The Diminishing Impact of Monetary Policy on Asset Prices Around Non-FOMC Macroeconomic Announcements

Zohair Alam

University of Toronto

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Outline

Motivation

- Fed adjusts interest rates to fulfill its dual mandate: maximum employment; price stability.
- Fed actions directly impact financial markets:
  - Determine the discount rate which directly affect asset prices.
  - Impact yield curve & firm borrowing costs.
- Monetary policy is most effective when markets correctly anticipate it (Blinder et al, 2001).
- This paper focuses on quantifying these *expectations*.

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- Conventional (pre-GFC): Fed sets Fed Funds Rate (FFR). Predictable by simple functions (e.g. Taylor Rule)

$$FFR_t = r^* + 2\% + 1.5(infl_t - 2\%) + (GDP_t - GDP^*)$$

- Unconventional (post-GFC): Involve forward guidance; QE. Standard rules irrelevant » Complicate forecasting Fed actions.

- *"When policy is transparent and effective, people in the economy and financial markets respond to the data, not to the policymakers."* (Cecchetti and Schoenholtz, 2019).

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My Paper

- In contrast to the literature, I focus on the expectation of policy (not its announcement). Thus, I examine non-FOMC announcements relevant to monetary policy.
- Exploit stock-bond covariance to identify monetary news on these events.
- Main Result: Find impacts around non-FOMC announcements fall post-GFC; similar around FOMC announcements » **Overall impact of MP on asset prices decreases post-GFC.**

Contributions

- **Extant Lit. on Monetary Policy and Asset Prices** does not find impacts decreased post-GFC (e.g. Gilchrist et al, 2015; Swanson, 2018; Ferrari et al,2016). I focus on *expectations* of monetary policy and find these impacts reduced post-GFC.

- Propose a simple method to measure monetary news on non-FOMC days. Standard MP surprise measures in the literature don't "work" on non-FOMC announcements.

- **Policy Implication:** *Inadvertent* by-product of unconventional policies is the market's reduced ability to anticipate central bank actions, which may have implications on MP's transmission

Sample Description

- Assets under investigation: Equity Prices (S&P 500), Nominal Effective Exchange Rate (NEER), Corporate Bond Yields (AAA, A, BBB, BAA), USTs (2y - 30y), Financial Conditions Index (FCI).

- NonFOMC Announcements: GDP, CPI, Unemployment, Industrial Production.
  1. Dual mandate: i) maximum employment; ii) price stability.
  2. GDP part of all major policy rules.
  3. IP statistics released by Fed.

- Sample Period: 1996 - 2019
  - Pre-GFC (CMP): 1996 - Jun 2008
  - Post-GFC (UMP): Jul 2009 onward

- Sources: FRED and Bloomberg Terminal.

One Method to Identify Monetary News on NonFOMC Days: Sign Restrictions

- Exploit different stock-bond reactions to monetary policy. (Matheson & Stavrev, 2014).
- Isolate movements in yields due to monetary news.
- However, raises set identification issue

Sign Restriction Assumptions

	Yields	Equity Prices
Expansionary Monetary Policy	-	+
Good Non-Monetary News	+	+

$$Yield_t = \alpha_0 + \alpha_1 Yield_{t-1} + \alpha_2 Stock_{t-1} + \epsilon_t^Y$$
$$Stock_t = \delta_0 + \delta_1 Yield_{t-1} + \delta_2 Stock_{t-1} + \epsilon_t^S$$

$$\epsilon_t^Y = \alpha_3 MPNews_t + \alpha_4 NonMPNews_t$$
$$\epsilon_t^S = \delta_3 MPNews_t + \delta_4 NonMPNews_t$$

Alternative Method: PCA Based

- Extract two components that explain yield changes and equity returns on non-FOMC days
- Interpret components using same identifying assumptions
- High correlation no matter what bond yield is selected for identification purposes

	PC1	PC2	$\Delta 5yUST$	Eq Return	Sign Shock
PC1	1.00				
PC2	0.00	1.00			
$\Delta 5yUST$	0.78	**0.61**	1.00		
Eq Return	0.79	**-0.60**	0.26	1.00	
Sign Shock	0.04	**0.99**	0.65	-0.57	1.00

