The Fed’s Response to Economic News Explains the “Fed Information Effect”

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Society for Economic Dynamics Meetings
Minneapolis
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The “Fed Information Effect”

\[ BC_{rev_t} = \alpha + \theta mps_t + \varepsilon_t \]
The “Fed Information Effect”

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- \( t \) indexes FOMC announcements
- \( BCrev_t \) is one-month change in Blue Chip forecast around FOMC announcement
- \( mps_t \) is measure of FOMC announcement surprise in 30-min window around announcement
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- standard macro models, VARs predict \( \theta < 0 \) (for GDP, inflation)
- but empirical work sometimes estimates \( \theta > 0 \)
The “Fed Information Effect”

Federal Reserve Monetary Policy Announcement Surprise, 30-min. window (pct) vs. 1-month change in Blue Chip GDP 4-qtr Forecast (pct)
The “Fed Information Effect” story:

- the Fed is a better economic forecaster than the private sector
- when the Fed lowers interest rates, private sector infers that economy must be worse than they thought
- so private sector lowers rather than raises GDP forecast
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- the Fed is a better economic forecaster than the private sector
- when the Fed lowers interest rates, private sector infers that economy must be worse than they thought
- so private sector *lowers* rather than raises GDP forecast

See:

- Romer and Romer (2000 AER)
- Campbell, Evans, Fisher, Justiniano (2012 BPEA)
- Nakamura-Steinsson (2018 QJE)
The “Fed Information Effect”
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Federal Reserve Monetary Policy Announcement Surprise, 30-min. window (pct)

1-month change in Blue Chip GDP 4-qtr Forecast (pct)
Publicly available economic news is an omitted variable from "information effect" regressions: \[ BC_{rev,t} = \phi + \theta mps_{t} + \epsilon_{t} \]

Estimates of \( \theta \) are biased if economic news is correlated with \( mps_{t} \).
Publicly available economic news is an omitted variable from "information effect" regressions:

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The “Fed Response to News” Channel

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Old economic news can also matter if Blue Chip forecasters revise forecasts a little sluggishly (Coibion-Gorodnichenko, 2015 AER)
Economic News Predicts Monetary Policy Surprises

Regress

\[ mps_t = \alpha + \beta \text{news}_t + \varepsilon_t \]

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  - nonfarm payrolls
  - Brave, Butters, Kelley (2019) “big data” index of macro data releases for previous month
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Note:

- under standard FIRE assumption, \( mps_t \) should be unpredictable: \( \alpha, \beta = 0 \) (even if Fed Information Effect is true)
- but if markets don’t know Fed’s monetary policy rule, then \( mps_t \) can be correlated with economy \textit{ex post}, resulting in \( \beta \neq 0 \)
  (see also Cieslak, 2018 RFS; Schmeling et al., 2020)
Economic News Predicts Monetary Policy Surprises

Economic news measure:

MP Surprise measure  (1) Nonfarm payrolls   (2) Brave et al. index   (3) $\Delta \log \text{S&P500}$

Full sample: 1/1990–6/2019, including unscheduled announcements

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### Economic News Predicts Monetary Policy Surprises

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- **MP Surprise measure**
  1. Nonfarm payrolls
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#### Bottom line:

- $\text{news}_t$ is correlated with $\text{mps}_t$
- (which will cause omitted variable bias in “Fed Information Effect” regressions)
Economic News Drives Out “Fed Information Effect”

Repeat “Fed Information Effect” regressions with omitted news variable included:

Campbell et al. (2012):

\[ BC_{rev_t} = \alpha + \beta target_t + \gamma path_t + \varepsilon_t \]

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Stock Market Response to FOMC Announcements

Consider high-frequency stock market response regressions:

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- standard macro theory predicts $\beta, \gamma, \theta < 0$
- information effect prediction is ambiguous for $\beta, \gamma, \theta$
  - but Jarocinski-Karadi (2019), Cieslak-Schrimpf (2019) argue $\beta, \gamma, \theta$ should be $> 0$ if information effect is substantial
Stock Market Regression Results

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<td>“target factor”</td>
<td>first princip. comp.</td>
</tr>
<tr>
<td>fwd. guidance</td>
<td>“path factor”</td>
<td>“MP surprise”</td>
</tr>
</tbody>
</table>

