

Replication file for: Anchoring the yield curve: term structure forecasting using survey data

DNS model in state space form

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Maturity	$h = 3$	$h = 6$	$h = 9$	$h = 12$
$\tau = 3$	0.79	0.83	0.89	0.98
$\tau = 6$	0.79	0.86	0.93	1.00
$\tau = 12$	1.01	1.03	1.09	1.14
$\tau = 25$	1.23	1.23	1.33	1.38
$\tau = 60$	1.33	1.35	1.59	1.72
$\tau = 120$	1.31	1.16	1.32	1.50

Table 1: MSFE of Blue Chip survey forecasts (relative to the Random Walk forecast)

```

if (!require("pacman")) {
  install.packages("pacman", repos = "https://cran.rstudio.com")
  require(pacman)
}

## Loading required package: pacman

pkg_from_cran = c(
  "tikzDevice",
  "Hmisc",
  "RColorBrewer",
  "RcppRoll",
  "dplyr",
  "forecast",
  "ggplot2",
  "ggthemes",
  "lubridate",
  "purrr",
  "reshape2",
  "sandwich",
  "xts"
)

p_load(char = pkg_from_cran)

## Patch latex form Hmisc to work with markdown
if (!is.na(match("latex.R", list.files("."))))
  source("latex.R")

```

The curvature factor closely matches the dynamics of its empirical counterpart: the difference between the two series has a mean of -12.4153349 basis points and a standard deviation of 19.1797888 basis points. Also, the slope factor matches very closely the empirical proxy for the slope with a correlation of 0.9799311. The level factor shows instead a marked departure from the empirical counterpart. Importantly, this departure is most noticeable in the period 2000-2011. In particular, from January 1985 to December 2001, the correlation between

Maturity	$h = 3$	$h = 6$	$h = 9$	$h = 12$
$\tau = 3$	0.42	0.58	0.69	0.81
$\tau = 6$	0.64	0.74	0.83	0.93
$\tau = 12$	0.87	0.90	0.97	1.06
$\tau = 24$	1.07	1.06	1.13	1.21
$\tau = 60$	1.10	1.12	1.23	1.32
$\tau = 120$	1.25	1.26	1.53	1.71

Table 2: MSFE of Blue Chip survey forecasts (relative to the Yields-only DNS forecasts)

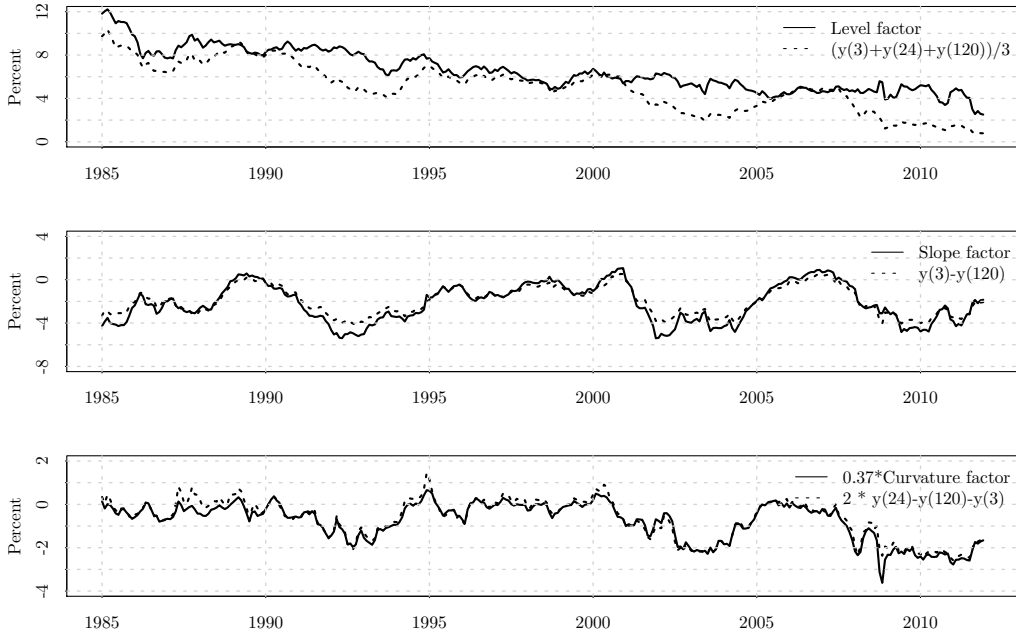


Figure 1: DNS factors and empirical counterparts. The first factor β_{1t} controls the yield curve level, as it can be verified that $\lim_{\tau \rightarrow \infty} y_t(\tau) = \beta_{1t}$. The second factor β_{2t} is related to the yield curve slope, defined as the difference between the 10-year and three-month yields. The third factor β_{3t} governs the curvature of the yield curve, defined as twice the two-year yield minus the sum of the 10-year and three-month yields.

