APPENDIX

A Identifying Uninformative Sentences

In an attempt to best capture the FOMC's current description of the economy, we eliminated sentences from the sample that we deemed uninformative, such as those that expressed views on how the economy might react to future policy actions. Frequently in its statements the FOMC makes comments about changes to monetary policy, and then explains how these actions may affect key areas such as employment or economic expansion. However, if we were to score these phrases the same way as remarks about direct expectations of future macroeconomic outcomes, they would produce scores that are opposite of what we want to measure. For example, in October 2008 the FOMC stated, "recent policy actions, including today's rate reduction, coordinated interest rate cuts by central banks, extraordinary liquidity measures, and official steps to strengthen financial systems, should help over time to improve credit conditions and promote a return to moderate economic growth." Our algorithm would pick up on the mention of "moderate economic growth" and score it positively; however, the actual conditions for output were highly negative. Removing these types of phrases is most important during the early part of our sample in which the statements are shorter, and a mismatch has a larger impact on the overall score.

To systematically identify and remove uninformative sentences, we used combinations of words and phrases that are commonly found within these types of sentences. The first type of pattern is evident in the previous example. The FOMC states they will take action and explains how they hope the economy will react. A few other common patterns involve the restatement of the Fed's "dual mandate" or references to its policy toolbox. A full list of rules, created through the authors' own reading, can be found in Table A10. Note that some of these patterns overlap with those in Table A9. The uninformative label was used to remove a sentence from the scoring algorithm for the output, labor, inflation, and financial markets subcomponents.

B Using Federal Funds Futures to Forecast Future Monetary Policy Decisions

Following Kuttner (2001), we use federal funds futures to estimate the market's expectation of the federal funds rate change at the next FOMC meeting. While there are some survey measures of expected Fed policy in the most recent sample, the use of Feds funds futures allows us to compute these expectations on particular days of interest (rather than having to use stale expectations). The use of Fed funds futures has some disadvantages, including the fact that the contract's settlement price is based on the average of the relevant month's effective overnight Fed funds rate as well as the fact that contracts are based on the effective Fed funds rate rather than the target, possibly causing discrepancies between the two rates on a daily basis.

Following Kuttner (2001) and Faust et al. (2004b) we extract a measure of the unexpected change in the target rate on date $t+1$, relative to the forecast made on date t, using the the 1-day change in the spot-month future rate. In particular, the unexpected change in the policy rate is

$$\Delta FFR_t^u = \frac{m}{m-t}(f_{s,t}^0 - f_{s,t-1}^0), \tag{7}$$

where $f_{s,t}^0$ is the spot-moth futures rate on day t of month s, m is the number of days in the month, and ΔFFR_t^u is the 1-day surprise for date t. The idea behind this is that $day-t$ futures prices embody the expected change on (or after) date $t+1$. If the change occurs as expected, the spot rate should not change and, under the assumption of no-change in the risk premium, the change in the futures market would equal the change in the market's expectation. When using daily futures prices, an additional assumption to make is that the change on FOMC announcement days is due to an exogenous monetary policy shock, which would fail if macro releases occur on the same day as FOMC announcements—rarely the case in our sample. In addition, it is still possible that this measure contains not only exogenous monetary policy shocks but also the FOMC information advantage through earlier access to data, as discussed in Faust et al. (2004b).

C Predictions on the time-varying response of equity prices to macroeconomic news

In the main text, we reference two opposing predictions regarding the time-varying response of equity prices to macroeconomic news. The prediction we emphasize the most is summarized in Table A1 and postulates that the time-varying response of equity prices to macro news is affected by the reaction of monetary policy to news.

Table A1: Time-Varying Response Depends on Monetary Policy Response to News

	Positive News	Negative News
Good Times	+ Cash Flow Effect FOMC increases interest rates - Discount Rate Effect Small response to news	- Cash Flow Effect FOMC likely to do nothing No Discount Rate Effect Large response to news
Bad Times	+ Cash Flow Effect FOMC likely to do nothing No Discount Rate Effect Large response to news	- Cash Flow Effect Effective Lower Bound Small + or no Discount Rate Effect Large response to news

There are two forces that can affect the way equity prices react to macroeconomic news: the cash flow effect and the discount rate effect. The cash flow effect has the same sign as the news: good news has a positive impact on equity prices and bad news has a negative impact on equity prices. The discount rate effect depends on what the FOMC is likely to do. Conditional on being in a "good times" state, the FOMC will increase interest rates when there is positive macro news and do nothing when there is negative macro news. Conditional on being in a "bad times" state, the FOMC will do nothing when there is positive macro news and the FOMC cannot do much when there is negative news because interest rates quickly reach the effective lower bound. This means that during "good times" news will have a smaller impact on equity prices (average of small impact of good news and large impact of negative news) than during "bad times" (average of large impact of good news and large impact of negative news). The asymmetric response is therefore related to the inherent asymmetry in the Fed's reaction function due to conducting monetary policy in a low r* environment with an ELB constraint that binds in economic downturns, rather than an asymmetry

in monetary policy effectiveness. In our sample, even in the early 2000s, the FFTR was as low as 1 percent, effectively reaching a level that would make it harder for the Fed to act in a downturn.

An alternative prediction is that of Veronesi (1999), who postulates that the time-varying response of equity prices depends on uncertainty. This theory is summarized in Table A2.

Table A2: Time-Varying Response Depends on Uncertainty

	Good News	Bad News
Good Times	+ Cash Flow Effect No Change in Uncertainty No Discount Rate Effect Large response to news	- Cash Flow Effect Higher Uncertainty - Discount Rate Effect Largest response to news
Bad Times	+ Cash Flow Effect Higher Uncertainty - Discount Rate Effect Small response to news	- Cash Flow Effect No Change in Uncertainty No Discount Rate Effect Large response to news

As before the cash flow effect has the same sign as the news: good news has a positive impact on equity prices and bad news has a negative impact on equity prices. The difference is that according to Veronesi (1999), good (bad) news during bad (good) times sends a conflicting signal that increases uncertainty regarding the state of the economy, with risk-averse investors wanting to be compensated for bearing more risk by requiring a discount on the price of the asset. This mechanism implies that agents overreact to bad news in good times and underreact to good news in bad times because higher uncertainty increases the discount rate. In other words, Veronesi (1999) predicts that during "good times," macro news will have a large impact on equity prices and during "bad times," news will have a smaller impact on equity prices (average of small impact of good news and large impact of negative news). We explain in the first paragraph of the Introduction and footnote 2 these two predictions.

In the paper, we present evidence that the first prediction is confirmed by the data in the 2000-2019 sample period, at least on average. We find, in fact, that news has a bigger (smaller) effect on equity prices during bad (good) times as described by the FOMC sentiment index. To further corroborate these results, Table A3 Panel A presents results of the equity response to macroeconomic news based on the four scenarios presented in Tables A1 and A2, where positive (negative) news is that whose surprise is greater (smaller) than zero, and good (bad) times are those when the FOMC

sentiment index is above (below) its average. Indeed, the scenario with positive news during good times is the one that exhibits the smallest (and insignificant) response to news, corroborating the view that the first prediction (the FOMC monetary policy stance prediction) is confirmed by the data. Our contribution is to point out that the response to equity prices is high long after the recession is over and that the FOMC sentiment index, the blue line in Figure 3, is a better predictor of the large response of equity prices to macro news. Table A3 Panel B shows similar results looking at good and bad times in terms of a recession and expansion indicator variable. Similar to the previous case, we also find that the scenario with positive news during expansions is the one that exhibits the smallest response to news, but the difference in response is not as striking as it is in Panel A, with the FOMC sentiment index.