Event Analysis: Impact Lower Post-GFC

- "$MPNews_t$" is the PCA based shock estimated using 5y USTs (and equity returns)

$$\Delta y_{i,t} = \alpha + \beta_{i,1} MPNews_t + \beta_{i,2} MPNews_t * PostGFC_t + \beta_{i,3} PostGFC_t + \epsilon_{i,t}$$

	Eq Prices	10y UST	A-Rated Corp	NEER	FCI
$MPNews$ ($\beta_{i,1}$)	-0.838***	4.796***	4.635***	0.146***	0.063***
	(-16.26)	(16.95)	(17.73)	(5.01)	(33.63)
$MPNews * GFC$ ($\beta_{i,2}$)	0.165**	-1.850***	-1.913***	0.073	-0.007**
	(2.01)	(-3.74)	(-5.10)	(1.46)	(-2.23)
Observations	944	944	925	944	944

Robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Beyond Event-Day: Future Asset Price Changes Regressed on Same Shock

"$MPNews_t$" is the PCA based shock estimated using 5y USTs (and equity returns)

$$\Delta y_{t+h} = \alpha + \beta_{1,h} MPNews_t + \beta_{2,h} MPNews_t * PostGFC + PostGFC_t + \epsilon_{t+h}$$

where for equities, NEER, FCI:

$$\Delta y_{t+h} = ((y_{t+h}/y_{t-1}) - 1) * 100$$

while for corporate bond yields:

$$\Delta y_{t+h} = y_{t+h} - y_{t-1}$$

and h $\in [0, 60]$

Beyond Event-Day: Impacts Decay Quicker Post-GFC

Main Results Summary

- Impacts significantly lower on event-day and decay quickly post-GFC.
- These results are robust across:
  1. Shock identification method: PCA vs sign restriction
  2. And asset choices in identification method (2y - 30y)
  3. Sample choices and GFC definition
  4. Across assets (except NEER)
  5. Across announcements (analyze individually; consider PCE instead of CPI)
- Non-FOMC announcements important as there are 4x12 = 48 non-FOMC vs. 8 FOMC announcements in a year.
- Next: Investigate how these announcements' relation to bond markets changed.
- After That: Try to understand the underlying economic forces explaining this difference using a simple information framework

Bond Premium Around Non-FOMC Announcements

- Savor and Wilson (2013) show high bond premium around various macro announcements.
- Bond premium on macro announcements exists only pre-GFC.

$$\Delta y_{i,t} = \alpha + \beta_1 NonFOMC_t + \beta_2 NonFOMC_t * PostGFC_t + \beta_3 PostGFC_t + \epsilon_{i,t}$$

where $\Delta y_{i,t}$ is change in spread of bond of maturity "i" with 1m bill.

	1y	2y	5y	10y	30y
NonFOMC	1.23**	1.43**	1.46**	1.52**	1.52**
	(2.10)	(2.28)	(2.29)	(2.39)	(2.36)
NonFOMC*PostGFC	-1.11*	-1.36**	-1.55**	-1.61**	-1.54**
	(-1.85)	(-2.05)	(-2.21)	(-2.29)	(-2.17)
Observations	5,787	5,787	5,787	5,787	5,782

t-statistics computed via Newey-West regressions with 14 lags in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Interest Rate Uncertainty

- MOVE Index: Option implied vol. of UST yields (2y - 30y)
- Implied volatility falls significantly less post-GFC (84.6 pre vs. 45.1 post-GFC; unconditonal avg. of index is 90.3).
- Similar findings for equity market uncertainty (VIX and VXO indices)

	Pre-GFC	Post-GFC
FOMC	-2.18***	-1.73***
	(-4.70)	(-3.96)
Non-FOMC	-1.40***	-0.65***
	(-6.63)	(-3.83)

t-statistics via NW regressions (14 lags)
*** p<0.01, ** p<0.05, * p<0.1

Interest Rate Uncertainty & Monetary Policy Uncertainty

- Inability to reduce interest rate uncertainty may raise monetary policy uncertainty (MPU) (Husted, Rogers & Sun, 2019).
- Lower implied volatility and MPU lead to higher investment, GDP, employment etc (Husted, Rogers & Sun, 2019; Cremers, Fleckenstein & Gandhi, 2020).
- Thus, non-FOMC announcements' inability to reduce interest-rate/MPU uncertainty can have real effects, as there are many more non-FOMC announcements vs. FOMC announcements each year (48 vs. 8).