Maturity (months)	Mean	SD	Min	Max	MAE	RMSE	$\hat{\rho}(1)$	$\hat{\rho}(12)$	$\hat{\rho}(30)$
3	-2.1e-01	2.4e-01	-1.6e+00	4.7e-01	1.0e-01	3.2e-01	0.86	0.29	-0.0385
6	-4.9e-02	6.3e-02	-2.7e-01	2.2e-01	6.4e-03	8.0e-02	0.86	0.29	-0.0448
9	-1.7e-02	1.9e-02	-7.7e-02	5.7e-02	6.8e-04	2.6e-02	0.87	0.33	-0.0377
12	-4.3e-08	4.8e-08	-2.2e-07	1.3e-07	4.1e-15	6.4e-08	0.44	0.25	0.1146
15	6.7e-03	6.2e-03	-1.2e-02	2.9e-02	8.4e-05	9.2e-03	0.89	0.39	-0.0064
18	5.9e-03	5.2e-03	-7.7e-03	2.5e-02	6.1e-05	7.8e-03	0.90	0.41	0.0126
21	1.8e-09	6.0e-08	-2.8e-07	2.8e-07	3.6e-15	6.0e-08	0.41	0.11	0.0080
24	-8.9e-03	7.3e-03	-3.6e-02	5.8e-03	1.3e-04	1.2e-02	0.91	0.45	0.0493
30	-3.0e-02	2.4e-02	-1.2e-01	2.0e-02	1.5e-03	3.8e-02	0.91	0.47	0.0803
36	-5.0e-02	3.8e-02	-1.9e-01	3.5e-02	3.9e-03	6.3e-02	0.92	0.48	0.1054
48	-7.1e-02	5.3e-02	-2.6e-01	5.4e-02	7.9e-03	8.9e-02	0.92	0.49	0.1425
60	-6.6e-02	4.8e-02	-2.3e-01	5.3e-02	6.7e-03	8.2e-02	0.92	0.49	0.1689
72	-3.9e-02	2.8e-02	-1.3e-01	3.3e-02	2.4e-03	4.9e-02	0.92	0.48	0.1891
84	1.0e-08	2.0e-08	-3.2e-08	1.6e-07	5.1e-16	2.2e-08	0.32	0.19	-0.0160
96	4.6e-02	3.2e-02	-4.0e-02	1.4e-01	3.1e-03	5.6e-02	0.92	0.46	0.2182
108	9.3e-02	6.4e-02	-8.1e-02	3.0e-01	1.3e-02	1.1e-01	0.91	0.45	0.2282
120	1.4e-01	9.4e-02	-1.2e-01	4.4e-01	2.8e-02	1.7e-01	0.91	0.44	0.2351

Table 3: In-sample fit statistic of the DNS model in state-space form. The descriptive statistics refer to the residuals of the equation for yields at the corresponding maturities. The last three columns present residual sample autocorrelations at lag 1, 12, and 30, respectively.

$\hat{\beta}_{1,t}$ and $(y_t(3) + y_t(24) + y_t(120))/3$ is 0.8077292, from January 2002 to December 2011 the correlation drops to 0.2920553. The mean and standard deviations of the difference increase from 119.3886625 basis points to 196.316468 basis points and from 93.8050413 basis points to 124.6348969 basis points, respectively.

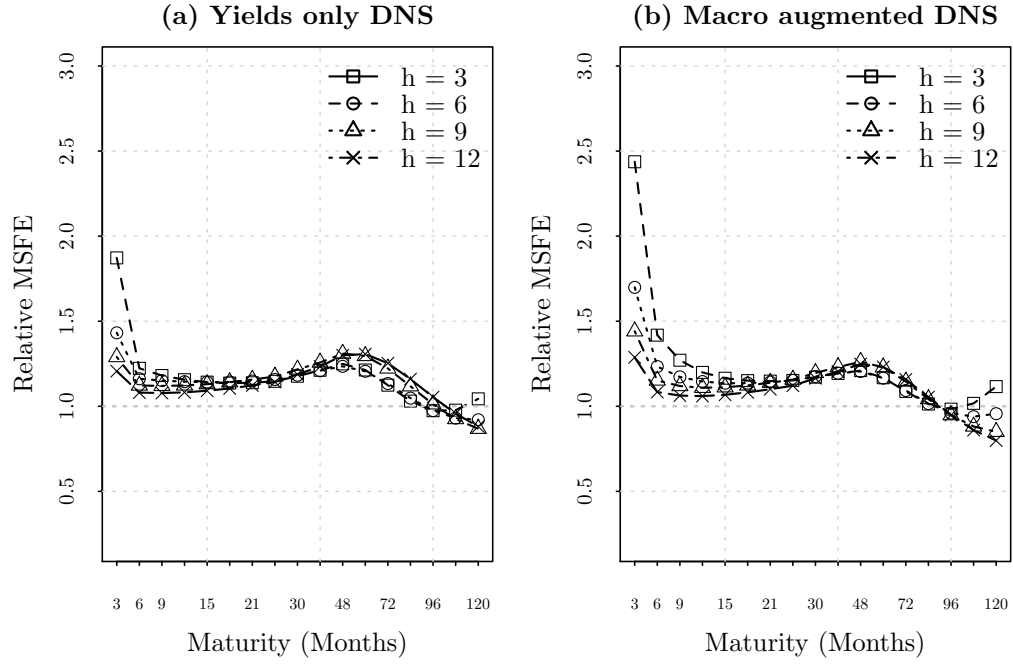


Figure 2: Relative MSFE of the forecasts based on the yields only and macro augmented DNS models against the random walk forecasts