Table A3: Empirical Evidence in Support of Time-Varying Response Depends on Monetary Policy Response to News

Panel A: FOMC Sentiment Index	
Positive Surprise and Low FOMC Sentiment Index	0.723***
F-test	(48.35)
Positive Surprise and High FOMC Sentiment Index	0.167
F-test	(1.78)
Negative Surprise and Low FOMC Sentiment Index	0.922***
F-test	(133.8)
Negative Surprise and High FOMC Sentiment Index	0.309***
F-test	(12.68)
Observations	1,750
Adjusted R^2	0.146
Panel B: Recessions and Expansions	
Positive Surprise and Recession	0.671***
F-test	(7.7)
Positive Surprise and Expansion	0.457***
F-test	(25.68)
Negative Surprise and Recession	0.895***
F-test	(48.92)
Negative Surprise and Expansion	0.580***
F-test	(69.34)
Observations	1,750
Adjusted R^2	0.133

Importantly, this result does not completely disqualify Veronesi (1999)'s theory. It is possible that both effects are at play, with the FOMC effect dominating the uncertainty effect during more

normal times. That is, while the FOMC effect is prevalent when analyzing the 2000-2019 sample, it might not hold in periods of extremely elevated uncertainty, like the recent COVID-19 pandemic. While this is not the focus of the paper because we have too few observations, we discuss the pandemic period in the Robustness section of the paper. The year 2020 was characterized by extremely elevated uncertainty. Against this backdrop, as shown in Figure 3, equity prices display a low response to macro news during the pandemic period, in line with Veronesi (1999)'s theory. Of course, another possibility is that the pandemic was a one-of-a-kind event, as highlighted by Borio (2020), and therefore different from previous recessions in several ways. First, some market participants expected the pandemic to be short-lived and thus equity prices would not react to the predominantly negative news during the pandemic period. Second, the pandemic was mainly affecting small businesses and not public large firms (e.g., Amazon) and equity prices of these large firms (the S&P500 we use in the paper) would not be directly and immediately affected by negative news predominantly coming from the small-business side. Finally, some have also highlighted the fact that the pandemic was a mix of demand and supply shocks, unlike previous recessions that were primarily driven by demand shocks, potentially prompting different policy actions and outcomes.

D Can the FOMC Sentiment Predict Future Economic Activity?

An additional way to understand the properties of the FOMC sentiment index is to formally test whether it has any forecasting powers for macroeconomic outcomes. To do so, we forecast in real time one-quarter or one-month ahead macroeconomic variables, like GDP, GDP price deflator and unemployment rate, through the following simple regression:

$$Y_t = \alpha + \beta X_{t-1} + \epsilon_t, \tag{8}$$

where Y_t are the measures of the state of the economy—namely GDP Advanced and the unemployment rate—or GDP price deflator, and X_{t-1} represents different explanatory variables, including the FOMC sentiment index and the other variables considered so far in the analysis. Time t is that of the release of the macroeconomic announcement Y that we are forecasting. The values of the independent variables are those available as of the day before the release of the macroeconomic

announcement that is forecast. The FOMC sentiment index is that of the latest FOMC meeting prior to the macroeconomic release.

Table A15 presents such results. Overall, the FOMC sentiment is able to predict future activity when included in a regression, but loses some of its significance when included with the lag of the forecast variable, or when it competes with all the other variables at once.

Table A4: Variable Definitions

FOMC Sentiment	We construct the FOMC sentiment index using a user-defined dictionary of topic-keywords modifier-keywords and phrases. We separate topic-keywords and phrases into five topics: labor, output, inflation, financial conditions, and future monetary policy. The FOMC sentiment is the sum of these five topics divided by the by the square root of the number of words in the statement after having deleted uninformative sentences
FFF Expectations	Expected change in the FFR implied by Fed Funds Futures
Eurodollar Expectations	Change in the expected FFR one-year hence implied by the Eurodollar Futures
Blue Chip Expectations	Change in the Blue Chip professional forecasters expected FFR over the next four-quarters
Blue Chip Economic Indicators Expectations	The change in the Blue Chip forecast for GDP growth, DGP deflator and the unemployment rate over the next four-quarters. We use the annualized quarter-over-quarter consensus forecasts of real GDP growth and GDP price deflator, and the quarterly average of the unemployment rate in percentage points.
Change in UR Gap	The change in the difference between the (quarterly average of the monthly) real-time unemployment rate and the natural rate as released by the Congressional Budget Office (CBO)
Inflation Rate	Real-time GDP price deflator
ADS Index	Real-time values of the Aruoba et al. (2009) index
EBP	Gilchrist and Zakrajšek (2012) excess bond premium
Inv. Yield Curve	An indicator variable equal to one if the difference between the 10-year bond yield and the 2-year bond yield is negative
Recession	An indicator variable equal to one if we are in a recession according to the NBER recession dates
FFR	The federal funds rate
Treasury Yields	Yields of the on-the-run 2-, 5- and 10-year U.S. Government bonds or 3- and 6-month Treasury bills
Change in 5-Year Yield	Change in the 5-year yield since the last FOMC meeting
PD Ratio	Price-to-dividends ratio
VIX	CBOE one-month implied volatility index

Notes: The table reports a summary of the variables used in the paper.

SOURCE: Authors' calculations based on Bloomberg, Thomson Reuters Tick History, the Center for Research in Security Prices (CRSP), the Federal Reserve Bank of Philadelphia, the Aruoba-Diebold-Scotti Business Conditions Index, the Favara et al. (2016) EBP update, the Congressional Budget Office, and FOMC statements from www.federalreserve.gov.

Table A5: List of Keywords and Their Scores

keyword	score	category
inflation	1	inflation
price	1	inflation
cost	1	inflation
employers	1	labor
employment	1	labor
job gains	1	labor
job losses	-1	labor
labor	1	labor
hiring	1	labor
underutilization of labor resources	-1	labor
unemployment	-1	labor
utilization of the pool of available workers	1	labor
business conditions	1	output
business outlook	1	output
confidence	1	output
consumption	1	output
strengthening in final demand	1	output
demand	1	output
econom	1	output
expenditures	1	output
export	1	output
income	1	output
indicators	1	output
investment	1	output
investment spending	1	output
output	1	output
production	1	output
sales	1	output
sentiment	1	output
spending	1	output
bank lending	1	financial
credit	1	financial
financial	1	financial

Notes: The table reports the most common keywords characterizing output, labor, inflation and financial conditions in the FOMC statements released between 2000 and 2020. The associated score takes on values of 1 and -1 based on our assessment of whether they communicate positive or negative association with the topic (e.g., unemployment takes a -1 for labor conditions, so that an increase in unemployment conveys worse labor conditions, while employment takes a 1).

SOURCE: Authors' calculations.

