Discussion of:

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Monetary Policy Tick by Tick

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This Paper: Summary

Objective: Measure the effects of monetary policy announcements on U.S. Treasury markets:

- yields (across a range of maturities)
- yield volatility
- trading volume
- bid-ask spreads
- presence of bid & ask quotes

Findings:

1. Some findings that are not surprising, but important to document
2. An eclectic collection of findings that are surprising
3. One main finding that is surprising, but needs more work

Background

Some highlights from the literature:

- Cook-Hahn (1989 JME)
  - measure effect of federal funds target changes on bond yields
- Fleming-Remolona (1997 FRBNYEPR, 1999 JF)
  - measure effect of surprise component of macroeconomic announcements on 5-yr yield, volume, using intraday data
- Kuttner (2001 JME)
  - measures effect of surprise component of federal funds target changes on yield curve
- Gurkaynak, Sack, Swanson (2005 IJCB)
  - measure effect of surprise component of federal funds target changes on yield curve and stock market, using intraday data
  - quantitatively measure effect of FOMC *statements* on yield curve and stock market, using factor analysis (avoids subjective analysis of statement texts)

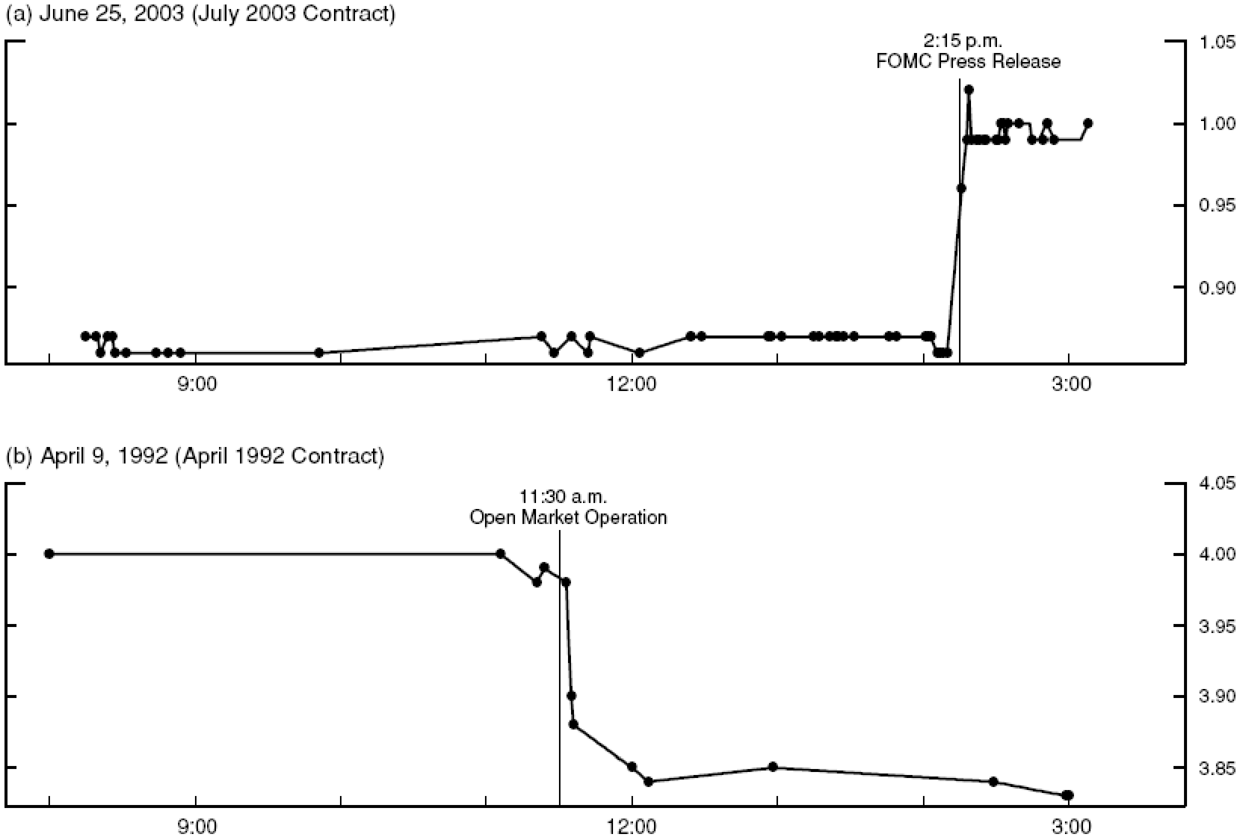
Some Comparisons to GSS

GSS	This Paper
Intraday announcement times from Board records	Intraday announcement times from Dow Jones/Bloomberg
Intraday Treasury data from GovPX, Bloomberg	Intraday Treasury data from GovPX
Tick data on yields	Tick data on yields, volume, bid quotes, ask quotes
Show that FOMC statements increasingly have become the driver of bond yield responses to FOMC announcements	Ignore statements, look for alternatives

