of Finance*, 73(3), 959-1013.

Louis, H., & Sun, A. (2010). Investor inattention and the market reaction to merger announcements. *Management Science*, 56(10), 1781-1793.

Murray, S. O., & Wojciulik, E. (2004). Attention increases neural selectivity in the human lateral occipital complex. *Nature neuroscience*, 7(1), 70.

Peng, L., & Xiong, W. (2006). Investor attention, overconfidence and category learning. *Journal of Financial Economics*, 80(3), 563-602.

Posner, M. I., Snyder, C. R., & Davidson, B. J. (1980). Attention and the detection of signals. *Journal of experimental psychology: General*, 109(2), 160.

Sheng, J. (2017). Macro News, Micro News, and Stock Prices. *Working Paper*.

Appendix A

Variable	Definition	Source
Dependent Variable		
Forecast Error, scaled by Stock Price	The logarithm of the absolute value of the difference between reported earnings per share and the pre-announcement period forecast earnings per share, deflated by the stock price at the end of the month that is one month before the analyst forecast month	IBES and CRSP
Forecast Error, scaled by Stock Volatilty	The logarithm of the absolute value of the difference between reported earnings per share and the pre-announcement period forecast earnings per share, deflated by the stock volatility. Stock volatility is defined as the annualized standard deviation of the firm's daily stock return over the past 30 days	IBES and CRSP
Cumulative Abnormal Return	The post-two-day market-adjusted excess return from the forecast day. Days (0, +1) for forecasts issued before the ending of regular trading (4 pm). Days (+1, +2) if the forecast is issued after 4 pm. The market adjusted return is based on the valued weighted return retrieved from CRSP	CRSP
Independent Variable: Macro-news announcements for U.S. firms		
# Macro Annc	The number of macro-news announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated	Bloomberg Econoday
# High SUR Macro Annc	The number of macro-news announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated when SUR of announced value is equal to or more than one	Bloomberg Econoday
# Zero SUR Macro Annc	The number of macro-news announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated when SUR of announced value is equal to zero.	Bloomberg Econoday
# Macro Annc on Forecast Day	The number of macro-news announcements on the day of analyst forecast for which forecast accuracy is being evaluated	Bloomberg Econoday

Variable	Definition	Source
Forecast Revision	The difference between the current pre-announcement period earnings forecast and the earnings forecast issued immediately before the current forecast by the same analyst, scaled by the standard deviation of forecasts of all analysts	IBES
Control Variable: Firm		
One-Quarter Lag SUE-Four-Quarter Lag SUE	The difference between reported earnings in this quarter and reported earnings in the same quarter previous year, scaled by the standard deviation of the difference between reported earnings in this quarter and reported earnings in the same quarter previous year for last eight quarters. I use the lagged value of SUE for the last four quarters	IBES
Size	The logarithm of the product of shares outstanding and the stock price at the end of one month before the analyst forecast month	CRSP
Book-to-Market	The ratio of the book value of equity at the end of the last fiscal year to the market value of equity at the end of one month before the analyst forecast month	COMPUSTAT and CRSP
Stock return	I compute the compounded twelve months return from monthly return including the dividend. I use *Stock return* one month before the analyst forecast month	CRSP
Volatility of Stock Return	The standard deviation of monthly returns over the twelve months ending on the month before the analyst forecast month.	CRSP
Loss	A dummy variable that equals one if reported earnings is negative in the previous quarter and zero otherwise	IBES
Control Variable: Analyst		
Analyst Busy	The number of forecasts issued by analysts in the previous quarter	IBES
Analyst Experience	The logarithm of the number of years since the analyst started issuing forecasts	IBES

Variable	Definition	Source
Analyst Coverage	The logarithm of the number of analysts that issued in the next quarter	IBES
Brokerage Size	The logarithm of the number of analysts employed by the brokerage house during the last quarter	IBES
Control Variable: Macroeconomic Uncertainty		
Macro Uncertainty	The first principal component of CBOE Volatility Index (VIX), Economic Policy Uncertainty Index (EPU), equity market-related Economic Uncertainty Index (EUI)	FRED
Other Dependent Variables		
Sales Forecast Error	The logarithm of the absolute value of the difference between reported sales and the pre-announcement period forecast sales, deflated by the stock price at the end of the month that is one month before the analyst forecast month	IBES and CRSP
Cost of Goods Sold Forecast Error	The logarithm of the absolute value of the difference between the reported cost of goods sold and the pre-announcement period forecast cost of goods sold, deflated by the stock price at the end of the month that is one month before the analyst forecast month	IBES and CRSP