Table A6: List of Modifiers and Their Scores

modifier	score	category	modifier	score	category
declin	-1	labor	below	-1	inflation
deteriorat	-1	labor	damp	-1	inflation
diminish	-1	labor	ease (space)	-1	inflation
disappoint	-1	labor	easing	-1	inflation
inhibit	-1	labor	declin	-1	inflation
losses	-1	labor	diminish	-1	inflation
low	-1	labor	down	-1	inflation
modest	-1	labor	low	-1	inflation
moderated	-1	labor	modest	-1	inflation
reluctant to add	-1	labor	moderated	-1	inflation
restrain	-1	labor	muted	-1	inflation
set back	-1	labor	reduction	-1	inflation
slow	-1	labor	restrain	-1	inflation
soft (exclude software)	-1	labor	set back	-1	inflation
subdued	-1	labor	slow	-1	inflation
underutilization	-1	labor	soft (exclude software)	-1	inflation
weak	-1	labor	subdued	-1	inflation
elevat	1	labor	weak	-1	inflation
expand	1	labor	elevat	1	inflation
gains	1	labor	expand	1	inflation
high	1	labor	foster	1	inflation
improv	1	labor	height	1	inflation
increas	1	labor	high	1	inflation
pick up	1	labor	improv	1	inflation
picking up	1	labor	increas	1	inflation
picked up	1	labor	persist	1	inflation
record expansion	1	labor	pressure	1	inflation
rebound	1	labor	pick up	1	inflation
rise	1	labor	picking up	1	inflation
rising	1	labor	picked up	1	inflation
rose	1	labor	moderate (space)	1	inflation
risen	1	labor	rise	1	inflation
solid	1	labor	risk remain	1	inflation
strong	1	labor	rising	1	inflation
strength	1	labor	rose	1	inflation
upward	1	labor	risen	1	inflation
up (space)	1	labor	solid	1	inflation
balance	0	labor	sustain	1	inflation
mix	0	labor	strong	1	inflation
little change	0	labor	strength	1	inflation
stable	0	labor	upward	1	inflation
stabilizing	0	labor	up (space)	1	inflation
steady	0	labor	upside risk	1	inflation
unchanged	0	labor	contain	0	inflation

Notes: The table reports the modifiers related to the most common keywords characterizing inflation, financial, output and labor in the FOMC statements released between 2000 and 2020. Modifiers take on values of 1, 0, and -1 based on our assessment of whether they communicate good, neutral, or bad news about economic conditions.

SOURCE: Authors' calculations.

Table A7: List of Modifiers and Their Scores

modifier	score	category	modifier	score	category
balance	0	inflation	subdued	-1	output
equal probability	0	inflation	uncertain	-1	output
little change	0	inflation	weak	-1	output
stable	0	inflation	yet to exhibit sustainable growth	-1	output
stabilizing	0	inflation	weigh	-1	output
steady	0	inflation	weigh on	-1	output
unchanged	0	inflation	weighing on	-1	output
volatility	0	inflation	growing at a moderate pace	1	output
uncertain	0	inflation	moderating	-1	output
tight	-1	financial	moderation	-1	output
volatile	-1	financial	moderated	-1	output
strain	-1	financial	remain moderate	-1	output
stress	-1	financial	more moderate	-1	output
turmoil	-1	financial	advanc	1	output
supportive	1	financial	bolster	1	output
unchanged	0	financial	expand	1	output
below	-1	output	remains firm	1	output
contract	-1	output	firm	1	output
cooling	-1	output	firmer	1	output
cut	-1	output	gains	1	output
damp	-1	output	grow at a solid pace	1	output
decelerat	-1	output	high	1	output
depress	-1	output	improv	1	output
declin	-1	output	increas	1	output
deteriorat	-1	output	moderate (space)	1	output
diminish	-1	output	pick up	1	output
dislocation	-1	output	picking up	1	output
disappoint	-1	output	picked up	1	output
disruption	-1	output	record expansion	1	output
down	-1	output	rebound	1	output
drag	-1	output	rise	1	output
erod	-1	output	rising	1	output
(space) flat	-1	output	rose	1	output
gap	-1	output	risen	1	output
inhibit	-1	output	solid	1	output
increasing less rapidly	-1	output	strength	1	output
hesitancy	-1	output	strong	1	output
(space) low	-1	output	upward	1	output
modest	-1	output	abating	0	output
might not be strong enough	-1	output	balance	0	output
pause	-1	output	evolve	0	output
reduction	-1	output	leveling out	0	output
restrain	-1	output	mix	0	output
slump	-1	output	same	0	output
sluggish	-1	output	temporarily depressed	0	output
set back	-1	output	stable	0	output
shortfall	-1	output	stabilizing	0	output
slow	-1	output	sustain	0	output
soft (exclude software)	-1	output	tentative	0	output

Notes: The table reports the modifiers related to the most common keywords characterizing inflation, financial, output and labor in the FOMC statements released between 2000 and 2020. Modifiers take on values of 1, 0, and -1 based on our assessment of whether they communicate good, neutral, or bad news about economic conditions.

SOURCE: Authors' calculations.

Table A8: List of Modifiers and Their Scores

modifier	score	category
downside risks to the outlook for the economy and the labor market as having diminished	1	labor
declined but remains elevated	1	labor
declined notably in recent months but remains elevated	1	labor
declined somewhat since the summer, it remains elevated	1	labor
deterioration in labor market is abating	1	labor
deterioration in the labor market is abating	1	labor
underutilization of labor resources continues to diminish	1	labor
although job losses have slowed, new hiring has lagged	0	labor
despite the rise in energy prices, inflation and inflation expectations have eased in recent months	-1	inflation
the risk of inflation becoming undesirably low	-1	inflation
the pace of economic recovery is likely to be modest	-1	output
recovery is continuing, though at a rate that has been insufficient to bring down unemployment	-1	output
recovery is continuing, though at a rate that has been insufficient to bring about a significant improvement in labor market conditions	-1	output
recovery is continuing at a moderate pace, though somewhat more slowly than the committee had expected	-1	output
expanding but remains constrained	-1	output
expanding at a moderate rate, though it remains constrained	-1	output
expanding at a moderate rate but remains constrained	-1	output
the solid pace of spending growth has slowed somewhat	-1	output
stabilizing but remains constrained	-1	output
picked up recently but remains constrained	-1	output
increasing but remains constrained	-1	output
increasing gradually, but remains constrained	-1	output
increasing at a moderate pace, but remains constrained	-1	output
rising, though less rapidly than earlier in the year	-1	output
picked up late last year, but remains constrained	-1	output
rising at a somewhat slower pace	-1	output
improvement, albeit from a depressed level	-1	output
fiscal policy is restraining economic growth, although the extent of restraint may be diminishing	0	output
fiscal policy is restraining economic growth, although the extent of restraint is diminishing	0	output
hurricane related disruptions	0	output
warrant keeping the target federal funds rate below levels	-1	output
warrant exceptionally low levels of the federal funds rate	-1	output
expand for a time at a pace below the productivity	0	output

Notes: The table reports the modifiers related to the most common keywords characterizing output and labor in the FOMC statements released between 2000 and 2020. Modifiers take on values of 1, 0, and -1 based on our assessment of whether they communicate good, neutral, or bad news about economic conditions.

SOURCE: Authors' calculations.

Table A9: Rules for Scoring Future Monetary Policy Actions

pattern	score
(policy accommodation)|(maintained)	-1
continue its purchases	-1
(ready to expand)|(purchase)	-1
(await more evidence)|(pace of its purchases)	-1
(will act)|(as needed)	-1
be patient	0
(believe)|(policy accommodation)|(removed)	1
(firming)|(need)	1
(expects)|(increases in the target range)	1
(judges)|(increases in the target range)	1
(warrant)|(gradual increases)	1
balance sheet normalization	1
(end purchase)|(improvement)	1
(reduce)|(purchase)	1
(complete|moderate)|(purchase)|(improvement)	1
(decides to)|(remove policy accommodation)	1

Notes: The table reports the regex patterns that were used to identify and score future monetary policy actions. After the matches were extracted, a sentence was scored only if it contained each of the patterns in parentheses.

SOURCE: Authors' reading of the FOMC statements from www.federalreserve.gov.

Table A10: Rules for Identifying Uninformative Sentences

pattern
(will)|(assess)|(as needed)
(will)|(monitor)|(as needed)
(promote a stronger)|(as announced)
(review)|(size)|(composition)
(promote a stronger)|(dual mandate)
(sizable)|(still increasing holdings)
(recognize)|(below its 2 percent objective)
(expect)|(gradual adjustments)|(will .*? strengthen|remain strong)
(appropriate policy accommodation)|(dual mandate)
(dual mandate)|(purchasing additional)|(agency mortgage backed securities)
(long term prospects)|(unusual forces)|(demand abate)
(sustain.*? expansion)|(symmetric 2 percent objective)
(federal reserve)|(employ all available tools|using its balance sheet)
(today's .*? action)|(help)

Notes: The table reports the regex patterns that were used to identify the most common uninformative sentences. After the matches were extracted, a sentence was labeled as uninformative only if it contained each of the patterns in parentheses.