Intraday Data

Markets incorporate information quickly:

Figure 1. Intraday Trading in Federal Funds Futures Contracts

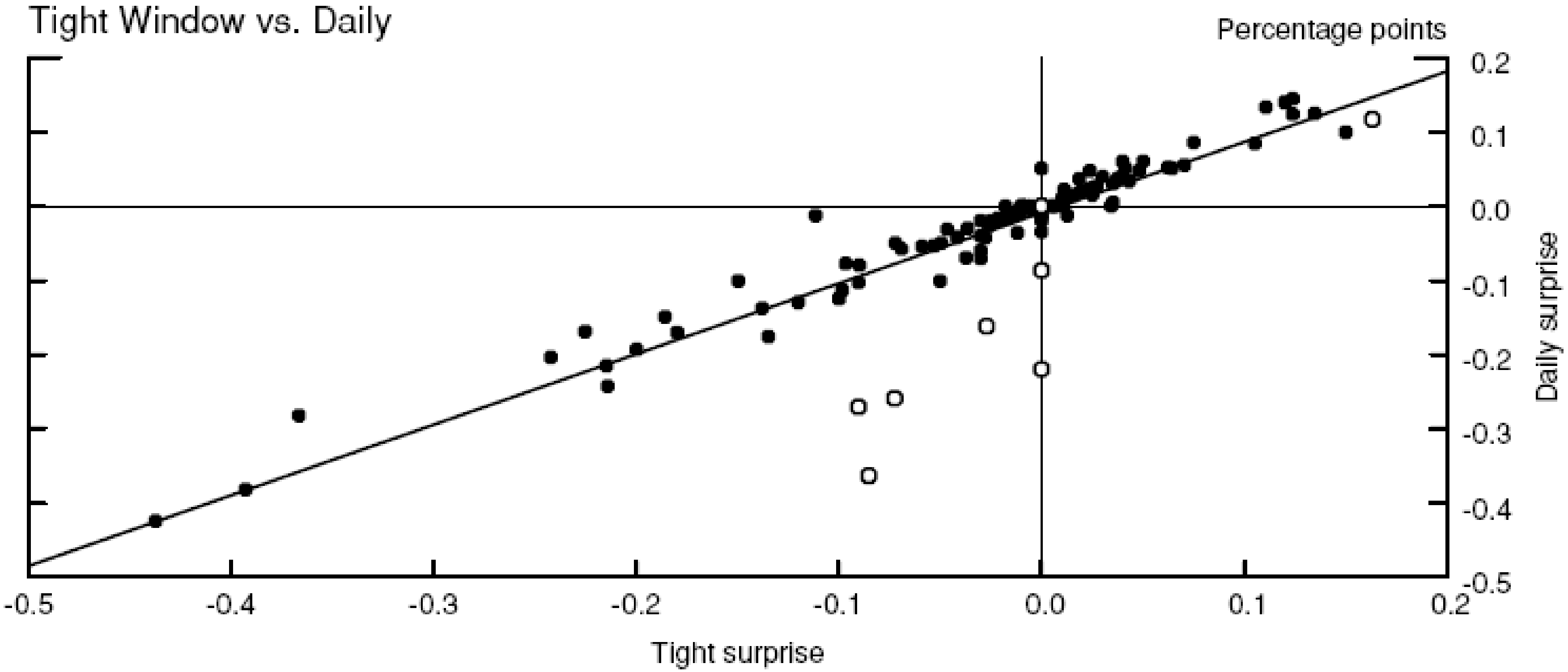


source: Gurkaynak, Sack, and Swanson (2005)

Intraday Data

Intraday data increases precision, can eliminate bias:

Figure 2. Measures of Surprises in the Federal Funds Rate Target



hollow circles denote dates of Employment Reports

source: Gurkaynak, Sack, and Swanson (2005)