Full sample: 1/1990–6/2019, including unscheduled announcements

| Δ log S&P500         | -4.37*** (0.45)     | -2.52*** (0.54)       | -7.82*** (0.72)       |
### Stock Market Regression Results

**HF Stock Market Results**

<table>
<thead>
<tr>
<th>Method</th>
<th>Fed Funds Rate</th>
<th>Fwd. Guidance</th>
<th>MP Surprise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campbell et al. (1)</td>
<td>−4.37***</td>
<td>−2.52***</td>
<td>−7.82***</td>
</tr>
<tr>
<td>Nakamura-Steinsson (2)</td>
<td>−4.24***</td>
<td>−2.05***</td>
<td>−5.95***</td>
</tr>
<tr>
<td>Full sample: 1/1990–6/2019, including unscheduled announcements</td>
<td>(0.45)</td>
<td>(0.54)</td>
<td>(0.72)</td>
</tr>
<tr>
<td>Replication samples: 1/1990–6/2007 for CEFJ, 1/1995–3/2014 for NS</td>
<td>(0.46)</td>
<td>(0.65)</td>
<td>(1.03)</td>
</tr>
<tr>
<td>(0.64)</td>
<td>(0.51)</td>
<td>(0.82)</td>
<td></td>
</tr>
<tr>
<td>(0.64)</td>
<td>(0.51)</td>
<td>(0.78)</td>
<td></td>
</tr>
</tbody>
</table>
Survey of Blue Chip Forecasters

- We collected contact information for all 52 forecasters in the Blue Chip panel.
Survey of Blue Chip Forecasters

- We collected contact information for all 52 forecasters in the Blue Chip panel
- emailed them a survey asking how they revised their GDP, unemployment, and inflation forecasts in response to:
  - federal funds rate decision
  - FOMC statement
  - interest rate “dot plot”
  - Summary of Economic Projections (SEP) forecasts for GDP, unemployment, and inflation
 Results from Our Survey

36 responses out of 52 possible:

<table>
<thead>
<tr>
<th>Response to hawkish surprise in:</th>
<th>fed funds rate</th>
<th>FOMC statement</th>
<th>“dot plot”</th>
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</thead>
<tbody>
<tr>
<td>Do not revise GDP forecast</td>
<td>13</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>Revise GDP forecast downward</td>
<td>18</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>Revise GDP forecast, but direction depends on other factors</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
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The last row contradicts “Fed information effect”
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<table>
<thead>
<tr>
<th>Response to FOMC’s Summary of Economic Projections (SEP)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not revise GDP forecast</td>
<td>24</td>
</tr>
<tr>
<td>Revise GDP forecast towards SEP forecast,</td>
<td>4</td>
</tr>
<tr>
<td>if substantially different</td>
<td></td>
</tr>
<tr>
<td>Use SEP to help forecast fed funds rate,</td>
<td>3</td>
</tr>
<tr>
<td>effect on GDP standard</td>
<td></td>
</tr>
<tr>
<td>Use SEP to help forecast fed funds rate,</td>
<td>1</td>
</tr>
<tr>
<td>effect on GDP depends on other factors</td>
<td></td>
</tr>
<tr>
<td>Revise GDP, but revision depends on</td>
<td>2</td>
</tr>
<tr>
<td>multiple factors</td>
<td></td>
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<td>4</td>
</tr>
<tr>
<td>Use SEP to help forecast fed funds rate, effect on GDP standard</td>
<td>3</td>
</tr>
<tr>
<td>Use SEP to help forecast fed funds rate, effect on GDP depends on other factors</td>
<td>1</td>
</tr>
<tr>
<td>Revise GDP, but revision depends on multiple factors</td>
<td>2</td>
</tr>
</tbody>
</table>

- If there was a Fed information effect, we ought to see it here
Typical Quotes from Our Survey

24 out of 34 survey respondents do not find SEP forecasts useful:

“I trust my outlook more than the Fed’s. . . Their forecasting ability is pretty poor.”

“My view is that the Fed does not have superior information. . . The FOMC forecast tends to be off by a lot.”

“We tend to find that the Fed has no better information advantage over economists like myself. . . In fact, what we have found many times is Fed forecasts (per the SEP) tend to be somewhat stale.”