SOURCE: Authors' reading of the FOMC statements from www.federalreserve.gov.

Table A11: Macroeconomic News Announcements

Name	(1) Observations 2000-2019	(2) Observations 2000-2020	(3) Release Time	(4) Agency
Initial Jobless Claims	1,043	1,096	8:30 am	ETA
ISM PMI	240	252	10:00 am	ISM
Consumer Confidence Index	240	252	10:00 am	CB
Nonfarm Payroll Employment	240	252	8:30 am	BLS

Notes: The table reports the name of the macroeconomic announcement, the number of observations (releases) in our main sample period (from January 2000 to December 2019), and including the pandemic period (from January 2000 to December 2020), the release time in Eastern Time (ET), and the agency that produces the data. The agencies are: Bureau of Labor Statistics (BLS), Conference Board (CB), Employment and Training Administration (ETA) and Institute for Supply Management (ISM).

SOURCE: Authors' calculations based on Bloomberg.

Table A12: Federal Open Market Committee Meetings

date	(1)	(2)	(3)	date	(1)	(2)	(3)	date	(1)	(2)	(3)	date	(1)	(2)	(3)
2/2/2000	5.75	0.25	1	3/22/2005	2.75	0.25	1	4/28/2010	0.25	0	0	10/28/2015	0.25	0	0
3/21/2000	6	0.25	1	5/3/2005	3	0.25	1	6/23/2010	0.25	0	0	12/16/2015	0.5	0.25	1
5/16/2000	6.5	0.5	1	6/30/2005	3.25	0.25	1	8/10/2010	0.25	0	0	1/27/2016	0.5	0	0
6/28/2000	6.5	0	0	8/9/2005	3.5	0.25	1	9/21/2010	0.25	0	-1	3/16/2016	0.5	0	0
8/22/2000	6.5	0	0	9/20/2005	3.75	0.25	1	11/3/2010	0.25	0	-1	4/27/2016	0.5	0	0
10/3/2000	6.5	0	0	11/1/2005	4	0.25	1	12/14/2010	0.25	0	0	6/15/2016	0.5	0	0
11/15/2000	6.5	0	0	12/13/2005	4.25	0.25	1	1/26/2011	0.25	0	0	7/27/2016	0.5	0	0
12/19/2000	6.5	0	0	1/31/2006	4.5	0.25	1	3/15/2011	0.25	0	0	9/21/2016	0.5	0	0
1/3/2001 *	6	-0.5	-1	3/28/2006	4.75	0.25	1	4/27/2011	0.25	0	0	11/2/2016	0.5	0	0
1/31/2001	5.5	-0.5	-1	5/10/2006	5	0.25	1	6/22/2011	0.25	0	0	12/14/2016	0.75	0.25	1
3/20/2001	5	-0.5	-1	6/29/2006	5.25	0.25	1	8/9/2011	0.25	0	0	2/1/2017	0.75	0	0
4/18/2001 *	4.5	-0.5	-1	8/8/2006	5.25	0	0	9/21/2011	0.25	0	-1	3/15/2017	1	0.25	1
5/15/2001	4	-0.5	-1	9/20/2006	5.25	0	0	11/2/2011	0.25	0	0	5/3/2017	1	0	0
6/27/2001	3.75	-0.25	-1	10/25/2006	5.25	0	0	12/13/2011	0.25	0	0	6/14/2017	1.25	0.25	1
8/21/2001	3.5	-0.25	-1	12/12/2006	5.25	0	0	1/25/2012	0.25	0	0	7/26/2017	1.25	0	0
9/17/2001 *	3	-0.5	-1	1/31/2007	5.25	0	0	3/13/2012	0.25	0	0	9/20/2017	1.25	0	0
10/2/2001	2.5	-0.5	-1	3/21/2007	5.25	0	0	4/25/2012	0.25	0	0	11/1/2017	1.25	0	0
11/6/2001	2	-0.5	-1	5/9/2007	5.25	0	0	6/20/2012	0.25	0	-1	12/13/2017	1.5	0.25	1
12/11/2001	1.75	-0.25	-1	6/28/2007	5.25	0	0	8/1/2012	0.25	0	0	1/31/2018	1.5	0	0
1/30/2002	1.75	0	0	8/7/2007	5.25	0	0	9/13/2012	0.25	0	-1	3/21/2018	1.75	0.25	1
3/19/2002	1.75	0	0	8/17/2007 *	5.25	0	0	10/24/2012	0.25	0	0	5/2/2018	1.75	0	0
5/7/2002	1.75	0	0	9/18/2007	4.75	-0.5	-1	12/12/2012	0.25	0	0	6/13/2018	2	0.25	1
6/26/2002	1.75	0	0	10/31/2007	4.5	-0.25	-1	1/30/2013	0.25	0	0	8/1/2018	2	0	0
8/13/2002	1.75	0	0	12/11/2007	4.25	-0.25	-1	3/20/2013	0.25	0	0	9/26/2018	2.25	0.25	1
9/24/2002	1.75	0	0	1/22/2008 *	3.5	-0.75	-1	5/1/2013	0.25	0	0	11/8/2018	2.25	0	0
11/6/2002	1.25	-0.5	-1	1/30/2008	3	-0.5	-1	6/19/2013	0.25	0	0	12/19/2018	2.5	0.25	1
12/10/2002	1.25	0	0	3/18/2008	2.25	-0.75	-1	7/31/2013	0.25	0	0	1/30/2019	2.5	0	0
1/29/2003	1.25	0	0	4/30/2008	2	-0.25	-1	9/18/2013	0.25	0	0	3/20/2019	2.5	0	0
3/18/2003	1.25	0	0	6/25/2008	2	0	0	10/30/2013	0.25	0	0	5/1/2019	2.5	0	0
5/6/2003	1.25	0	0	8/5/2008	2	0	0	12/18/2013	0.25	0	1	6/19/2019	2.5	0	0
6/25/2003	1	-0.25	-1	9/16/2008	2	0	0	1/29/2014	0.25	0	1	7/31/2019	2.25	-0.25	-1
8/12/2003	1	0	0	10/8/2008 *	1.5	-0.5	-1	3/19/2014	0.25	0	1	9/18/2019	2	-0.25	-1
9/16/2003	1	0	0	10/29/2008	1	-0.5	-1	4/30/2014	0.25	0	1	10/30/2019	1.75	-0.25	-1
10/28/2003	1	0	0	12/16/2008	0.25	-0.75	-1	6/18/2014	0.25	0	1	12/11/2019	1.75	0	0
12/9/2003	1	0	0	1/28/2009	0.25	0	-1	7/30/2014	0.25	0	1	3/3/2020 *	1.25	-0.5	-1
1/28/2004	1	0	0	3/18/2009	0.25	0	-1	9/17/2014	0.25	0	1	3/15/2020 *	0.25	-1	-1
3/16/2004	1	0	0	4/29/2009	0.25	0	0	10/29/2014	0.25	0	0	3/23/2020	0.25	0	-1
5/4/2004	1	0	0	6/24/2009	0.25	0	0	12/17/2014	0.25	0	0	4/29/2020	0.25	0	0
6/30/2004	1.25	0.25	1	8/12/2009	0.25	0	0	1/28/2015	0.25	0	0	6/10/2020	0.25	0	-1
8/10/2004	1.5	0.25	1	9/23/2009	0.25	0	0	3/18/2015	0.25	0	0	7/29/2020	0.25	0	-1
9/21/2004	1.75	0.25	1	11/4/2009	0.25	0	0	4/29/2015	0.25	0	0	9/16/2020	0.25	0	-1
11/10/2004	2	0.25	1	12/16/2009	0.25	0	0	6/17/2015	0.25	0	0	11/5/2020	0.25	0	0
12/14/2004	2.25	0.25	1	1/27/2010	0.25	0	0	7/29/2015	0.25	0	0	12/16/2020	0.25	0	-1
2/2/2005	2.5	0.25	1	3/16/2010	0.25	0	0	9/17/2015	0.25	0	0				