1. Findings That Are Not Surprising

In response to FOMC announcements:

- Volatility is higher
- Trading volume is higher
- Bid-Ask spreads are wider

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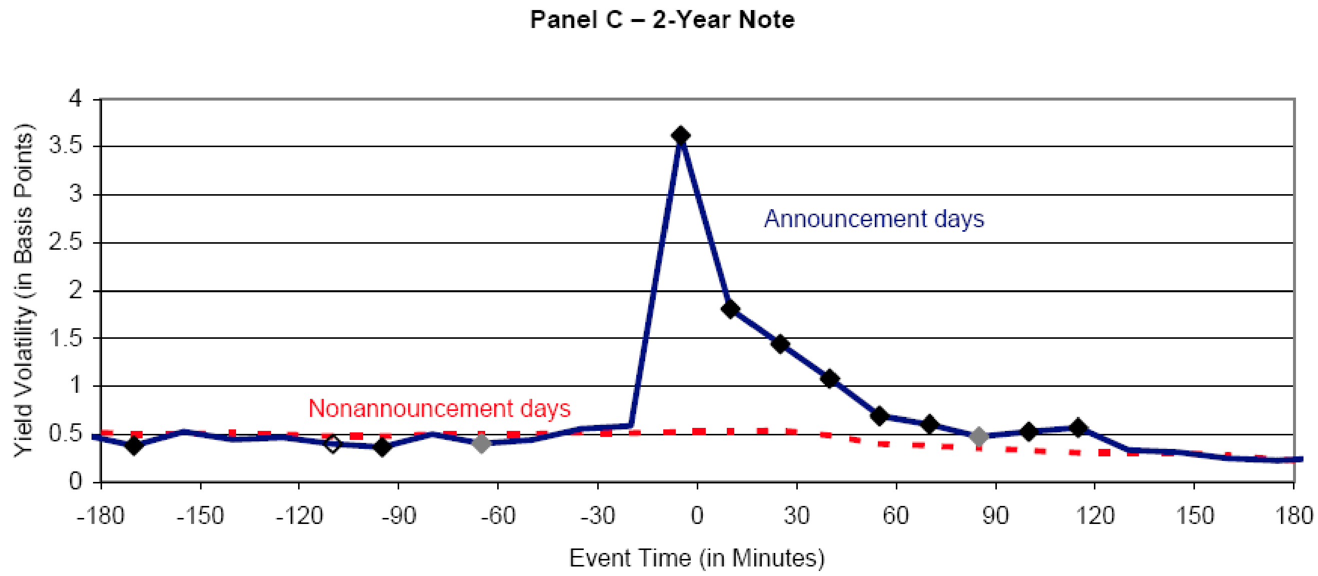
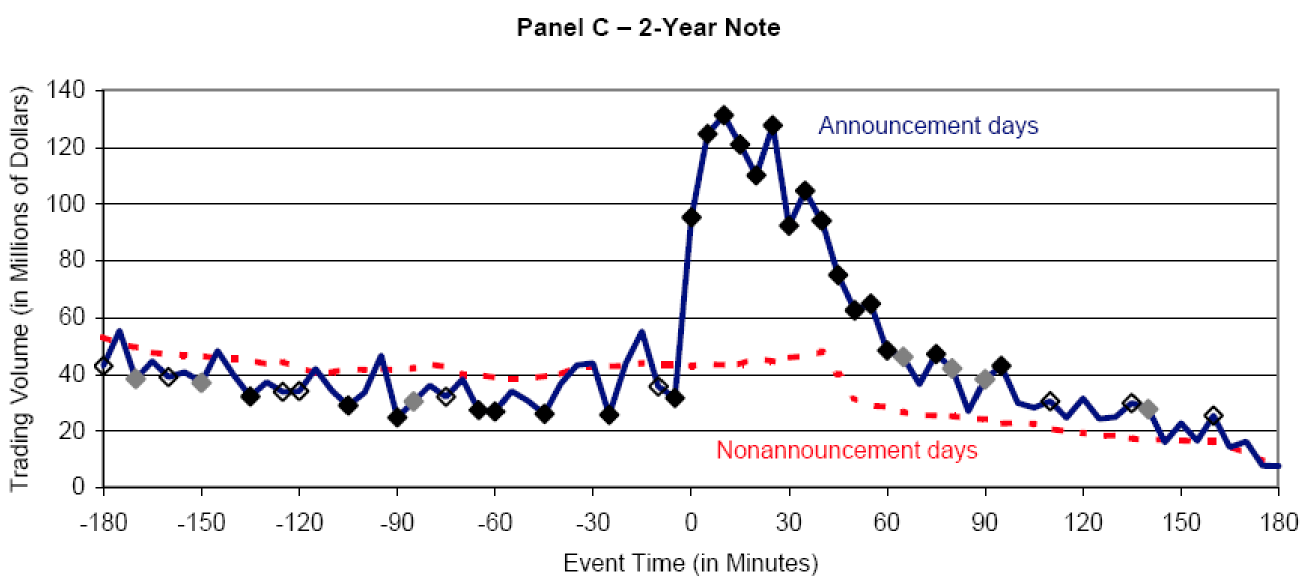
Yield Volatility:



Trading Volume:



1. Findings That Are Not Surprising

In response to FOMC announcements:

- Volatility is higher
- Trading volume is higher
- Bid-Ask spreads are wider

- Results are similar to those of Fleming-Remolona (1997) for macro data releases
- Corresponds to common idea of market *digestion* of the announcement
- GSS noted this feature for FOMC announcements as well
  - in particular that the effects of *statements* seem to take longer for markets to digest than the effects of federal funds rate changes

2. Some Eclectic Findings That Are Surprising

- Momentum/sluggishness in bond yield responses to announcements

Table 4 – Effects of Fed Funds Rate Surprises on Yields around FOMC Announcements

Security	Interval of Analysis						
	(-35, -5)	(-5, 25)	(25, 55)	(55, 1:25)	(1:25, 1:55)	(1:55, 2:25)	(2:25, 2:55)
3-month bill	-0.013	0.564***	0.086***	0.014	0.041*	0.015*	0.027***
	(0.009)	(0.054)	(0.017)	(0.025)	(0.021)	(0.008)	(0.009)
6-month bill	-0.005	0.472***	0.119***	0.030**	0.041***	0.012	0.026***
	(0.011)	(0.070)	(0.025)	(0.013)	(0.015)	(0.009)	(0.009)
2-year note	0.016	0.414***	0.057	0.002	0.039**	-0.031*	0.019*
	(0.014)	(0.103)	(0.041)	(0.024)	(0.018)	(0.017)	(0.011)
5-year note	0.037***	0.238**	0.034	-0.018	0.017	-0.024*	0.023
	(0.014)	(0.107)	(0.058)	(0.024)	(0.012)	(0.011)	(0.016)
10-year note	0.030**	0.060	0.032	-0.013	0.020	-0.005	0.014
	(0.013)	(0.084)	(0.073)	(0.029)	(0.018)	(0.009)	(0.023)

Table 5 – Correlations of Yield Changes around FOMC Announcements

Security	Interval of Comparison					
	(-35, -5)	(25, 55)	(55, 1:25)	(1:25, 1:55)	(1:55, 2:25)	(2:25, 2:55)
3-month bill	-0.15	0.38***##	0.21**###	0.29***	0.08##	0.44***
6-month bill	-0.21**	0.43***###	0.30***##	0.35***	0.13##	0.39***#
2-year note	0.08	0.39***###	0.15	0.06	0.04	0.27**
5-year note	0.12	0.46***##	0.06	0.01	0.06	0.51***###
10-year note	-0.13	0.41***##	0.18#	-0.04	-0.20	0.38***###

- However, bid-ask spreads eliminate any profits from trading this strategy

2. Some Eclectic Findings That Are Surprising

- Treasury market precognition?

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- Weak response of 10-year yield (in contrast to GSS, Kuttner, others)
  - coefficient should be about .125, significant at 1% level

- Both anomalies could be explained by small timing errors in the Bloomberg/Dow Jones announcements
  - weak 10-year yield response could also be due to post-2001 problems with GovPX data)

