Measuring the Fed-Information Effect

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Introduction

- Monetary Policy

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  - Crucial for stabilizing the business cycle

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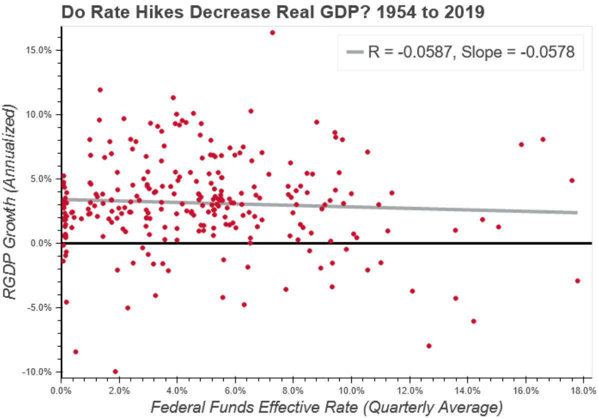

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    - Implies Gertler and Karadi indicator has omitted variable bias
- Bauer and Swanson (2020)
    - Criticizes Fed-information effect
    - Proposes "Fed response to news" channel instead

Economic Theory

Economic Theory

- $$i_m = i_m^p(\text{PubInfo}_m) + X_m(\text{FedInfo}_m)'\alpha + \epsilon_m$$

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- $$\begin{aligned} i_m - i_m^p(\text{PubInfo}_m) &= X_m(\text{FedInfo}_m)'\alpha + \epsilon_m \\ FS_m &= X_m(\text{FedInfo}_m)'\alpha + \epsilon_m \end{aligned}$$

  FS_m: Change in FFR Futures price over a 30 minute window around FOMC announcement corresponding to meeting m

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- Suppose we have some variable y_m...

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\begin{aligned}
y_m &= \beta_0 + \beta_1 \epsilon_m + v \\
y_m &= \beta_0 + \beta_1 (FS_m - X_m(\text{FedInfo}_m)'\alpha) + v \\
y_m &= \beta_0 + \beta_1 FS_m - \beta_1 X_m(\text{FedInfo}_m)'\alpha + v \\
y_m &= \beta_0 + \beta_1 FS_m + u \\
\mathrm{Cov}(FS_m, u) &\neq 0
\end{aligned}
$$

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- Model very similar to Romer and Romer (2004):

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\begin{aligned}
FS_m = \alpha &+ \sum_{i=0}^{2} \gamma_i \widetilde{\Delta y}_{mi} + \sum_{i=0}^{2} \lambda_i \left(\widetilde{\Delta y}_{mi} - \widetilde{\Delta y}_{m-1,i} \right) \\
&+ \sum_{i=0}^{2} \phi_i \tilde{\pi}_{mi} + \sum_{i=0}^{2} \theta_i \left(\tilde{\pi}_{mi} - \tilde{\pi}_{m-1,i} \right) + \rho \tilde{u}_{m0} + \epsilon_m
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- For y_m, I follow the methodology of Bauer and Swanson (2020) and use the 24 hour change in the log of the S&P500 stock market index.

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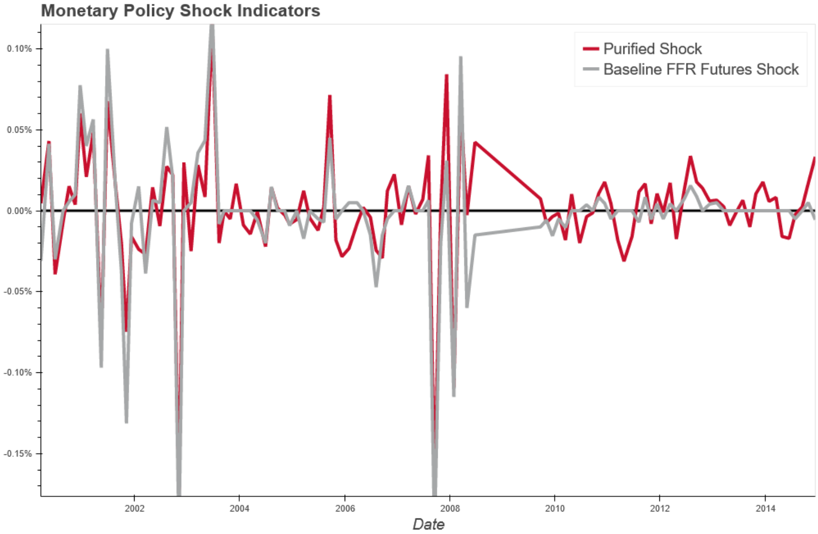