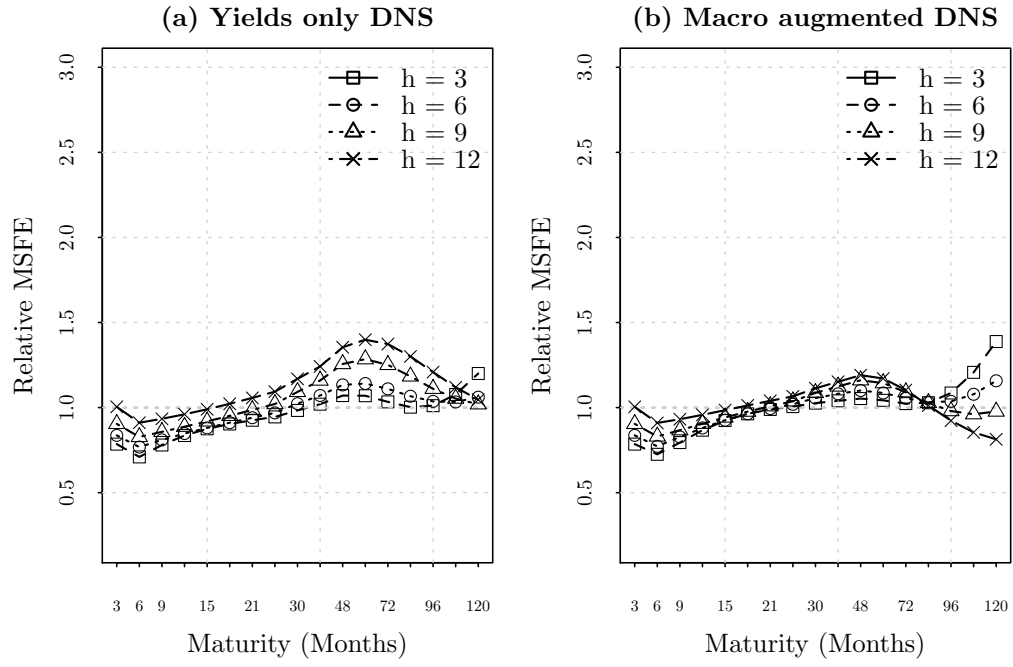


Figure 3: Relative MSFE of the tilted forecasts based on the yields only and macro augmented DNS models against the random walk forecasts