2. Some Eclectic Findings That Are Surprising

August 21, 2001	2:13 PM	Yes	-25 bp	3.50%
September 17, 2001	8:20 AM	No	-50 bp	3.00%
October 2, 2001	2:15 PM	Yes	-50 bp	2.50%
November 6, 2001	2:20 PM	Yes	-50 bp	2.00%
December 11, 2001	2:14 PM	Yes	-25 bp	1.75%
January 30, 2002	2:16 PM	Yes	0 bp	
March 19, 2002	2:19 PM	Yes	0 bp	
May 7, 2002	2:14 PM	Yes	0 bp	
June 26, 2002	2:13 PM	Yes	0 bp	
August 13, 2002	2:14 PM	Yes	0 bp	
September 24, 2002	2:12 PM	Yes	0 bp	
November 6, 2002	2:14 PM	Yes	-50 bp	1.25%
December 10, 2002	2:13 PM	Yes	0 bp	
January 29, 2003	2:16 PM	Yes	0 bp	
March 18, 2003	2:15 PM	Yes	0 bp	
May 6, 2003	2:13 PM	Yes	0 bp	
June 25, 2003	2:16 PM	Yes	-25 bp	1.00%
August 12, 2003	2:15 PM	Yes	0 bp	
September 16, 2003	2:19 PM	Yes	0 bp	
October 28, 2003	2:14 PM	Yes	0 bp	
December 9, 2003	2:14 PM	Yes	0 bp	
January 28, 2004	2:14 PM	Yes	0 bp	
March 16, 2004	2:15 PM	Yes	0 bp	
May 4, 2004	2:16 PM	Yes	0 bp	
June 30, 2004	2:18 PM	Yes	25 bp	1.25%
August 10, 2004	2:15 PM	Yes	25 bp	1.50%

3. Paper's Main Surprising Result

- Ex ante slope of yield curve correlated with market response to FOMC announcement
- One interpretation: risk premia!

But:

- *Absolute value* of slope of yield curve
  - slope of yield curve (not abs. value) correlated with business cycles
  - literature typically focuses on business-cycle-related risk premia
  - story for why absolute value should matter is weak
    - story: when yield curve is very steep or flat, Fed could be "behind the curve", a change in policy could lead to big gain in credibility
    - but Fed can be "behind the curve" at any point in business cycle, not clear why yield curve slope should matter ex ante
  - significance driven by just a few observations (particularly Jan 3, '01)
- Low R^2 (.1 or .2, compared to .8 or .9 in GSS)

3. Paper's Main Surprising Result

Table 3 – Explaining Yield Changes around FOMC Announcements

Panel A: Hourly Data							
Security	Constant		Surprise		Surprise * Spread		Adjusted R^2
3-month bill	-0.006**	(0.003)	0.685***	(0.083)	-0.017	(0.041)	0.82
6-month bill	-0.007*	(0.004)	0.721***	(0.101)	-0.102**	(0.049)	0.67
2-year note	-0.001	(0.007)	0.791***	(0.118)	-0.282***	(0.054)	0.31
5-year note	0.000	(0.007)	0.683***	(0.116)	-0.338***	(0.068)	0.19
10-year note	-0.002	(0.007)	0.479***	(0.119)	-0.362***	(0.092)	0.13

3. Paper's Main Surprising Result

Table 5: Response of Asset Prices to Target and Path Factors

	One Factor			Two Factors			
	Constant (std err)	*Target Factor (std err)*	R^2	*Constant (std err)*	*Target Factor (std err)*	*Path Factor (std err)*	R^2
MP Surprise	-0.021*** (0.003)	1.000*** (0.047)	.91	-0.021*** (0.003)	1.000*** (0.048)	0.001 (0.026)	.91
1-Year-Ahead Eurodollar Future	-0.018*** (0.006)	0.555*** (0.076)	.36	-0.017*** (0.001)	0.551*** (0.017)	0.551*** (0.014)	.98
S&P 500	-0.008 (0.041)	-4.283*** (1.083)	.37	-0.008 (0.040)	-4.283*** (1.144)	-0.966 (0.594)	.40
2-Year Note	-0.011** (0.005)	0.485*** (0.080)	.41	-0.011*** (0.002)	0.482*** (0.032)	0.411*** (0.023)	.94
5-Year Note	-0.006 (0.005)	0.279*** (0.078)	.19	-0.006** (0.002)	0.276*** (0.044)	0.369*** (0.035)	.80
10-Year Note	-0.004 (0.004)	0.130** (0.059)	.08	-0.004* (0.002)	0.128*** (0.039)	0.283*** (0.025)	.74
5-Year Forward Rate 5 Years Ahead	0.001 (0.003)	-0.098** (0.049)	.06	0.001 (0.003)	-0.099** (0.047)	0.157*** (0.028)	.34