Table 1: Sample Selection and Yearly Frequencies
Panel A: Sample Selection Screens

Panel A of this Table reports the screens applied to arrive at the final sample. I retrieve data on earnings forecasts and reported earnings per share from I/B/E/S and stock prices from CRSP. Earnings forecasts per share, reported earnings per share, and stock prices are adjusted for stock splits. Firm-specific and analyst-specific control variables are from I/B/E/S, COMPUSTAT, and CRSP.

Initial Sample	**3,307,964**
(-) Missing CUSIP, analyst code, currency code, date of reported earnings, date and time of forecasted earnings	476,049
(-) Stale earnings forecasts	858,722
(-) Missing dependent, independent, and control variables	1,237,126
(-) Missing SIC code	15,265
(-) Financial firms (SIC 6000-6999), utilities (SIC 4900-4999) firms	141,636
(-) Missing Fama-French 48-Industry Code	3,497
(-) Forecast issued after the prior quarter and before the current quarter EA date	2,101
Final Sample	**573,568**

Table 1 (continued): Sample Selection and Yearly Frequencies

Panel B: Number of Analyst-firm-quarter Observations by Year

	# of Observations	%
1998	155	0.03
1999	14,919	2.6
2000	14,986	2.61
2001	17,007	2.97
2002	18,613	3.25
2003	21,586	3.76
2004	26,809	4.67
2005	30,845	5.38
2006	32,759	5.71
2007	33,725	5.88
2008	34,032	5.93
2009	38,872	6.78
2010	43,011	7.5
2011	47,409	8.27
2012	48,940	8.53
2013	49,170	8.57
2014	50,067	8.73
2015	50,441	8.79
2016	222	0.04
Total	573,568	100.00

Table 2: Descriptive Statistics
Panel A: Descriptive Statistics

This Table presents the descriptive statistics for the variables used in the study. Variables definitions are contained in Appendix A. Both *Forecast Error*, scaled by Stock Price and *Forecast Error*, scaled by Stock Volatility are multiplied by 100. All continuous variables are winsorized at 1% and 99% levels. I define the variables in Appendix A.

	# of obs.	Mean	Median	Std. Dev.	Min.	Max.
Forecast Error, scaled by Stock Price	573,568	0.375	0.143	0.746	0.012	5.390
Forecast Error, scaled by Stock Volatility	573,568	0.744	0.313	1.177	0.010	7.258
Revision	168,086	-0.468	-0.366	2.473	-11.988	6.783
Cumulative Abnormal Return (%)	168,086	-0.363	-0.099	4.790	-19.919	14.260
# Macro Annc	573,568	9.161	9.000	1.721	5.000	13.000
# High SUR Macro Annc	573,568	2.933	3.000	1.355	1.000	7.000
# Zero SUR Macro Annc	573,568	1.525	1.000	0.626	1.000	3.000
# Macro Annc on Forecast Day	573,568	1.909	2.000	0.830	1.000	4.000
One-Quarter Lag SUE	573,568	0.611	0.482	1.839	-4.253	6.643
Two-Quarter Lag SUE	573,568	0.639	0.502	1.842	-4.248	6.706
Three-Quarter Lag SUE	573,568	0.669	0.521	1.844	-4.186	6.736
Four-Quarter Lag SUE	573,568	0.699	0.538	1.856	-4.087	6.932
Size ($billion)	573,568	13.458	3.328	30.371	0.106	198.681
Book-to-Market	573,568	0.470	0.363	0.418	-0.147	2.588
Stock Return	573,568	0.143	0.096	0.458	-0.736	2.008
Stock Volatility	573,568	0.108	0.094	0.058	0.032	0.334
loss	573,568	0.114	0.000	0.318	0.000	1.000
Analyst Busy	573,568	12.984	13.000	6.104	1.000	33.000
Analyst Experience	573,568	9.997	8.562	7.119	0.288	28.573
Analyst Coverage	573,568	14.471	13.000	8.039	2.000	37.000
Brokerage Size	573,568	48.350	42.000	33.447	1.000	134.000
Macro Uncertainty	573,568	-0.012	-0.258	0.935	-1.124	3.790