“I would be responding to the change in the policy outlook, not to the possibility that the Fed ‘knew’ something that I did not.”

“We would not be updating our forecasts because we think the SEP forecasts are good. But if we think they signal something about future policy and portend a market shock then we might change some forecasts in anticipation of that.”
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Typical Quotes from Our Survey (cont.)

“I have not been surprised by an FOMC announcement since well before 2008 (including January 2008 [a 75bp intermeeting rate cut]).”

“In the end, we are likely to get more information from speeches and press conferences than we are from the statement, the decision, or the dots. So by the time we get those things, it tends to be relatively ‘old news’, if you will.”

“I make my forecasts based on the data, not Fed assumptions. I haven’t been surprised by them in a very long time.”

“If we think the Fed is about to make a decision that is inconsistent with our expected outlook, we often think that will lead to a change in financial conditions that will in turn push the Fed back to where we think is appropriate for the economy.”

“I could never find an effect of interest rates on any component of investment except residential [which was too small to have a significant effect on the GDP forecast].”
A Simple Model

Let $x_t$ denote state of the economy (e.g., GDP):

$$x_t = \rho_x x_{t-1} + \eta_t$$
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$$i_t = ax_t + \varepsilon_t$$
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$\eta_t, \varepsilon_t \perp \mathcal{H}_{t-1}$
Implications of the Simple Model

Key equations:

\[ mps_t = (a - \hat{a}_t)x_t + \varepsilon_t \]

\[ E[i_{t+j} | H_t] - E[i_{t+j} | x_t, H_{t-1}] = \rho_x \theta mps_t \]
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- \( \text{mps}_t \) is correlated with \( x_t \) ex post, even though \( \text{mps}_t \) was unforecastable ex ante
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- \( mps_t \) is correlated with \( x_t \) \textit{ex post}, even though \( mps_t \) was unforecastable \textit{ex ante}
- The high-frequency effect of \( \varepsilon_t \) on asset prices is the same as the effect of \( mps_t \) on asset prices
- To estimate effects of \( \varepsilon_t \) on asset prices (as in Kuttner, 2001; Gürkaynak, Sack, and Swanson, 2005; Bernanke and Kuttner, 2005; etc.), econometrician can run high-frequency regressions with \( mps_t \) as the right-hand-side variable
- However, for high-frequency identification of a VAR, \( mps_t \) is correlated with \( x_t \), must be orthogonalized to be used as external instrument (e.g., Miranda-Agrippino and Ricco, 2021).
Also in the Paper

In the paper, we also:

1. show Blue Chip and Fed Greenbook forecasts are very similar
2. conduct extensive robustness analysis of empirical results
3. provide simple model of private-sector learning about Fed’s monetary policy rule to model “Fed Response to News” channel
4. using model, show high-frequency monetary policy surprises can be used:
   - in high-frequency regressions to estimate effects of monetary policy
   - in high-frequency identification of VARs (but some adjustment here can be necessary)
Conclusions

1. Economic news is an omitted variable in “Information Effect” regs.
   - “Fed Information Effect” regressions suffer from omitted variable bias
   - including the omitted variable drives out “Fed Information Effect”

2. Stock market responses to FOMC announcements do not support “Fed Information Effect”

3. Our survey of Blue Chip forecasters contradicts “Fed Information Effect”

4. Evidence for “Fed Information Effect” is weak

5. We propose alternative “Fed Response to News” channel that can explain all of the empirical findings
Jarocinski and Karadi (2020)

Figure 1. Scatterplot of Interest Rate and Stock Price Surprises
Figure 1. Scatterplot of Interest Rate and Stock Price Surprises
**Fed Disappoints Wall Street With Half-Point Cut in Rates**

By Richard W. Stevenson
March 20, 2001

WASHINGTON, March 20 - The Federal Reserve cut interest rates today by half a percentage point, continuing its aggressive effort to reuscitate the faltering economy but disappointing investors who had hoped for more.

Stock prices fell sharply after the Fed's announcement. The Dow Jones industrial average and the broader Standard & Poor's 500-stock index both dropped more than 2 percent, while technology-heavy Nasdaq composite index lost more than 4 percent.