Note: Sample is all monetary policy announcements from July 1991 to December 2004 (January 1990 to December 2004 for S&P 500). Target factor and path factor are defined in the main text. Heteroskedasticity consistent standard errors reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% respectively. See text for details.

source: Gurkaynak, Sack, and Swanson (2005)

Final Suggestions

- The paper feels a little bit schizophrenic
  - Is this a paper about market microstructure, or monetary policy?
- At times, the paper feels like an eclectic collection of results
  - Try to tie these together, give the paper more sense of a “big picture”
- Extend sample back to 1991
  - FP have the data, there is no reason not to

Final Suggestions

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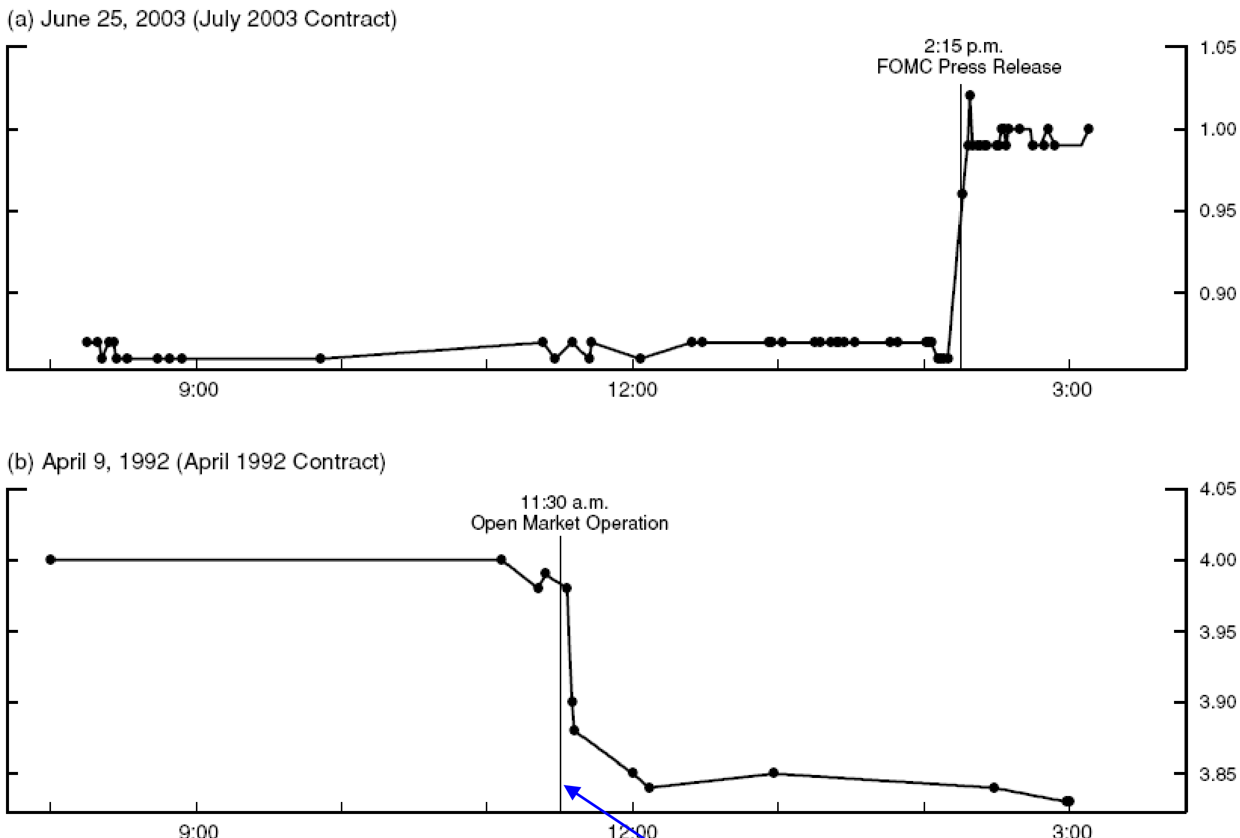

prior to 1994, FOMC announcements were typically made through open market operation at 11:30am, and markets were well aware of this

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- Extend sample back to 1991
  - FP have the data, there is no reason not to
- Extend data beyond GovPX (GovPX coverage post-2001 not very good)
- Should try to control for effects of FOMC *statements* (like GSS)
  - FOMC decision for the funds rate is no longer a surprise
  - Instead, news is communication regarding *future path* of policy
  - Chairman Bernanke is likely to reinforce this trend