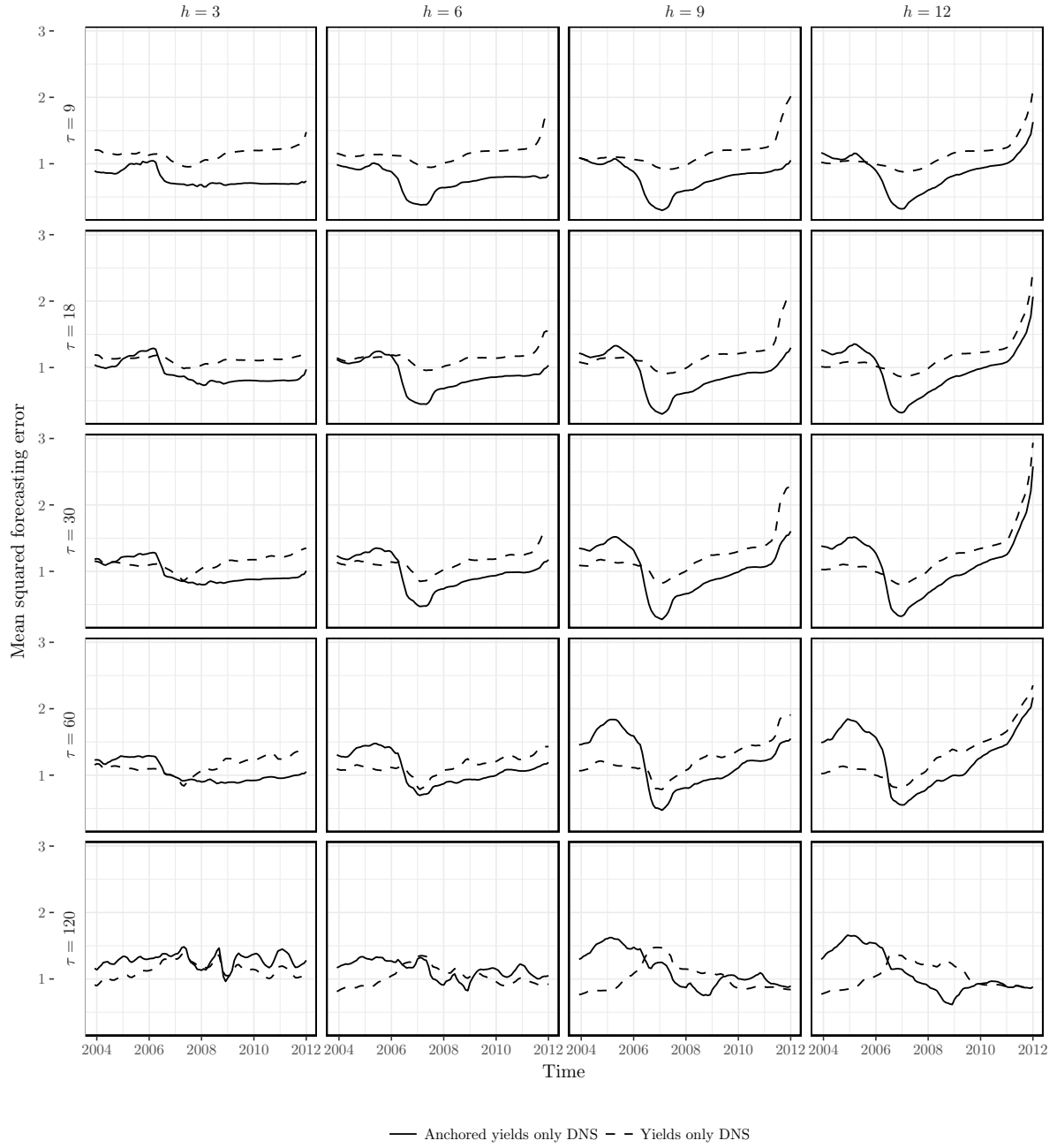


Figure 4: Rolling relative MSFE of the forecasts based on the yields only and macro augmented DNS models against the random walk forecasts