Notes: The table reports FOMC dates, the federal funds target rate level (1) and change (2) from 2000 to 2020. Beginning December 16, 2008, the FOMC moved from a single target rate to a target range, including an upper and lower limit. In the table we report the upper limit. Column (3) reports a dummy that takes the value -1, 0, 1 according to whether the FOMC decreased, left unchanged or increased the federal funds target rate or announced other unconventional policies that were tightening, neutral or accommodative. * denote inter-meeting dates.

SOURCE: Authors' calculations and www.federalreserve.gov.

Table A13: Time-Varying Impact of Macroeconomic News on Equity Prices: Non-linear Estimation

	(1)
NFP Surprise	5.635***
	(0.473)
ISM Surprise	2.877***
	(0.331)
Consumer Confidence Surprise	2.468***
	(0.309)
Initial Claims Surprise	0.787***
	(0.137)
Year 2000	-0.0322***
	(0.0111)
Year 2001	0.0410***
	(0.00934)
Year 2002	0.131***
	(0.0173)
Year 2003	0.0460***
	(0.00993)
Year 2004	0.0331***
	(0.00971)
Year 2005	0.00146
	(0.0133)
Year 2006	0.00327
	(0.0177)
Year 2007	0.0503***
	(0.0189)
Year 2008	0.0891***
	(0.0127)
Year 2009	0.0835***
	(0.0127)
Year 2010	0.110***
	(0.0143)
Year 2011	0.119***
	(0.0150)
Year 2012	0.101***
	(0.0170)
Year 2013	0.0204
	(0.0169)
Year 2014	0.00545
	(0.0158)
Year 2015	0.0558***
	(0.0170)
Year 2016	0.0475***
	(0.0174)
Year 2017	0.0191
	(0.0178)
Year 2018	0.0406**
	(0.0186)
Year 2019	0.0329***
	(0.0122)
Constant	0.00315
	(0.00740)
Observations	1,847
Adjusted R^2	0.191

Notes: The table reports estimates of the non-linear equation (2) using data from January 2000 to December 2020. Similar to Bauer and Swanson (2020), we constrain the effect across years to be 1, so year 2020 is equal to $1 - \sum_{i=2000}^{2019} Year_i$.

SOURCE: Authors' calculations.

Table A14: Response of Equity Markets to Macroeconomic News — One by One

	(1) NFP	(2) NFP	(3) IJC	(4) IJC	(5) ISM	(6) ISM	(7) CC	(8) CC
Surprise	1.441***	1.900***	0.273***	0.297***	0.169***	0.205***	0.121***	0.0325
	(0.253)	(0.343)	(0.0467)	(0.0680)	(0.0245)	(0.0383)	(0.0226)	(0.0334)
Surprise × FOMC Sentiment	-0.928***	-1.237***	-0.176***	-0.265***	-0.0371	0.0116	-0.0812***	-0.0299
	(0.260)	(0.392)	(0.0433)	(0.0689)	(0.0238)	(0.0339)	(0.0234)	(0.0377)
Surprise × FFF Expectations		1.751***		-0.140		-0.0489		0.0782*
		(0.656)		(0.105)		(0.0654)		(0.0450)
Surprise × Eurodollar Expectations		-0.529		0.0676		0.0556		-0.148**
		(0.718)		(0.106)		(0.0666)		(0.0612)
Surprise × BC Expectations		0.454		0.197***		-0.0545		-0.0147
		(0.358)		(0.0533)		(0.0354)		(0.0261)
Surprise × Δ UR Gap		0.338		-0.0271		0.00642		0.0153
		(0.354)		(0.0462)		(0.0362)		(0.0275)
Surprise × Inflation Rate		0.00845		0.0511		0.0772**		0.00139
		(0.376)		(0.0597)		(0.0343)		(0.0271)
Surprise × ADS Index		1.292**		0.150*		0.168***		0.156***
		(0.575)		(0.0840)		(0.0483)		(0.0427)
Surprise × EBP		-0.386		-0.0692		0.0847**		0.102**
		(0.442)		(0.0706)		(0.0338)		(0.0412)
Surprise × Inv. Yield Curve		0.116		0.263		0.111		0.139
		(1.077)		(0.230)		(0.120)		(0.103)
Surprise × Recession		1.382		0.457**		-0.134		0.124
		(1.177)		(0.198)		(0.132)		(0.105)
Surprise × FFTR		0.610		0.304		0.0105		-0.398***
		(1.092)		(0.194)		(0.119)		(0.111)
Surprise × Δ Monetary Policy		-1.840***		-0.0301		0.0195		0.0333
		(0.571)		(0.0751)		(0.0527)		(0.0358)
Surprise × 5-Year Yield		-1.452		-0.431**		-0.101		0.363***
		(1.000)		(0.185)		(0.111)		(0.0971)
Surprise × Δ 5-Year Yield		-0.276		0.225***		-0.0390		-0.0240
		(0.397)		(0.0732)		(0.0472)		(0.0406)
Surprise × PD Ratio		-0.264		0.0189		-0.00554		-0.0565*
		(0.357)		(0.0638)		(0.0364)		(0.0297)
Surprise × VIX		0.569		0.337***		0.0976**		0.0371
		(0.490)		(0.0801)		(0.0493)		(0.0299)
Constant	0.0221	0.0327	-0.000962	0.00303	-0.00785	0.00312	-0.0193	-0.0555*
	(0.0316)	(0.0458)	(0.00751)	(0.0106)	(0.0240)	(0.0336)	(0.0224)	(0.0325)
Observations	239	239	1,034	1,034	238	238	239	239
Adjusted R^2	0.204	0.416	0.063	0.160	0.186	0.419	0.184	0.383

Notes: We estimate the response of E-mini S&P 500 futures to four macroeconomic news announcements, separately, using data from 2000 to 2019. The dependent variable is the 30-minute E-mini S&P500 futures returns using the prevailing futures price as of one minutes before the announcement to twenty nine minutes after the announcement. The estimation also includes main effects, but we do not report these coefficients. The independent variables are divided by their standard deviation, so that the magnitude of the coefficients can be interpreted more easily. We consider four macroeconomic surprises, nonfarm payroll (NFP), initial jobless claims (IJC), ISM manufacturing (ISM) and the Conference Board consumer confidence index (CC). F-statistics are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

SOURCE: Authors' calculations based on Bloomberg, Thomson Reuters Tick History, Center for Research in Security Prices (CRSP), the Federal Reserve Bank of Philadelphia, the Aruoba-Diebold-Scotti Business Conditions Index, the Favara et al. (2016) EBP update, and FOMC statements from www.federalreserve.gov.

