

Tables for Macroeconomic Effects of FOMC Forward Guidance*

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POST CONFERENCE DRAFT

August 24, 2012

Abstract

This document reproduces the paper's tables. Those tables listed in the appendix contain results referenced in the text.

JEL Classification Number: E5

Keywords: Expectations, Monetary Policy, Zero Lower Bound, Forward Guidance

*We are grateful to Marco Bassetto and Spencer Krane for many stimulating discussions on forward guidance and to Charles Calomiris, Hesna Genay, David Reifschneider, David Romer, Justin Wolfers, John Williams, and Michael Woodford for comments on earlier drafts. We thank Refet Gürkaynak and Eric Swanson for sharing their data with us. Jacob Fabina, Matt Olson, and Christine Ostrowski provided expert research assistance. The views expressed herein are those of the authors and do not necessarily represent those of the Federal Reserve Bank of Chicago, the Federal Reserve System, or its Board of Governors.

Table 1: Percentage of Expected Rate Changes Due to Target and Path Factors: Pre Crisis

Contract for	February 1990-June 2007		February 1994-June 2007	
	Target Factor	Path Factor	Target Factor	Path Factor
Current quarter	98	0	97	0
Next quarter	82	14	74	22
Two quarters hence	50	47	31	67
Three quarters hence	36	63	18	81
Four quarters hence	21	77	7	90

Note: Table entries are percentage of variation in the indicated expected future funds rate explained by each factor. The expected interest rates are measured using federal funds futures prices and Eurodollar futures prices as described in the text.

Table 4: Recent Monetary Policy Forward Guidance

Date	Rate	Forward looking language in statement
8/7/2007	5.25	the Committee's predominant policy concern remains the risk that inflation will fail to moderate as expected.
8/17/2007	5.25	the downside risks to growth have increased appreciably
9/18/2007*	4.75	Developments in financial markets . . . have increased the uncertainty surrounding the economic outlook
10/31/2007	4.50	the upside risks to inflation roughly balance the downside risks to growth
12/11/2007	4.25	Recent developments . . . have increased the uncertainty surrounding the outlook for economic growth and inflation.
1/22/2008*	3.50	Appreciable downside risks to growth remain.
1/30/2008	3.00	downside risks to growth remain
3/18/2008	2.25	same
4/30/2008	2.00	The substantial easing of monetary policy to date, combined with ongoing measures to foster market liquidity, should help to promote moderate growth over time and to mitigate risks to economic activity.
6/25/2008	2.00	Although downside risks to growth remain, they appear to have diminished somewhat, and the upside risks to inflation and inflation expectations have increased.
8/5/2008	2.00	Although downside risks to growth remain, the upside risks to inflation are also of significant concern to the Committee.
9/16/2008	2.00	The downside risks to growth and the upside risks to inflation are both of significant concern to the Committee.

Table 4: Recent Monetary Policy Forward (continued)

Date	Rate	Forward looking language in statement
10/8/2008*	1.50	Incoming economic data suggest that the pace of economic activity has slowed markedly in recent months. Moreover, the intensification of financial market turmoil is likely to exert additional restraint on spending, partly by further reducing the ability of households and businesses to obtain credit. Inflation has been high, but the Committee believes that the decline in energy and other commodity prices and the weaker prospects for economic activity have reduced the upside risks to inflation.
10/29/2008	1.00	downside risks to growth remain.
11/25/2008*	0-25 bp	purchases (of \$100b GSEs and \$500b MBS) ... are expected to take place over several quarters
12/16/2008	0-25 bp	... the Committee anticipates that weak economic conditions are likely to warrant exceptionally low levels of the federal funds rate for some time...The focus of the Committee's policy going forward will be to ... stimulate the economy through open market operations and other measures that sustain the size of the Federal Reserve's balance sheet at a high level ... The Committee is also evaluating the potential benefits of purchasing longer-term Treasury securities.
1/28/2009	0-25 bp	The Committee continues to anticipate that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for some time. The Committee also is prepared to purchase longer-term Treasury securities if evolving circumstances indicate that such transactions would be particularly effective in improving conditions in private credit markets.
3/18/2009	0-25 bp	... the Committee will maintain the target range for the federal funds rate at 0 to 1/4 percent and anticipates that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period. The Committee sees some risk that inflation could persist for a time below rates that best foster economic growth and price stability in the longer term ... The Committee decided today to increase the size of the Federal Reserve's balance sheet further by purchasing up to an additional \$750 billion of (MBS), bringing its total purchases of these securities to up to \$1.25 trillion this year, and to increase its purchases of (GSE) debt this year by up to \$100 billion to a total of up to \$200 billion ... the Committee decided to purchase up to \$300 billion of longer-term Treasury securities over the next six months. [QE1]
4/29/2009	0-25 bp	Committee sees some risk that inflation could persist for a time below rates that best foster economic growth and price stability in the longer term. ... economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period
6/24/2009	0-25 bp	economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period ... the Committee expects that inflation will remain subdued for some time.