Table 2 (continued): Descriptive Statistics

Panel B: Summary Statistics of Forecast Error

This Table presents the descriptive statistics for Forecast Error, scaled by Stock Price, and Forecast Error, scaled by Stock Volatility by *# Macro Annc*. Both *Forecast Error*, scaled by Stock Price and *Forecast Error*, scaled by Stock Volatility are multiplied by 100. All variables are winsorized at 1% and 99% levels. I define the variables in Appendix A.

# Macro Annc	*Forecast Error*, scaled by Stock Price	*Forecast Error*, scaled by Stock Volatility
5	0.320	0.726
6	0.318	0.702
7	0.340	0.691
8	0.351	0.710
9	0.365	0.739
10	0.398	0.776
11	0.396	0.764
12	0.453	0.835
13	0.445	0.791

Table 2 (continued): Descriptive Statistics

Panel C: Summary Statistics of Macro-news Announcements

This Table presents the descriptive statistics for the Marcro-news used in the study. SUR is defined as the difference between the actual announcements and the median forecasts for respective macro-news retrieved from Bloomberg Econoday, scaled by is the standard deviation of the difference between the actual announcements and the median forecasts for respective macro-news for last 24 months.

Macro-news	# of Observations	# when SUR=1	# when SUR=0
ABC Consumer Confidence	368	38	17
CPI MoM	209	42	74
Change in Nonfarm Payrolls	209	66	1
Durable Goods Orders	213	48	7
FOMC Rate Decision (Upper Bound)	145	6	134
GDP Annualized QoQ	209	62	31
Housing Starts	209	60	4
ISM Manufacturing	209	65	4
Initial Jobless Claims	909	229	22
New Home Sales	208	55	3
Retail Sales Advance MoM	178	29	21
U. of Mich. Sentiment	404	99	3
Unemployment Rate	209	59	61

Table 2 (continued): Descriptive Statistics

Panel D: Spearman Correlation

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	*Forecast Error, scaled by Stock Price*															
2	*# Macro Annc*	0.07														
3	*One-Quarter Lag SUE*	-0.27	0.02													
4	*Two-Quarter Lag SUE*	-0.27	0.02	0.65												
5	*Three-Quarter Lag SUE*	-0.27	0.02	0.46	0.65											
6	*Four-Quarter Lag SUE*	-0.25	0.01	0.31	0.47	0.65										
7	*Size ($billion)*	-0.40	-0.09	0.23	0.23	0.22	0.22									
8	*Book-to-Market*	0.36	0.03	-0.32	-0.30	-0.28	-0.25	-0.35								
9	*Stock Return*	-0.23	-0.01	0.37	0.27	0.15	0.05	0.20	-0.35							
10	*Stock Volatility*	0.34	0.00	-0.20	-0.19	-0.18	-0.16	-0.46	0.16	-0.19						
11	*loss*	0.33	0.02	-0.28	-0.24	-0.22	-0.20	-0.30	0.09	-0.17	0.30					
12	*Analyst Busy*	0.02	-0.03	-0.03	-0.02	-0.02	-0.02	0.04	0.05	0.01	-0.09	-0.01				
13	*Analyst Experience*	-0.04	-0.04	0.02	0.02	0.02	0.02	0.08	0.00	0.02	-0.12	-0.05	0.33			
14	*Analyst Coverage*	-0.20	-0.07	0.05	0.07	0.08	0.09	0.64	-0.17	0.01	-0.16	-0.13	0.08	0.03		
15	*Brokerage Size*	-0.05	-0.03	0.02	0.03	0.03	0.03	0.13	-0.03	0.00	-0.08	-0.04	0.13	0.06	0.03	
16	*Macro Uncertainty*	0.09	-0.01	-0.07	-0.06	-0.06	-0.07	-0.09	0.12	-0.16	0.27	0.04	-0.05	-0.03	-0.05	0.01