Model Setup: Standard as in Goldstein & Yang (2017)

- Informed (λ), uninformed ($1-\lambda$) and noise traders exchange a risky asset that has total supply of Q.
- Both informed and uninformed have CARA preferences with risk aversion γ.

- Macro announcement released
- All receive public signal about Fed economic outlook (θ).
  - $n = \theta + \epsilon_n;\ \epsilon_n \sim N(0, \tau_n^{-1})$
- Informed receive private signal about implied Fed monetary policy (y).
  - $m_i = y + \epsilon_{m,i};\ \epsilon_{m,i} \sim N(0, \tau_m^{-1})$

- Fed announcement released.
- Asset payoff (v) influenced by Fed's outlook (θ) and monetary policy (y).
  - $v = \theta + y$

- Priors: $\theta \sim N(\mu_\theta,\ \tau_\theta^{-1});\ y \sim N(\mu_y, \tau_y^{-1})$
- Noise traders demand x, where $x \sim N(0, \tau_x^{-1})$

Model Solution: How Price at $t = 1$ moves with Monetary Policy

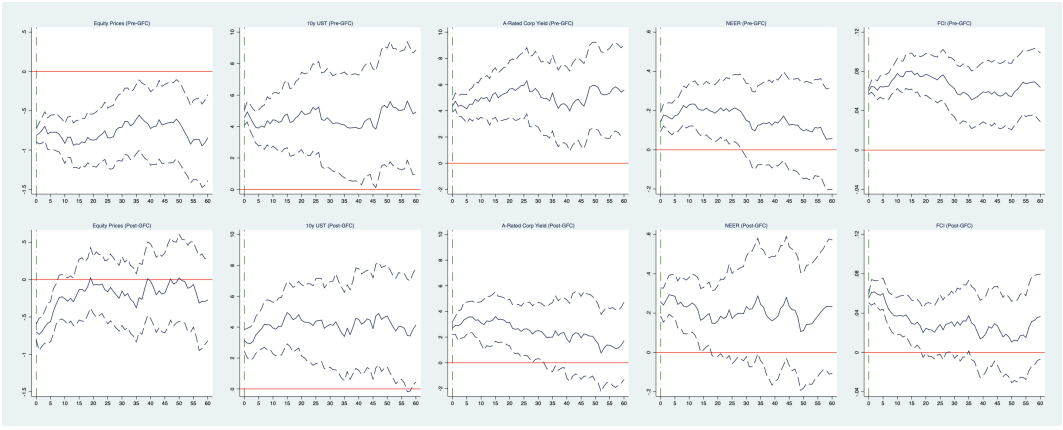
- Regressions of asset price changes against monetary news were essentially:

$$\frac{dP_1}{dy} = \frac{\lambda\tau_m + \rho^2\tau_x}{\lambda\tau_m + \tau_n + \rho^2\tau_x + \tau_y + \tau_\theta}$$

- What explains a fall in this partial post-GFC?
  1. Fall in MP Signal Precision (τ_m)? Perhaps. **UMPs harder to predict than CMP**
  2. Rise in MP Prior Precision (τ_y)? Probably not. **MPU indices of Baker, Bloom & Davis (2016) and Husted, Rogers & Sun (2019) are higher post-GFC**
  3. Rise in Outlook Prior Precision (τ_θ)? Probably not. **Pre-GFC also overlaps with the "Great Moderation"**
  4. Rise in Outlook Signal Precision (τ_n)? Probably not. **Doesn't appear that announcements have become more precise**

Overall Impact of Monetary News on Asset Prices Falls Post-GFC

Collectively Analyzing FOMC and NonFOMC Announcements



Conclusion

- In this paper I:
  - Show effect of monetary news on *NonFOMC days* declines post-GFC
  - Discuss it seems to be driven by a declining ability of markets to anticipate Fed actions
  - Develop a PCA based shock and to answer my research question

- **Main Takeaway:** The *inadvertent* byproduct of Unconventional MPs is the reduced ability of non-FOMC announcements to provide guidance regarding Fed actions. This can in turn affect the way monetary policy transmits to asset prices, and perhaps even to the real economy