Table 4: Recent Monetary Policy Forward (continued)

Date	Rate	Forward looking language in statement
8/12/2009	0-25 bp	Although economic activity is likely to remain weak for a time, the Committee continues to anticipate that policy actions to stabilize financial markets and institutions, fiscal and monetary stimulus, and market forces will contribute to a gradual resumption of sustainable economic growth in a context of price stability. . . substantial resource slack is likely to dampen cost pressures, and the Committee expects that inflation will remain subdued for some time.
9/23/2009	0-25 bp	economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period . . . (MBS & GSE purchases will finish by) end of the first quarter of 2010.
11/4/2009	0-25 bp	economic conditions... are likely to warrant exceptionally low levels of the federal funds rate for an extended period (and will complete purchases of GSE debt of about \$175b)
12/16/2009	0-25 bp	economic conditions... are likely to warrant exceptionally low levels of the federal funds rate for an extended period
1/27/2010	0-25 bp	same
3/16/2010	0-25 bp	same
4/28/2010	0-25 bp	same
6/23/2010	0-25 bp	same
8/10/2010	0-25 bp	same + the Committee will keep constant the Federal Reserve's holdings of securities at their current level by reinvesting principal payments from agency debt and agency mortgage backed securities in longer-term Treasury securities.
9/21/2010	0-25 bp	same + The Committee also will maintain its existing policy of reinvesting principal payments from its securities holdings.
11/3/2010	0-25 bp	same + In addition, the Committee intends to purchase a further \$600 billion of longer-term Treasury securities by the end of the second quarter of 2011 [QE2]
12/14/2010	0-25 bp	same
1/26/2011	0-25 bp	same
3/15/2011	0-25 bp	same
4/27/2011	0-25 bp	same
6/22/2011	0-25 bp	same
8/9/2011	0-25 bp	economic conditions... are likely to warrant exceptionally low levels of the federal funds rate at least through mid-2013
9/21/2011	0-25 bp	same
11/2/2011	0-25 bp	same
12/13/2011	0-25 bp	same

Note: Dates labeled with an asterisk indicate the statement came between regularly scheduled FOMC meetings. All statements except the Board of Governors press release of 11/25/2008 were issued by the FOMC.

Table 2: Asset Price Responses to Target and Path Factors: Pre Crisis

	February 1990-June 2007			February 1994-June 2007		
	Target Factor	Path Factor	R^2	Target Factor	Path Factor	R^2
Two-Year Note	0.474*** (0.030)	2.338*** (0.109)	0.878	0.287*** (0.034)	2.299*** (0.121)	0.859
Five-Year Note	0.319*** (0.043)	2.372*** (0.139)	0.828	0.141** (0.061)	2.316*** (0.130)	0.820
Ten-Year Note	0.157*** (0.050)	1.935*** (0.141)	0.723	-0.014 (0.073)	1.858*** (0.123)	0.734
Aaa Corporate Bond	0.040 (0.033)	1.042*** (0.138)	0.442	-0.003 (0.045)	1.158*** (0.148)	0.482
Baa Corporate Bond	0.051* (0.028)	1.053*** (0.121)	0.497	-0.018 (0.045)	1.070*** (0.136)	0.491

Note: Both samples exclude September 2001. Table entries are coefficients from regressing changes in yields of the indicated asset on the target and path factors and the corresponding R^2 . Robust standard errors are in parentheses, and we denote statistical significance at the 10, 5, and 1 percent levels with *, **, and ***.