Table 3: Effect of Macro-news Announcements on Forecast Error

In this Table, I estimate the effect of macro-news announcements on the *Forecast Error*. Column (1) contains the results where absolute forecast error, deflated by stock price per share, and column (2) contains the results where forecast error, deflated by stock volatility, are the dependent variables. Stock volatility is defined as the annualized standard deviation of the firm's daily stock return over the past 30 days. My proxy for macro-news announcements is the number of macro-announcements during the last two weeks from the day of analyst forecast *(# Macro Annc*). I winsorize all continuous variables at 1% and 99% levels. All regressions include firm and year fixed effects. Standard errors are clustered by firm and analyst, and *t*-statistics are reported in parentheses. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. I define the variables in Appendix A.

	(1) *Forecast Error*, scaled by Stock Price	(2) *Forecast Error*, scaled by Stock Volatility
# Macro Annc	0.050***	0.061***
	(6.74)	(7.80)
One-Quarter Lag SUE	-0.016***	-0.020***
	(-14.59)	(-17.17)
Two-Quarter Lag SUE	-0.014***	-0.011***
	(-13.27)	(-10.23)
Three-Quarter Lag SUE	-0.019***	-0.017***
	(-17.71)	(-15.27)
Four-Quarter Lag SUE	0.000	-0.001
	(0.09)	(-0.58)
Size	-0.926***	-0.754***
	(-74.59)	(-56.39)
Book-to-Market	0.206***	0.132***
	(12.85)	(7.62)
Stock Return	-0.035***	-0.038***
	(-6.44)	(-6.68)
Volatility of Stock Return	0.240***	0.518***
	(3.81)	(7.58)
Loss	0.031***	0.041***
	(4.14)	(5.27)
Analyst Busy	-0.001	-0.001
	(-0.52)	(-0.62)
Analyst Experience	-0.000	0.001
	(-0.11)	(0.66)
Analyst Coverage	0.010*	0.018***
	(1.66)	(2.90)
Brokerage Size	-0.003***	-0.003**
	(-2.65)	(-2.17)
Macro Uncertainty	0.015***	0.040***
	(8.94)	(22.62)
Intercept	13.698***	10.561***
	(48.99)	(35.09)
Adjusted R^2	0.62	0.65
Observations	573,568	573,568

Table 4: Effect of Macro-news Announcements on the Stock Market Reaction to Analyst Forecast Revision

In this Table, I estimate the stock market reaction to analyst *Forecast Revision* when the number of macro-news announcements is high. The post-2-day market-adjusted excess return from the forecast day (*Cumulative Abnormal Return*) is the dependent variable and the interaction of *Forecast Revision* and *# Macro Annc* is the main independent variable. *Cumulative Abnormal Return* is the post-two-day market-adjusted excess return from the forecast day. Days (0, +1) for forecasts issued before the ending of regular trading (4 pm). Days (+1, +2) if the forecast is issued after 4 pm. The market adjusted return is based on the valued weighted return retrieved from CRSP. *Forecast Revision* is the difference between the current pre-announcement period earnings forecast and the earnings forecast issued immediately before the current forecast by the same analyst, scaled by the standard deviation of forecasts of all analysts. My proxy for macro-news announcements is the number of macro-announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated *(# Macro Annc*). I winsorize all continuous variables at 1% and 99% levels. All regressions include firm and year fixed effects. Standard errors are clustered by firm and analyst, and *t*-statistics are reported in parentheses. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. I define the variables in Appendix A.

	(1) *Cumulative Abnormal Return*
Revision	-0.064
	(-0.96)
# Macro Annc	0.513***
	(7.83)
*Revision * # Macro Annc*	0.186***
	(6.16)
One-Quarter Lag SUE	-0.048***
	(-4.13)
Two-Quarter Lag SUE	-0.022**
	(-2.02)
Three-Quarter Lag SUE	0.012
	(1.10)
Four-Quarter Lag SUE	-0.001
	(-0.06)
Size	-3.385***
	(-18.55)
Book-to-Market	-1.440***
	(-6.01)
Stock Return	0.172**
	(2.49)
Volatility of Stock Return	-0.157
	(-0.18)
Loss	0.086
	(1.07)
Analyst Busy	-0.024
	(-1.10)
Analyst Experience	-0.018
	(-1.49)