Monetary Policy Shock Indicators
Purified Shock
Baseline FFR Futures Shock
0.10%
0.05%
0.00%
-0.05%
-0.10%
-0.15%
2002
2004
2006
2008
2010
2012
2014
Date

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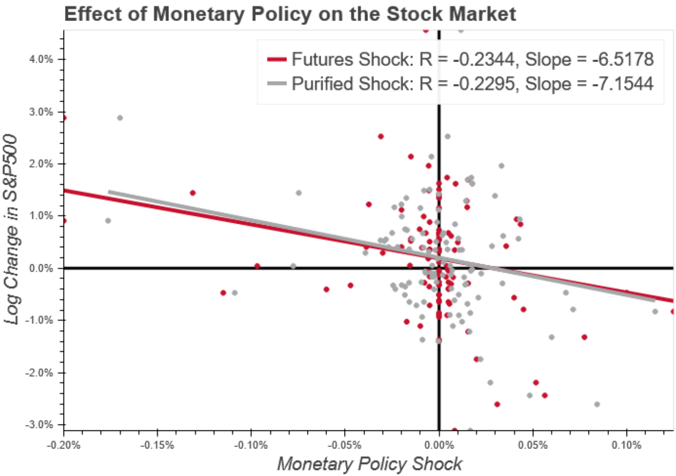
- Model 2:

$$\Delta \log(\text{S\&P500}_m) = \delta_0 + \delta_1 \hat{\epsilon}_m + w$$

Empirical Analysis



Empirical Analysis: Wu-Hausman Test

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H_0 :δ_1 and β_1 are consistent.

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$$H = \frac{(-7.154 + 6.518)^2}{2.919^2 - 2.601^2} = .2304$$

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$$H = \frac{(-7.154 + 6.518)^2}{2.919^2 - 2.601^2} = .2304$$

$P(H \geq .2304) = 63.1\%$, implying that the Fed-information effect is statistically insignificant.

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Bootstrap the distribution of $\delta - \beta$ with 80% of the sample per draw for 10,000 draws.

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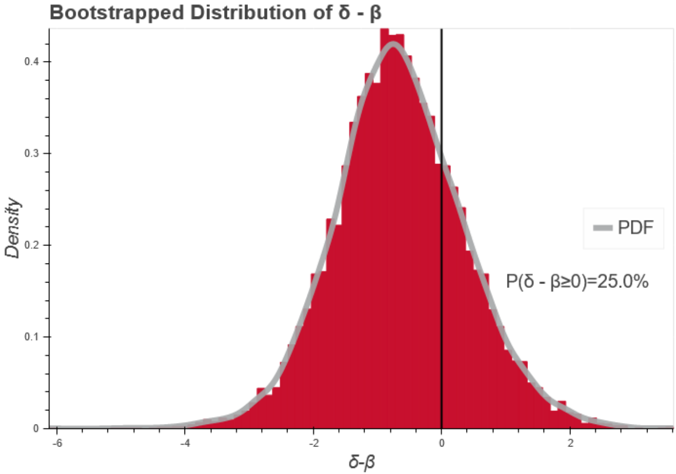

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- Summary
  - Main contribution is a way to measure "how important" the Fed information effect is
  - All tests indicate that the effect is weak or non-existent

References

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