Table 3: Forecast Responses to Target and Path Factors: Pre Crisis

	February 1990-June 2007			February 1994-June 2007		
	Target Factor	Path Factor	R^2	Target Factor	Path Factor	R^2
Unemployment						
Current Quarter	-0.21*** (0.08)	-0.25 (0.20)	0.07	-0.01 (0.08)	-0.28 (0.23)	0.01
Next Quarter	-0.18** (0.09)	-0.41 (0.25)	0.05	0.07 (0.10)	-0.54** (0.26)	0.03
2 Quarters Hence	-0.27*** (0.08)	-0.44* (0.24)	0.09	-0.06 (0.11)	-0.54* (0.28)	0.03
3 Quarters Hence	-0.26*** (0.09)	-0.27 (0.28)	0.07	-0.03 (0.09)	-0.64** (0.25)	0.04
CPI Inflation						
Current Quarter	0.25 (0.33)	1.60 (1.21)	0.02	-0.01 (0.08)	-0.28 (0.23)	0.01
Next Quarter	0.14 (0.11)	1.00 (0.82)	0.03	0.25** (0.13)	0.40 (0.40)	0.03
2 Quarters Hence	0.11 (0.14)	-0.20 (0.42)	0.01	0.14 (0.10)	-0.12 (0.53)	0.01
3 Quarters Hence	0.13 (0.20)	0.23 (0.67)	0.01	0.04 (0.14)	0.90 (0.81)	0.03

Note: Both samples exclude September 2001. Table entries are coefficients from regressing changes in forecasts of the indicated variable on the target and path factors and the corresponding R^2 . Robust standard errors are in parentheses, and we denote statistical significance at the 10, 5, and 1 percent levels with *, **, and ***.

Table 5: Percentage of Expected Rate Changes Due to Target and Path Factors: Post Crisis

	August 2007-December 2011	
	Target Factor	Path Factor
Current quarter	94	0
Next quarter	98	0
Two quarters hence	93	3
Three quarters hence	57	35
Four quarters hence	44	53
Five quarters hence	31	68
Six quarters hence	16	79

Note: Table entries are percentages of variation in the indicated expected future funds rate due to each factor.

Table 6: Responses of Asset Prices to Target and Path Factors since the Financial Crisis

	August 2007-December 2011		
	Target Factor	Path Factor	R^2
Two-Year Note	0.592*** (0.096)	24.145*** (5.379)	0.788
Five-Year Note	0.404*** (0.143)	30.265*** (5.572)	0.659
Ten-Year Note	0.250* (0.131)	29.552*** (3.484)	0.575
Aaa Corporate Bond	0.058 (0.079)	21.253*** (2.865)	0.451
Baa Corporate Bond	0.065 (0.085)	18.749*** (3.945)	0.338

Note: Table entries are coefficients from regressing changes in yields of the indicated asset on the target and path factors and the corresponding R^2 . Robust standard errors are in parentheses, and we denote statistical significance at the 10, 5, and 1 percent levels with *, **, and ***.

Table 7: Forecast Responses to Target and Path Factors since the Financial Crisis

	August 2007-December 2011		
	Target Factor	Path Factor	R^2
Unemployment			
Current Quarter	-0.21 (0.19)	0.39 (10.40)	0.02
Next Quarter	-0.29 (0.26)	0.53 (15.91)	0.03
2 Quarters Hence	-0.33 (0.34)	3.72 (20.73)	0.04
3 Quarters Hence	-0.35 (0.39)	5.14 (24.59)	0.03
CPI Inflation			
Current Quarter	1.80 (1.82)	69.18 (140.71)	0.07
Next Quarter	0.53 (0.64)	14.68 (48.07)	0.04
2 Quarters Hence	-0.01 (0.12)	-0.60 (9.26)	0.00
3 Quarters Hence	0.07 (0.11)	7.83 (9.77)	0.03

Note: Table entries are coefficients from regressing changes in forecasts of the indicated variable on the target and path factors and the corresponding R^2 . Robust standard errors are in parentheses, and we denote statistical significance at the 10, 5, and 1 percent levels with *, **, and ***.

Table 8: Asset Price Responses to Interest-Rate-Rule Forward Guidance Shocks

	Const.	$\nu_{t,0}$	$\nu_{t,1}$	$\nu_{t,2}$	$\nu_{t,3}$	$\nu_{t,4}$	R^2
2-Year Note	5.90 (4.47)	1.08*** (0.37)	1.98*** (0.22)	1.56*** (0.33)	0.70* (0.42)	0.89* (0.50)	0.77
5-Year Note	3.46 (4.31)	0.61* (0.36)	1.83*** (0.21)	1.91*** (0.32)	1.43*** (0.40)	1.25** (0.49)	0.78
10-Year Note	1.57 (4.44)	0.38 (0.37)	1.48*** (0.22)	1.60*** (0.33)	1.41*** (0.42)	1.29*** (0.50)	0.70
Aaa Corporate Bond	0.60 (4.63)	0.19 (0.38)	0.65*** (0.23)	0.75** (0.34)	0.86** (0.43)	0.17 (0.52)	0.33
Baa Corporate Bond	0.57 (4.01)	0.13 (0.33)	0.69*** (0.20)	0.71** (0.30)	1.00*** (0.38)	0.37 (0.45)	0.42