	(1) *Cumulative Abnormal Return*
Analyst Coverage	0.086
	(0.90)
Brokerage Size	-0.038***
	(-3.48)
Macro Uncertainty	-0.191***
	(-9.74)
Intercept	75.127***
	(18.03)
Adjusted R^2	0.27
Observations	168,086

Table 5: Robustness Test - Effect of Macro-news Announcements on Forecast Error

In this Table, I estimate the effect of macro-news announcements on the *Forecast Error*. Column (1) contains the results when absolute forecast error, deflated by stock price per share, and column (2) contains the results where forecast error, deflated by stock volatility, are the dependent variables. Stock volatility is defined as the annualized standard deviation of the firm's daily stock return over the past 30 days. My proxy for macro-news announcements is the number of macro-announcements on the day of analyst forecast for which forecast accuracy is being evaluated *(# Macro Annc on Forecast Day*). I winsorize all continuous variables at 1% and 99% levels. All regressions include firm and year fixed effects. Standard errors are clustered by firm and analyst, and *t*-statistics are reported in parentheses. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. I define the variables in Appendix A.

	(1) Forecast Error, scaled by Stock Price	(2) Forecast Error, scaled by Stock Volatility
# Macro Annc on Forecast Day	0.016***	0.016***
	(6.47)	(6.13)
One-Quarter Lag SUE	-0.016***	-0.020***
	(-14.57)	(-17.15)
Two-Quarter Lag SUE	-0.014***	-0.011***
	(-13.27)	(-10.22)
Three-Quarter Lag SUE	-0.019***	-0.017***
	(-17.69)	(-15.24)
Four-Quarter Lag SUE	0.000	-0.001
	(0.09)	(-0.58)
Size	-0.926***	-0.753***
	(-74.48)	(-56.30)
Book-to-Market	0.207***	0.133***
	(12.91)	(7.68)
Stock Return	-0.035***	-0.039***
	(-6.54)	(-6.79)
Volatility of Stock Return	0.240***	0.518***
	(3.80)	(7.57)
Loss	0.031***	0.041***
	(4.12)	(5.25)
Analyst Busy	-0.001	-0.001
	(-0.54)	(-0.63)
Analyst Experience	-0.000	0.001
	(-0.12)	(0.66)
Analyst Coverage	0.010*	0.018***
	(1.67)	(2.92)
Brokerage Size	-0.003***	-0.003**
	(-2.80)	(-2.35)
Macro Uncertainty	0.015***	0.040***
	(9.00)	(22.61)
Intercept	13.779***	10.666***
	(49.37)	(35.49)
Adjusted R^2	0.62	0.65
Observations	573,568	573,568

Table 6: Robustness test - Effect of Macro-news Announcements on the Stock Market Reaction to Analyst Forecast Revision

In this Table, I estimate the stock market reaction to analyst *Forecast Revision* when the number of macro-news announcements is high. The post-2-day market-adjusted excess return from the forecast day (*Cumulative Abnormal Return*) is the dependent variable and the interaction of *Forecast Revision* and *# Macro Annc on Forecast Day* is the main independent variable. *Cumulative Abnormal Return* is the post-two-day market-adjusted excess return from the forecast day. Days (0, +1) for forecasts issued before the ending of regular trading (4 pm). Days (+1, +2) if the forecast is issued after 4 pm. The market adjusted return is based on the valued weighted return retrieved from CRSP. *Forecast Revision* is the difference between the current pre-announcement period earnings forecast and the earnings forecast issued immediately before the current forecast by the same analyst, scaled by the standard deviation of forecasts of all analysts. My proxy for macro-news announcements is the number of macro-announcements on the day of analyst forecast for which forecast accuracy is being evaluated *(# Macro Annc on Forecast Day*). I winsorize all continuous variables at 1% and 99% levels. All regressions include firm and year fixed effects. Standard errors are clustered by firm and analyst, and *t*-statistics are reported in parentheses. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. I define the variables in Appendix A.