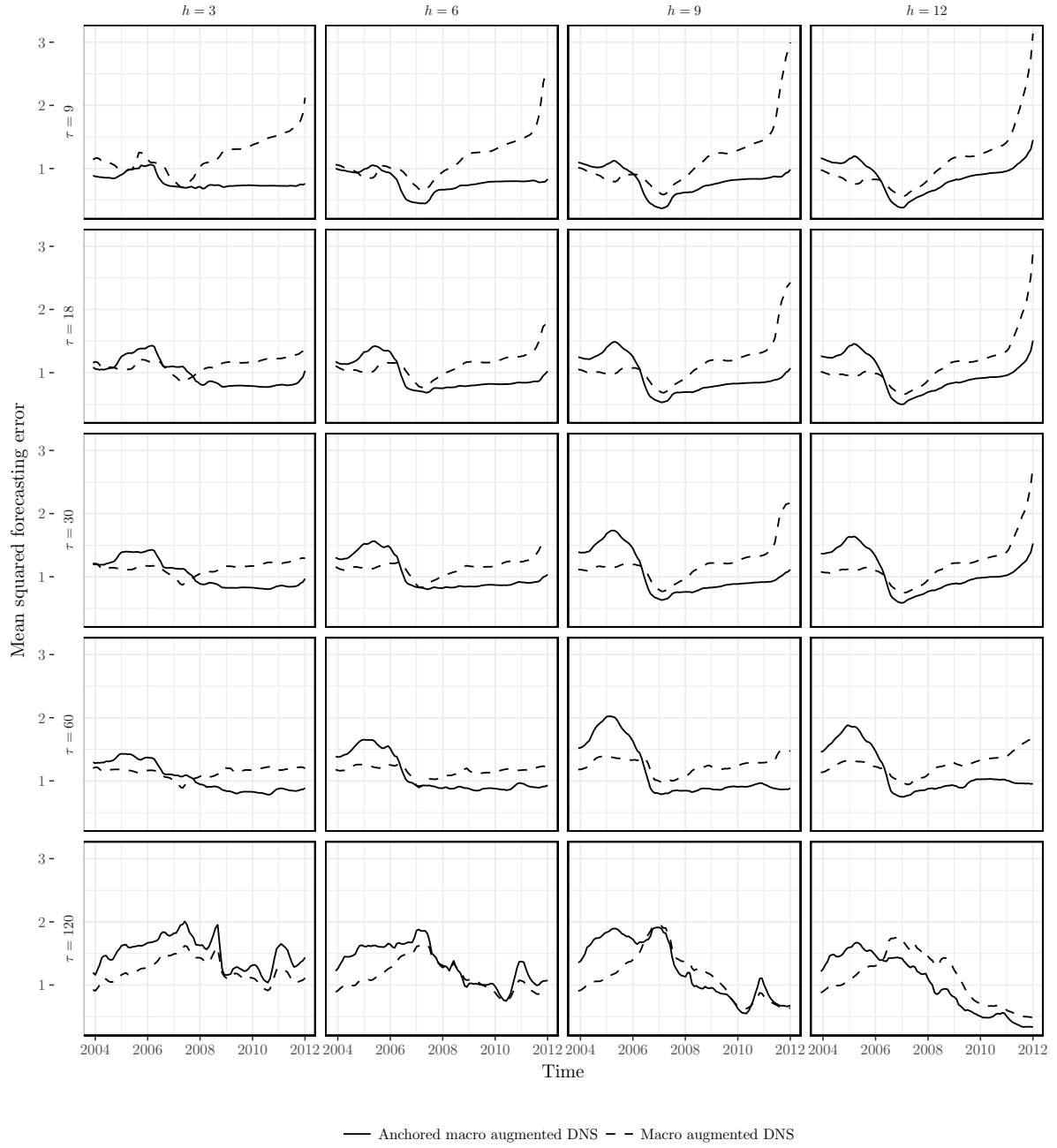


Figure 5: Rolling relative MSFE of the tilted forecasts based on the yields only and macro augmented DNS models against the random walk forecasts

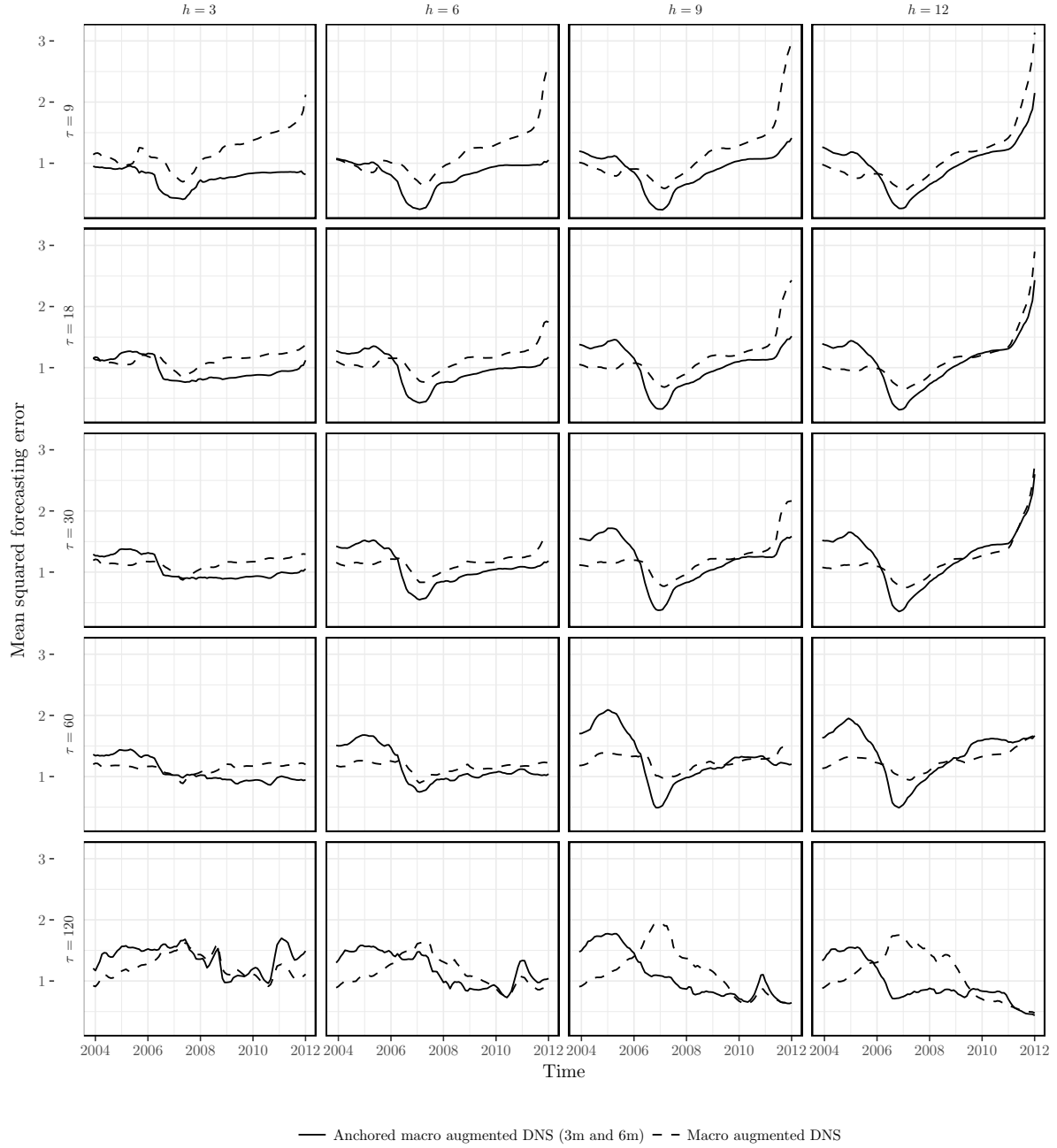


Figure 6: Rolling relative MSFE of the tilted forecasts based on the yields only and macro augmented DNS models against the random walk forecasts. Both the 3-month and the 6-month BC forecasts.