Table A15: Forecast of Real Activity Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	GDP			UR				GDP Deflator				
Panel A: Keep monthly revisions when there is an FOMC meeting in between forecasts												
FOMC Sentiment	0.528***	0.111	0.156	0.0812	-0.829***	-0.0580**	-0.0599**	0.0157	0.0619	-0.130	-0.165**	-0.254***
	(0.162)	(0.149)	(0.153)	(0.155)	(0.128)	(0.0239)	(0.0254)	(0.0230)	(0.0754)	(0.0798)	(0.0834)	(0.0909)
BC Forecast		1.149***	1.171***	0.812***		0.967***	0.965***	0.973***		1.210***	1.219***	1.313***
		(0.148)	(0.150)	(0.207)		(0.0130)	(0.0133)	(0.0113)		(0.240)	(0.241)	(0.243)
Target Surprise			0.0109	0.0121			0.0223	0.0254			-0.0144	-0.00721
			(0.142)	(0.142)			(0.0222)	(0.0189)			(0.0721)	(0.0729)
Forward Guidance			-0.209	-0.242*			-0.0109	0.0104			0.137*	0.108
			(0.146)	(0.143)			(0.0226)	(0.0190)			(0.0730)	(0.0730)
NFP Surprise				-0.0414				0.0158				-0.0651
				(0.157)				(0.0208)				(0.0800)
S&P500 Returns				0.419***				-0.00921				0.0190
				(0.156)				(0.0209)				(0.0805)
ADS Index				0.300				-0.169***				0.190**
				(0.229)				(0.0228)				(0.0882)
Constant	2.008***	-0.924**	-0.981**	-0.0739	5.896***	0.152*	0.160*	0.117*	1.769***	-0.486	-0.504	-0.693
	(0.162)	(0.403)	(0.406)	(0.544)	(0.128)	(0.0804)	(0.0820)	(0.0692)	(0.0751)	(0.452)	(0.455)	(0.459)
Observations	161	161	161	161	161	161	161	161	161	161	161	161
Adjusted R^2	0.062	0.320	0.329	0.380	0.209	0.978	0.978	0.985	0.004	0.143	0.161	0.198
Panel B: Drop FOMC meetings that occur within the first 7 days of the month												
FOMC Sentiment	0.493***	0.169	0.170	0.119	-0.803***	-0.0676**	-0.0671**	0.00931	0.0716	-0.127	-0.162*	-0.230**
	(0.158)	(0.146)	(0.151)	(0.156)	(0.143)	(0.0262)	(0.0279)	(0.0253)	(0.0847)	(0.0868)	(0.0916)	(0.0994)
BC Forecast		1.040***	1.036***	0.847***		0.975***	0.975***	0.982***		1.316***	1.343***	1.419***
		(0.158)	(0.161)	(0.218)		(0.0143)	(0.0146)	(0.0123)		(0.258)	(0.260)	(0.263)
Target Surprise			0.0696	0.0699			0.0178	0.0180			-0.0112	0.00228
			(0.144)	(0.148)			(0.0249)	(0.0216)			(0.0811)	(0.0845)
Forward Guidance			-0.0309	-0.0902			-0.0101	0.0223			0.110	0.0684
			(0.151)	(0.151)			(0.0260)	(0.0223)			(0.0839)	(0.0862)
NFP Surprise				0.0468				0.0152				-0.0529
				(0.162)				(0.0234)				(0.0910)
S&P500 Returns				0.402***				-0.0107				0.0790
				(0.151)				(0.0224)				(0.0874)
ADS Index				0.105				-0.175***				0.129
				(0.223)				(0.0248)				(0.0963)
Constant	1.973***	-0.727*	-0.719	-0.216	5.957***	0.116	0.117	0.0767	1.764***	-0.679	-0.729	-0.880*
	(0.158)	(0.432)	(0.441)	(0.576)	(0.143)	(0.0889)	(0.0905)	(0.0762)	(0.0844)	(0.485)	(0.489)	(0.496)
Observations	134	134	134	134	134	134	134	134	134	134	134	134
Adjusted R^2	0.068	0.300	0.302	0.348	0.192	0.978	0.978	0.985	0.005	0.170	0.182	0.208

Notes: We estimate a one-quarter ahead forecast regression for real GDP growth, unemployment rate, and GDP price deflator from 2000 to 2019. We only keep a forecast if there is an FOMC meeting between forecasts and if there are two FOMC meetings we only keep the information from the most recent meeting. ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively. GDP is gross domestic product and UR is unemployment rate.

SOURCE: Authors' calculations based on Blue Chip forecasts.

Table A16: Forecast of FOMC Monetary Policy Stance: Horse Race — Sub-Components

	(1) Output	(2) Labor	(3) Inflation	(4) Financial	(5) Monetary
FOMC Sentiment	0.107***	0.109***	0.076***	0.013	0.113***
	(0.026)	(0.019)	(0.025)	(0.027)	(0.022)
FFF Expectations	0.17***	0.149***	0.143***	0.161***	0.12***
	(0.043)	(0.039)	(0.047)	(0.046)	(0.038)
Eurodollar Expectations	-0.022	-0.007	-0.019	-0.024	-0.019
	(0.056)	(0.051)	(0.059)	(0.059)	(0.048)
BC Expectations	-0.019	-0.013	-0.008	0.007	-0.001
	(0.027)	(0.022)	(0.03)	(0.028)	(0.022)
Δ UR Gap	-0.04*	-0.045**	-0.046**	-0.046**	-0.036**
	(0.021)	(0.019)	(0.021)	(0.021)	(0.018)
Inflation Rate	0.014	0.037**	0.014	0.024	0.038**
	(0.019)	(0.018)	(0.021)	(0.021)	(0.017)
ADS Index	0.013	0.036	0.041	0.02	0.019
	(0.037)	(0.03)	(0.038)	(0.036)	(0.028)
EBP	-0.047	-0.093	-0.057	-0.054	-0.062
	(0.047)	(0.064)	(0.062)	(0.054)	(0.049)
Inv. Yield Curve	0.345	0.292	0.316	0.257	0.282
	(0.376)	(0.466)	(0.393)	(0.402)	(0.405)
Recession	-0.048	0.004	-0.084	-0.033	0.031
	(0.093)	(0.099)	(0.089)	(0.102)	(0.099)
FFTR	-0.167**	-0.168**	-0.2**	-0.131	-0.133*
	(0.084)	(0.078)	(0.091)	(0.09)	(0.073)
Δ Monetary Policy	0.059**	0.065**	0.079***	0.072**	0.046*
	(0.027)	(0.025)	(0.031)	(0.031)	(0.026)
5-Year Yield	0.237***	0.274***	0.224***	0.198**	0.209***
	(0.082)	(0.076)	(0.084)	(0.086)	(0.073)
Δ 5-Year Yield	-0.019	-0.033*	-0.018	-0.024	-0.031*
	(0.021)	(0.019)	(0.023)	(0.023)	(0.019)
PD Ratio	-0.072***	-0.077***	-0.069***	-0.07***	-0.063***
	(0.024)	(0.023)	(0.026)	(0.026)	(0.021)
VIX	-0.027	-0.008	-0.06*	-0.046	-0.012
	(0.031)	(0.024)	(0.033)	(0.033)	(0.024)
Observations	165	165	165	165	165
Pseudo R^2	0.610	0.640	0.580	0.551	0.626

Notes: We estimate an ordered probit to forecast monetary policy decisions from 2000 to 2019. The dependent variable is an indicator variable equal to -1, 0, 1 according to whether the FOMC decreased, left unchanged or increased the federal funds target rate (FFTR) or announced other unconventional policies that were tightening, neutral or easing. The table reports marginal effects on the probability of tightening for a one standard deviation increase in the independent variable, if it is continuous, and for a change from 0 to 1, if it is an indicator variable. All of the independent variables are lagged as of the day before the FOMC meeting, except for the FOMC sentiment index which is based on the most recent FOMC statement. FFF expectation is the expected change in the FFTR implied by fed funds futures, unemployment rate (UR) gap is the difference between the actual unemployment rate and the natural rate of unemployment rate, inflation is CPI inflation, ADS index is the Aruoba et al. (2009) index, EBP is the Gilchrist and Zakrajšek (2012) excess bond premium, PD ratio is the price to dividend ratio, and VIX is the CBOE volatility index. Standard errors are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

SOURCE: Authors' calculations based on Bloomberg, the Center for Research in Security Prices (CRSP), the Federal Reserve Bank of Philadelphia, the Aruoba-Diebold-Scotti Business Conditions Index, the Favara et al. (2016) EBP update, and FOMC statements from www.federalreserve.gov.