	(1) *Cumulative Abnormal Return*
Forecast Revision	0.314***
	(33.88)
# Macro Annc on Forecast Day	-0.003
	(-0.12)
*Forecast Revision * # Macro Annc on Forecast Day*	0.055***
	(4.31)
One-Quarter Lag SUE	-0.048***
	(-4.14)
Two-Quarter Lag SUE	-0.022**
	(-2.01)
Three-Quarter Lag SUE	0.013
	(1.18)
Four-Quarter Lag SUE	-0.001
	(-0.08)
Size	-3.369***
	(-18.46)
Book-to-Market	-1.426***
	(-5.96)
Stock Return	0.169**
	(2.44)
Volatility of Stock Return	-0.097
	(-0.11)
Loss	0.085
	(1.05)
Analyst Busy	-0.024
	(-1.14)
Analyst Experience	-0.017
	(-1.46)

	(1) *Cumulative Abnormal Return*
Analyst Coverage	0.090
	(0.94)
Brokerage Size	-0.039***
	(-3.57)
Macro Uncertainty	-0.196***
	(-9.99)
Intercept	75.871***
	(18.21)
Adjusted R^2	0.27
Observations	168,086

Table 7: Effect of the High SUR and Zero SUR Macro-news Announcements on Forecast Error

In this Table, I estimate the effect of the number of high SUR and zero SUR macro-news announcements on the *Forecast Error*. Column (1) to column (3) contain the results where absolute forecast error, deflated by stock price per share, and column (4) to column (6) contain the results where forecast error, deflated by stock volatility, are the dependent variables. *# High SUR Macro Annc* and *# Zero SUR Macro Annc* are the independent variables. *# High SUR Macro Annc* is the number of macro-news announcements whose SUR of announced value is equal to more than 1 during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated. *# Zero SUR Macro Annc* is the number of macro-news announcements whose SUR of announced value is equal to 0 during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated. *SUR* of is defined as the absolute value of the difference between the actual announcements and the median forecasts for respective macro-news retrieved from Bloomberg Econoday, scaled by the standard deviation of the difference between the actual announcements and the median forecasts for each macro-news for the last 24 months. I winsorize all continuous variables at 1% and 99% levels. All regressions include firm and year fixed effects. Standard errors are clustered by firm and analyst, and *t*-statistics are reported in parentheses. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. I define the variables in Appendix A.

	(1)	(2)	(3)	(4)	(5)	(6)
	Forecast Error, scaled by Stock Price			*Forecast Error*, scaled by Stock Volatility		
# High SUR Macro Annc	0.006**		0.007***	0.009***		0.009***
	(2.57)		(2.78)	(3.53)		(3.68)
# Zero SUR Macro Annc		0.010***	0.010***		0.007**	0.008**
		(3.22)	(3.39)		(2.29)	(2.51)
One-Quarter Lag SUE	-0.016***	-0.016***	-0.016***	-0.020***	-0.020***	-0.020***
	(-14.59)	(-14.58)	(-14.58)	(-17.17)	(-17.17)	(-17.16)
Two-Quarter Lag SUE	-0.014***	-0.014***	-0.014***	-0.011***	-0.011***	-0.011***
	(-13.25)	(-13.24)	(-13.24)	(-10.20)	(-10.19)	(-10.20)
Three-Quarter Lag SUE	-0.019***	-0.019***	-0.019***	-0.017***	-0.017***	-0.017***
	(-17.68)	(-17.70)	(-17.68)	(-15.23)	(-15.25)	(-15.23)
Four-Quarter Lag SUE	0.000	0.000	0.000	-0.001	-0.001	-0.001
	(0.08)	(0.08)	(0.08)	(-0.59)	(-0.58)	(-0.59)
Size	-0.925***	-0.926***	-0.925***	-0.753***	-0.754***	-0.752***
	(-74.40)	(-74.55)	(-74.36)	(-56.20)	(-56.37)	(-56.17)
Book-to-Market	0.207***	0.206***	0.207***	0.134***	0.133***	0.134***
	(12.93)	(12.89)	(12.93)	(7.72)	(7.66)	(7.72)
Stock Return	-0.036***	-0.035***	-0.036***	-0.040***	-0.039***	-0.040***
	(-6.62)	(-6.50)	(-6.63)	(-6.92)	(-6.75)	(-6.93)