Note: The regression sample extends from 1996:I through 2007:II. The main text defines the independent variables $\nu_{0,t}, \dots, \nu_{4,t}$. Standard errors are in parenthesis; and *, ** and *** indicate significance at 10 percent, 5 percent, and 1 percent respectively.

Table 9: Forecast Revision Responses to Interest-Rate-Rule Forward Guidance

	Constant	$\nu_{t,0}$	$\nu_{t,1}$	$\nu_{t,2}$	$\nu_{t,3}$	$\nu_{t,4}$	R^2
$\hat{u}_t^{-1} - \hat{u}_t^0$	-6.82*** (2.47)	-0.37* (0.20)	-0.20 (0.12)	-0.13 (0.18)	-0.38 (0.23)	0.46 (0.28)	0.28
$\hat{u}_{t+1}^0 - \hat{u}_{t+1}^1$	-4.02 (2.92)	-0.34 (0.24)	-0.30** (0.14)	-0.05 (0.22)	-0.27 (0.27)	0.54 (0.33)	0.27
$\hat{u}_{t+2}^1 - \hat{u}_{t+2}^2$	-3.39 (2.93)	-0.46* (0.24)	-0.47*** (0.14)	-0.02 (0.22)	-0.20 (0.27)	0.30 (0.33)	0.34
$\hat{u}_{t+3}^2 - \hat{u}_{t+3}^3$	-2.86 (2.65)	-0.31 (0.22)	-0.47*** (0.13)	-0.00 (0.20)	-0.07 (0.25)	0.26 (0.30)	0.34
$\pi_t^{-1} - \pi_t^0$	1.83 (5.55)	-0.35 (0.46)	0.23 (0.27)	-0.08 (0.41)	-0.61 (0.52)	-0.09 (0.63)	0.05
$\pi_{t+1}^0 - \pi_{t+1}^1$	-5.20* (2.91)	-0.18 (0.24)	0.17 (0.14)	0.05 (0.21)	-0.44 (0.27)	0.07 (0.33)	0.10
$\pi_{t+2}^1 - \pi_{t+2}^2$	-7.55*** (2.69)	-0.05 (0.22)	0.15 (0.13)	0.11 (0.20)	0.35 (0.25)	-0.02 (0.30)	0.10
$\pi_{t+3}^2 - \pi_{t+3}^3$	-5.32** (2.11)	-0.25 (0.18)	0.18* (0.10)	-0.07 (0.16)	0.09 (0.20)	-0.04 (0.24)	0.14

Note: The regression sample extends from 1996:I through 2007:II. The main text defines the independent variables $\nu_{0,t}, \dots, \nu_{4,t}$. Standard errors are in parenthesis; and *, ** and *** indicate significance at 10 percent, 5 percent, and 1 percent respectively.

Table 10: Summary Statistics

Standard Deviations (in basis points)					
	$\nu_{t,0}$	$\nu_{t,1}$	$\nu_{t,2}$	$\nu_{t,3}$	$\nu_{t,4}$
	12	20	13	11	9
Correlations					
	$\nu_{t,0}$	$\nu_{t,1}$	$\nu_{t,2}$	$\nu_{t,3}$	$\nu_{t,4}$
$\nu_{t,0}$	1.00				
$\nu_{t,1}$	0.02	1.00			
$\nu_{t,2}$	-0.05	0.22	1.00		
$\nu_{t,3}$	-0.32	0.03	-0.17	1.00	
$\nu_{t,4}$	-0.32	-0.26	-0.22	0.16	1.00

Table 11: Factor Model Parameter Estimates

	$\nu_{t,0}$	$\nu_{t,1}$	$\nu_{t,2}$	$\nu_{t,3}$	$\nu_{t,4}$
Factor Loading	-5	-6	-4	3	7
Idiosyncratic Error's Standard Deviation	11	19	13	10	6

Note: All parameter estimates are expressed in basis points.