Table A17: Response of Blue Chip Forecast Revisions to FOMC Information: Sub-Components

	(1)	(2)	(3)	(4)	(5)	(6)
	GDP		UR		GDP Deflator	
	Panel A: Keep monthly revisions when there is an FOMC meeting in between forecasts					
FOMC Output Sentiment	0.407***	0.158**				
	(0.0729)	(0.0726)				
FOMC Labor Sentiment			-0.307***	-0.111**		
			(0.0760)	-0.0555		
FOMC Inflation Sentiment					0.234***	0.349***
					(0.0776)	(0.0725)
Target Surprise		-0.0378		0.0823		-0.0693
		(0.0637)		(0.0635)		(0.0722)
Forward Surprise		-0.0202		0.0277		-0.151**
		(0.0628)		(0.0633)		(0.0734)
NFP Surprise		-0.0663		-0.104		-0.0862
		(0.0624)		(0.0633)		(0.0713)
S&P500 Returns		0.416***		-0.207***		0.192**
		(0.0696)		(0.0700)		(0.0806)
ADS Index		0.270***		-0.486***		0.373***
		(0.0776)		(0.0743)		(0.0822)
Constant	-0.323***	-0.323***	0.0997	0.0997	-0.165**	-0.165**
	(0.0727)	(0.0598)	(0.0757)	(0.0604)	(0.0773)	(0.0687)
Observations	159	159	159	159	159	159
Adjusted R^2	0.165	0.453	0.094	0.442	0.055	0.279
	Panel B: Drop FOMC meetings that occur within the first 7 days of the month					
FOMC Output Sentiment	0.407***	0.158**				
	(0.0729)	(0.0726)				
FOMC Labor Sentiment			-0.307***	-0.111**		
			(0.0760)	-0.0555		
FOMC Inflation Sentiment					0.234***	0.349***
					(0.0776)	(0.0725)
Target Surprise		-0.0378		0.0823		-0.0693
		(0.0637)		(0.0635)		(0.0722)
Forward Surprise		-0.0202		0.0277		-0.151**
		(0.0628)		(0.0633)		(0.0734)
NFP Surprise		-0.0663		-0.104		-0.0862
		(0.0624)		(0.0633)		(0.0713)
S&P500 Returns		0.416***		-0.207***		0.192**
		(0.0696)		(0.0700)		(0.0806)
ADS Index		0.270***		-0.486***		0.373***
		(0.0776)		(0.0743)		(0.0822)
Constant	-0.323***	-0.323***	0.0997	0.0997	-0.165**	-0.165**
	(0.0727)	(0.0598)	(0.0757)	(0.0604)	(0.0773)	(0.0687)
Observations	159	159	159	159	159	159
Adjusted R^2	0.165	0.453	0.094	0.442	0.055	0.279

Notes: We estimate the response of Blue Chip forecast revisions to FOMC information using data from 2000 to 2019. We only keep a forecast revision if there is an FOMC meeting between forecasts and if there are two FOMC meetings we only keep the information from the most recent meeting. ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

SOURCE: Authors' calculations based on Bloomberg, Blue Chip Economic Indicators, the Federal Reserve Bank of Philadelphia, Aruoba-Diebold-Scotti Business Conditions Index, and FOMC statements from www.federalreserve.gov.

Table A18: Response of Equity Markets to Macroeconomic News — 2000-2020 Sample

	(1) 2000-2019	(2) 2000-2020	(3) Output	(4) Labor	(5) Inflation	(6) Financial	(7) Monetary
Surprise	0.605***	0.668***	0.665***	0.680***	0.671***	0.708***	0.681***
	(102.77)	(139.43)	(137.45)	(142.61)	(137.65)	(155.95)	(144.7)
Surprise × FOMC Sentiment	-0.375***	-0.306***	-0.234***	-0.174***	-0.013	-0.374***	-0.246***
	(30.7)	(22.66)	(14.88)	(7.15)	(0.05)	(34.55)	(18.35)
Surprise × FFF Expectations	0.378***	0.201*	0.148	0.082	0.111	0.287***	0.159
	(11.28)	(3.72)	(2.02)	(0.63)	(1.13)	(7.14)	(2.38)
Surprise × Eurodollar Expectations	-0.142	-0.053	-0.061	0.022	-0.023	-0.203*	0.008
	(1.43)	(0.21)	(0.27)	(0.03)	(0.04)	(2.91)	(0.01)
Surprise × BC Expectations	0.157***	0.011	0.009	-0.016	-0.012	-0.041**	-0.004
	(7.26)	(0.38)	(0.26)	(0.81)	(0.46)	(4.89)	(0.06)
Surprise × Δ UR Gap	0.088	0.0001	0.0001	0.001	0.0001	-0.001	0.001
	(2.31)	(.01)	(0.01)	(0.03)	(0.01)	(0.02)	(0.11)
Surprise × Inflation Rate	0.062	0.082***	0.082***	0.072***	0.076***	0.066***	0.070***
	(0.96)	(15.44)	(15.26)	(12.04)	(13.29)	(10.19)	(11.61)
Surprise × ADS Index	0.465***	-0.007	-0.006	-0.001	0.001	0.010**	-0.004
	(22.76)	(2.25)	(1.70)	(0.03)	(0.10)	(5.33)	(0.74)
Surprise × EBP	-0.022	0.033	-0.015	0.042	0.030	-0.044	0.025
	(0.09)	(0.35)	(0.07)	(0.53)	(0.27)	(0.60)	(0.20)
Surprise × Inv. Yield Curve	0.162	-0.264	-0.270	-0.326*	-0.320*	-0.190	-0.327*
	(0.72)	(2.37)	(2.46)	(3.58)	(3.45)	(1.21)	(3.64)
Surprise × Recession	0.402**	-0.861***	-0.837***	-0.712***	-0.733***	-0.686***	-0.733***
	(4.15)	(44.31)	(41.28)	(31.34)	(31.6)	(29.79)	(33.67)
Surprise × FFTR	0.102	-0.123	-0.208	-0.073	-0.179	-0.473***	-0.137
	(0.30)	(0.48)	(1.37)	(0.16)	(1.01)	(6.72)	(0.60)
Surprise × Δ Monetary Policy	-0.457***	-0.414***	-0.383***	-0.429***	-0.406***	-0.420***	-0.422***
	(23.24)	(26.36)	(22.36)	(27.66)	(25.02)	(27.19)	(27.34)
Surprise × 5-Year Yield	-0.398**	-0.030	0.006	-0.166	0.004	0.284*	-0.057
	(5.39)	(0.03)	(0.01)	(0.90)	(0.02)	(2.83)	(0.12)
Surprise × Δ 5-Year Yield	-0.042	-0.051	-0.049	-0.016	-0.106	-0.148**	-0.085
	(0.38)	(0.53)	(0.49)	(0.04)	(2.30)	(4.54)	(1.51)
Surprise × PD Ratio	-0.071	-0.086*	-0.085*	-0.067	-0.069	0.029	-0.075
	(1.34)	(3.36)	(3.26)	(2.05)	(2.09)	(0.36)	(2.61)
Surprise × VIX	0.269***	-0.043	0.020	-0.042	0.017	-0.005	-0.058
	(10.46)	(0.41)	(0.09)	(0.33)	(0.07)	(0.01)	(0.69)
Observations	1,750	1,839	1,839	1,839	1,839	1,839	1,839
Adjusted R^2	0.264	0.241	0.237	0.235	0.230	0.246	0.240