	(1)	(2)	(3)	(4)	(5)	(6)
	Forecast Error, scaled by Stock Price			*Forecast Error*, scaled by Stock Volatility		
Volatility of Stock Return	0.238***	0.243***	0.240***	0.515***	0.520***	0.517***
	(3.77)	(3.84)	(3.81)	(7.52)	(7.60)	(7.55)
Loss	0.031***	0.031***	0.031***	0.041***	0.041***	0.041***
	(4.10)	(4.10)	(4.10)	(5.23)	(5.23)	(5.23)
Analyst Busy	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.53)	(-0.51)	(-0.53)	(-0.63)	(-0.61)	(-0.63)
Analyst Experience	-0.000	-0.000	-0.000	0.001	0.001	0.001
	(-0.06)	(-0.09)	(-0.08)	(0.72)	(0.69)	(0.71)
Analyst Coverage	0.010*	0.010*	0.010*	0.019***	0.018***	0.019***
	(1.73)	(1.72)	(1.74)	(2.98)	(2.96)	(2.99)
Brokerage Size	-0.003***	-0.003***	-0.003***	-0.003**	-0.003**	-0.003**
	(-2.79)	(-2.75)	(-2.75)	(-2.33)	(-2.31)	(-2.31)
Macro Uncertainty	0.014***	0.014***	0.014***	0.039***	0.039***	0.039***
	(8.73)	(8.77)	(8.76)	(22.37)	(22.41)	(22.39)
Intercept	13.775***	13.794***	13.758***	10.647***	10.685***	10.633***
	(49.31)	(49.45)	(49.24)	(35.40)	(35.57)	(35.35)
Adjusted R^2	0.62	0.62	0.62	0.65	0.65	0.65
Observations	573,568	573,568	573,568	573,568	573,568	573,568

Table 8: Effect High SUR and Zero SUR Macro-news Announcements on Stock Market Reaction to Analyst Forecast Revisions

In this Table, I estimate the stock market reaction to analyst *Forecast Revision* when the macro-news announcements have high and zero *SUR*. The post-2-day market-adjusted excess return from the forecast day (*Cumulative Abnormal Return*) is the dependent variable and the interaction of *Forecast Revision* and *# High SUR Macro Annc, and Forecast Revision* and *# Zero SUR Macro Annc* are the main independent variables. *Cumulative Abnormal Return* is the post-two-day market-adjusted excess return from the forecast day. Days (0, +1) for forecasts issued before the ending of regular trading (4 pm). Days (+1, +2) if the forecast is issued after 4 pm. The market adjusted return is based on the valued weighted return retrieved from CRSP. *Forecast Revision* is the difference between the current pre-announcement period earnings forecast and the earnings forecast issued immediately before the current forecast by the same analyst, scaled by the standard deviation of forecasts of all analysts. *# High SUR Macro Annc* is the number of macro-news announcements whose SUR of announced value is equal to more than 1 during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated. *# Zero SUR Macro Annc* is the number of macro-news announcements whose SUR of announced value is equal to 0 during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated. *SUR* of is defined as the absolute value of the difference between the actual announcements and the median forecasts for respective macro-news retrieved from Bloomberg Econoday, scaled by the standard deviation of the difference between the actual announcements and the median forecasts for each macro-news for the last 24 months. I winsorize all continuous variables at 1% and 99% levels. All regressions include firm and year fixed effects. Standard errors are clustered by firm and analyst, and *t*-statistics are reported in parentheses. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. I define the variables in Appendix A.

	(1)	(2)	(3)
	Cumulative Abnormal Return		
Forecast Revision	0.340***	0.341***	0.340***
	(48.10)	(48.22)	(48.14)
# High SUR Macro Annc	0.079***		0.079***
	(3.32)		(3.33)
Forecast Revision × # High SUR Macro Annc	0.000***		0.000***
	(3.50)		(4.29)
# Zero SUR Macro Annc		-0.006	0.002
		(-0.19)	(0.06)
Forecast Revision × # Zero SUR Macro Annc		-0.000**	-0.000**
		(-2.09)	(-1.97)
One-Quarter Lag SUE	-0.048***	-0.048***	-0.048***
	(-4.10)	(-4.11)	(-4.10)
Two-Quarter Lag SUE	-0.023**	-0.023**	-0.023**
	(-2.09)	(-2.04)	(-2.08)
Three-Quarter Lag SUE	0.013	0.013	0.013
	(1.18)	(1.16)	(1.19)
Four-Quarter Lag SUE	-0.002	-0.001	-0.002
	(-0.17)	(-0.07)	(-0.17)
Size	-3.369***	-3.373***	-3.368***