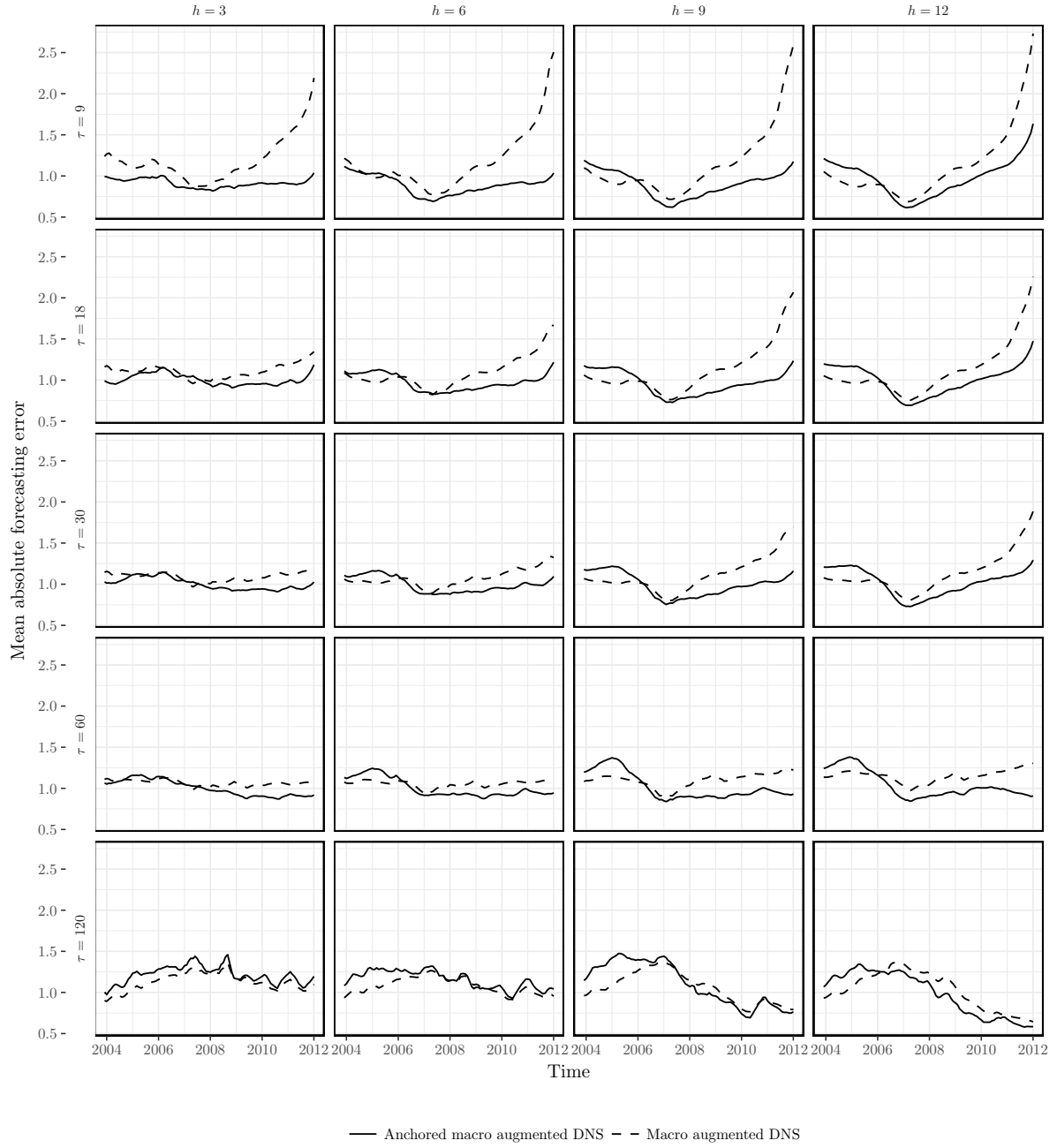


Figure 7: Rolling relative MAFE of the tilted forecasts based on the yields only and macro augmented DNS models against the random walk forecasts