Notes: We estimate the response of E-mini S&P 500 futures to macroeconomic news announcements using data from 2000 to 2019 for column (1) and data from 2000 to 2020 for columns (2)-(7). The dependent variable is the 30-minute E-mini S&P500 futures returns using the prevailing futures price as of 1 minute before the announcement to 29 minutes after the announcement. The estimation also includes main effects, but we do not report these coefficients. The independent variables are divided by their standard deviation, so that the magnitude of the coefficients can be interpreted more easily. We report the average coefficient across four macroeconomic surprises, nonfarm payroll, initial jobless claims, ISM manufacturing and the Conference Board consumer confidence index. F-statistics are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

SOURCE: Authors' calculations based on Bloomberg, Thomson Reuters Tick History, the Center for Research in Security Prices (CRSP), the Federal Reserve Bank of Philadelphia, the Aruoba-Diebold-Scotti Business Conditions Index, the Favara et al. (2016) EBP update, the Congressional Budget Office, and FOMC statements from www.federalreserve.gov.

Table A19: Forecast of FOMC Monetary Policy Stance—2000-2020 Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Monetary Policy, Expectations and the State of the Economy								
FOMC Sentiment	0.205***							
	(0.022)							
FFF Expectations		0.234***						
		(0.022)						
Eurodollar Expectations			0.158***					
			(0.022)					
BC Expectations				0.165***				
				(0.026)				
Δa UR Gap					-0.011			
					(0.008)			
Inflation Rate						0.071***		
						(0.021)		
ADS Index							0.022***	
							(0.008)	
EBP								-0.146***
								(0.053)
Observations	175	175	175	175	175	175	175	175
Pseudo R^2	0.255	0.326	0.147	0.137	0.007	0.033	0.027	0.041
Panel B: Monetary Policy, the State of the Economy, Financial Variables and Uncertainty								
Inv. Yield Curve	-0.157*							
	(0.083)							
Recession		-0.241***						
		(0.035)						
FFTR			-0.013					
			(0.024)					
Δ Monetary Policy				0.303***				
				(0.027)				
5-Year Yield					0.05**			
					(0.023)			
Δ 5-Year Yield						0.059**		
						(0.024)		
PD Ratio							-0.015	
							(0.024)	
VIX								-0.199***
								(0.031)
Observations	175	175	175	175	175	175	175	175
Pseudo R^2	0.003	0.183	0.001	0.287	0.014	0.018	0.001	0.179

Notes: We estimate an ordered probit to forecast monetary policy decisions from 2000 to 2020. The dependent variable is an indicator variable equal to -1, 0, 1 according to whether the FOMC decreased, left unchanged or increased the federal funds target rate (FFTR) or announced other unconventional policies that were tightening, neutral or easing. The table reports marginal effects on the probability of tightening for a one standard deviation increase in the independent variable, if the variable is continuous, and for an increase from 0 to 1, if the variable is an indicator variable. All of the independent variables are lagged as of the day before the FOMC meeting, except for the FOMC sentiment index, FFTR, and change in monetary policy stance, which are based on the most recent FOMC statement. For a detailed definition of the independent variables refer to Table A4. The change in monetary policy is the monetary policy stance variable as of the last FOMC meeting. ELB denotes the effective lower bound period. Standard errors are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

SOURCE: Authors' calculations based on Bloomberg, Blue Chip Financial Forecasts, the Center for Research in Security Prices (CRSP), the Congressional Budget Office, the Federal Reserve Bank of Philadelphia, the Aruoba-Diebold-Scotti Business Conditions Index, the Favara et al. (2016) EBP update, and FOMC statements from www.federalreserve.gov.

Table A20: Forecast of FOMC Monetary Policy Stance: Horse Race—2000-2020 Sample

	(1)	(2)	(3)	(4)
	Monetary Policy Stance		Target Rate Change	
	2000-2020	No ELB period	2000-2020	No ELB period
FOMC Sentiment	0.130***	0.090***	0.054***	0.074***
	(0.023)	(0.031)	(0.018)	(0.022)
FFF Expectations	0.135***	0.140***	0.031	0.061**
	(0.04)	(0.048)	(0.021)	(0.028)
Eurodollar Expectations	0.002	0.164***	0.157***	0.154***
	(0.052)	(0.06)	(0.038)	(0.046)
BC Expectations	-0.012	0.012	0.009	-0.016
	(0.022)	(0.03)	(0.012)	(0.016)
Δ UR Gap	-0.008	-0.081***	0.002	-0.059***
	(0.009)	(0.03)	(0.002)	(0.021)
Inflation Rate	0.012	0.031	0.01	0.008
	(0.016)	(0.022)	(0.011)	(0.017)
ADS Index	-0.005	-0.035	-0.001	0.005
	(0.005)	(0.027)	(0.003)	(0.013)
EBP	-0.072	-0.095*	0.001	-0.003
	(0.063)	(0.053)	(0.014)	(0.018)
Inv. Yield Curve	0.308	0.371	0.016	0.083
	(0.42)	(1.691)	(0.139)	(0.178)
Recession	-0.09*	-0.254***	-0.076***	-0.168***
	(0.049)	(0.036)	(0.029)	(0.05)
FFTR	-0.152*	0.153	0.164***	0.128*
	(0.08)	(0.105)	(0.054)	(0.07)
Δ Monetary Policy	0.034	-0.006	0.02*	-0.009
	(0.035)	(0.051)	(0.012)	(0.017)
5-Year Yield	0.192**	-0.043	-0.124**	-0.055
	(0.078)	(0.097)	(0.051)	(0.066)
Δ 5-Year Yield	-0.02	-0.033*	-0.004	-0.038***
	(0.02)	(0.02)	(0.011)	(0.014)
PD Ratio	-0.044**	-0.102***	-0.026**	-0.037**
	(0.021)	(0.029)	(0.013)	(0.015)
VIX	-0.033	0.003	-0.037***	-0.036*
	(0.026)	(0.029)	(0.014)	(0.019)
Observations	175	111	175	111
Pseudo R^2	0.638	0.803	0.593	0.704

Notes: We estimate an ordered probit to forecast monetary policy decisions from 2000 to 2020. The dependent variable in columns (1) and (2) is an indicator variable equal to -1, 0, 1 according to whether the FOMC decreased, left unchanged or increased the federal funds target rate (FFTR) or announced other unconventional policies that were tightening, neutral or easing. The dependent variable in columns (3) and (4) is the federal funds target rate change. The table reports marginal effects on the probability of tightening (columns 1-2) or of 25 basis point increase (columns 3-4) for a one standard deviation increase in the independent variable, if it is continuous, and for a change from 0 to 1, if it is an indicator variable. All of the independent variables are lagged as of the day before the FOMC meeting, except for the FOMC sentiment index, FFTR, and change in monetary policy stance, which are based on the most recent FOMC statement. For a detailed definition of the independent variables refer to Table A4. The change in monetary policy is either the monetary policy stance variable as of the last FOMC in columns (1) and (2) or the change in the federal funds target rate in columns (3) and (4). ELB denotes the effective lower bound period. Standard errors are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

SOURCE: Authors' calculations based on Bloomberg, Blue Chip Financial Forecasts, the Center for Research in Security Prices (CRSP), the Federal Reserve Bank of Philadelphia, the Aruoba-Diebold-Scotti Business Conditions Index, the Favara et al. (2016) EBP update, the Congressional Budget Office, and FOMC statements from www.federalreserve.gov.