	(1)	(2)	(3)
	Cumulative Abnormal Return		
	(-18.46)	(-18.47)	(-18.45)
Book-to-Market	-1.426***	-1.429***	-1.425***
	(-5.96)	(-5.96)	(-5.95)
Stock Return	0.159**	0.168**	0.159**
	(2.29)	(2.42)	(2.28)
Volatility of Stock Return	-0.099	-0.097	-0.100
	(-0.11)	(-0.11)	(-0.11)
Loss	0.090	0.087	0.090
	(1.11)	(1.08)	(1.11)
Analyst Busy	-0.025	-0.025	-0.025
	(-1.14)	(-1.16)	(-1.15)
Analyst Experience	-0.017	-0.018	-0.017
	(-1.47)	(-1.48)	(-1.47)
Analyst Coverage	0.093	0.092	0.092
	(0.97)	(0.96)	(0.96)
Brokerage Size	-0.039***	-0.039***	-0.039***
	(-3.55)	(-3.57)	(-3.55)
Macro Uncertainty	-0.197***	-0.195***	-0.197***
	(-10.04)	(-9.97)	(-10.04)
Intercept	75.779***	75.941***	75.767***
	(18.18)	(18.22)	(18.17)
Adjusted R^2	0.27	0.26	0.27
Observations	168,086	168,086	168,086

Table 9: Effect of Macro-news Announcements on Sales Forecast Errors and the Cost of Goods Sold Forecast Errors

In this Table, I estimate the effect of macro-news announcements on the absolute sales and cost of goods sold forecast error. Column (1) contains the results when the *Sales Forecast Error* is the dependent variable, and column (2) contains the results where the *Cost of Goods Sold Forecast Error* is the dependent variable. Both dependent variables are defined as the logarithm of the absolute value of the difference between reported value and the pre-announcement period forecasted value, deflated by the stock price at the end of the month that is one month before the analyst forecast month. My proxy for macro-news announcements is the number of macro-announcements during the last two weeks from the day of analyst forecast for which forecast accuracy is being evaluated *(# Macro Annc*). I winsorize all continuous variables at 1% and 99% levels. All regressions include firm and year fixed effects. Standard errors are clustered by firm and analyst, and *t*-statistics are reported in parentheses. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. I define the variables in Appendix A.

	(1)	(2)
	Sales Forecast Error	*Cost of Goods Sold Forecast Error*
# Macro Annc	0.091***	0.070***
	(5.78)	(2.75)
One-Quarter Lag SUE	-0.018***	-0.001
	(-8.13)	(-0.24)
Two-Quarter Lag SUE	-0.015***	-0.018***
	(-6.96)	(-5.00)
Three-Quarter Lag SUE	-0.015***	-0.021***
	(-7.26)	(-6.04)
Four-Quarter Lag SUE	-0.005**	-0.000
	(-2.18)	(-0.09)
Size	-0.797***	-0.884***
	(-30.48)	(-20.93)
Book-to-Market	0.303***	0.226***
	(9.39)	(4.19)
Stock Return	0.025**	-0.025
	(2.19)	(-1.30)
Volatility of Stock Return	-0.135	0.085
	(-1.04)	(0.39)
Loss	0.011	0.066***
	(0.75)	(2.83)
Analyst Busy	0.008*	0.007
	(1.81)	(0.85)
Analyst Experience	0.003	0.000
	(1.29)	(0.01)
Analyst Coverage	0.038***	0.014
	(2.87)	(0.63)
Brokerage Size	-0.019***	-0.018***
	(-7.75)	(-4.20)
Macro Uncertainty	0.015***	0.012**

	(1) *Sales Forecast Error*	(2) *Cost of Goods Sold Forecast Error*
	(4.21)	(2.13)
Intercept	16.314***	22.292***
	(27.77)	(23.65)
Adjusted R^2	0.67	0.65
Observations	304,097	108,969