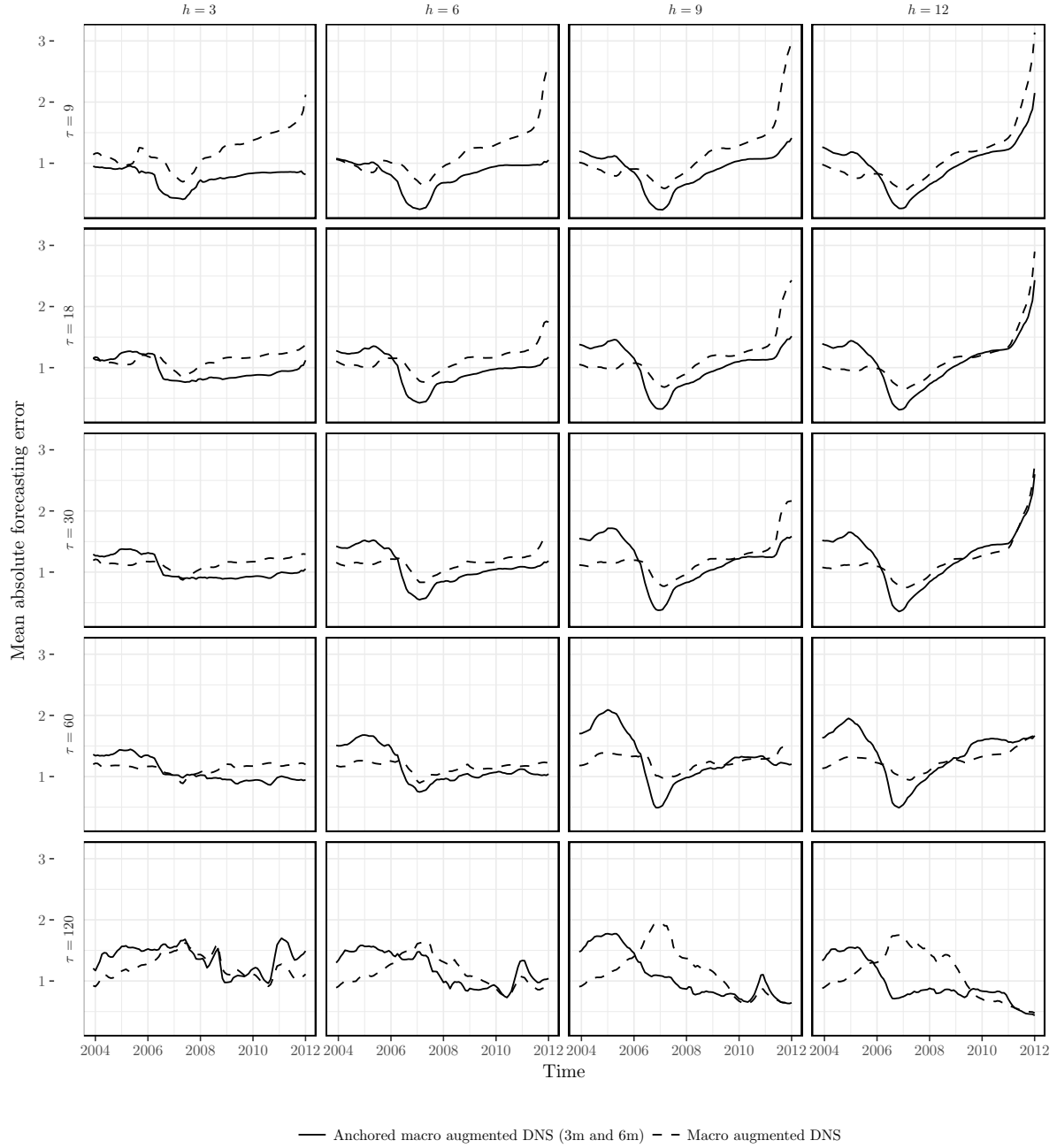


Figure 8: Rolling relative MAFE of the tilted forecasts based on the yields only and macro augmented DNS models against the random walk forecasts. Both the 3-month and the 6-month BC forecasts.

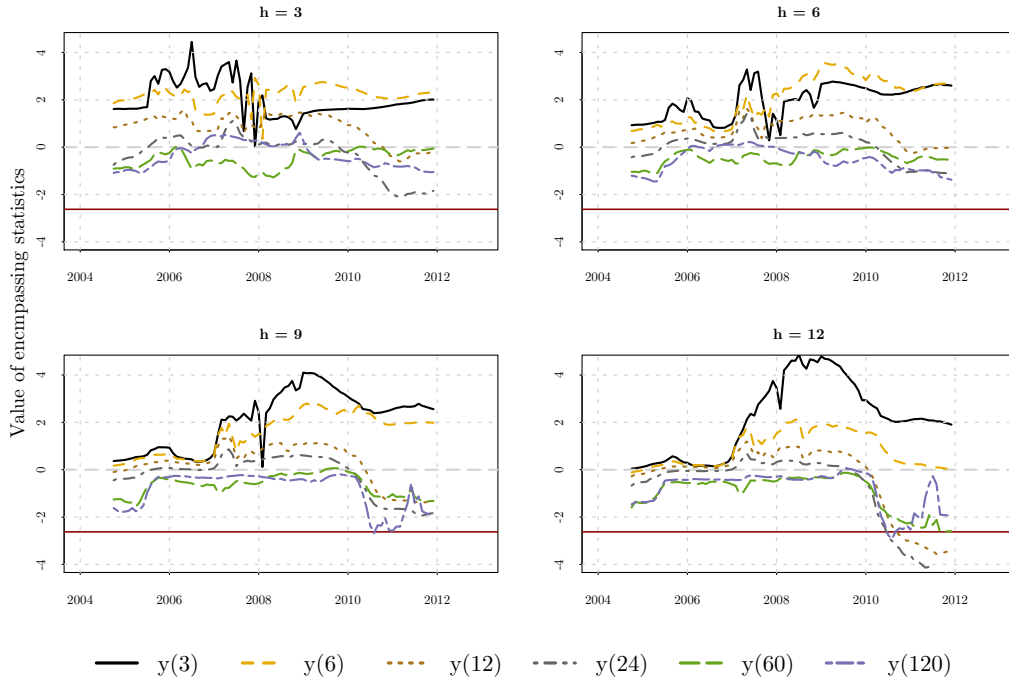


Figure 9: Notes: The figure reports the sequence of test statistics for the time-varying encompassing test described in Section 3.2, testing the null hypothesis that the BC forecast encompasses the DNS forecast, against the alternative hypothesis that it does not. The null hypothesis is rejected when the sequence of test statistics crosses the horizontal solid line, which represents the critical value (which equals 2.62 for test statistics computed over an estimation window that uses 40% of the out-of-sample observations and for a 5% significance level).

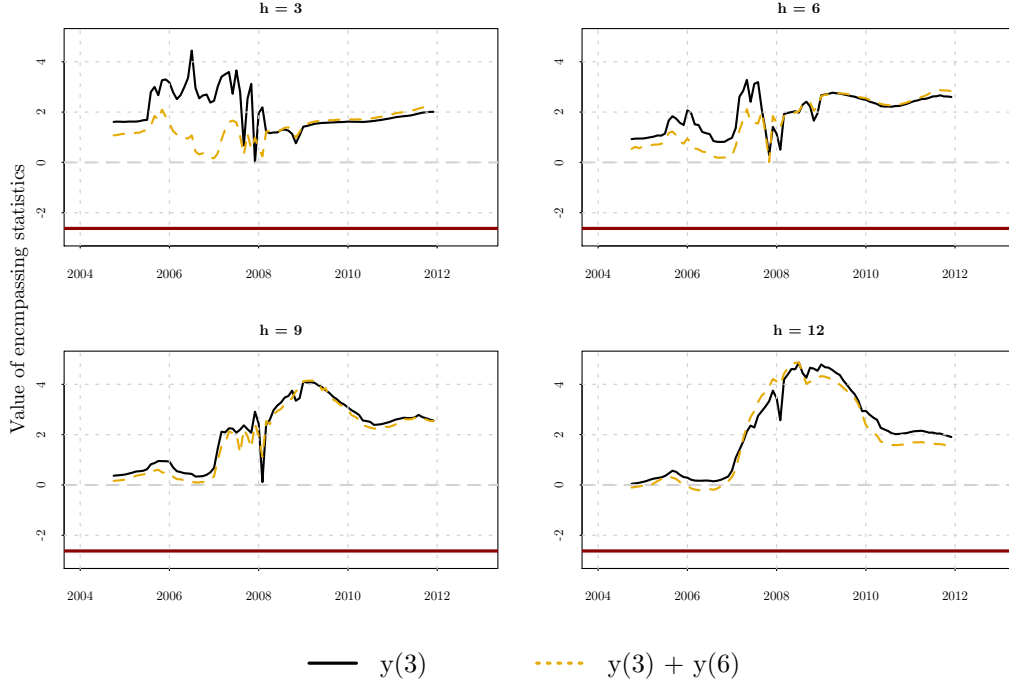


Figure 10: Notes: The figure reports the sequence of test statistics for the time-varying encompassing test described in Section 3.2, testing the null hypothesis that the BC forecast encompasses the DNS forecast, against the alternative hypothesis that it does not. The null hypothesis is rejected when the sequence of test statistics crosses the horizontal solid line, which represents the critical value (which equals 2.62 for test statistics computed over an estimation window that uses 40% of the out-of-sample observations and for a 5% significance level).

Maturity	Anchored vs DNS				Anchored vs RW			
	h=3	h=6	h=9	h=12	h=3	h=6	h=9	h=12
3	0.42***	0.58*	0.70	0.83	0.79***	0.84*	0.90	1.00
6	0.58***	0.66***	0.74*	0.84	0.71***	0.77***	0.83*	0.91
9	0.66**	0.70**	0.77	0.87	0.78**	0.81**	0.86	0.93
12	0.72*	0.74*	0.79	0.89	0.84*	0.85*	0.89	0.96
15	0.77	0.77	0.81	0.91	0.88	0.88	0.92	0.99
18	0.80	0.80	0.83	0.93	0.90	0.91	0.95	1.02
21	0.81	0.82	0.85	0.94	0.93	0.94	0.99	1.06
24	0.82	0.84	0.87	0.96	0.95	0.97	1.02	1.09
30	0.84	0.86	0.90	0.98	0.98	1.02	1.09	1.17
36	0.84	0.89	0.92	1.01	1.02	1.07	1.16	1.24
48	0.86	0.92	0.96	1.04	1.07	1.13	1.26	1.35
60	0.88	0.95	0.99	1.07	1.07	1.14	1.28	1.40
72	0.92	0.98	1.02	1.10	1.03	1.11	1.25	1.37
84	0.97	1.02	1.06	1.12	1.00	1.07	1.18	1.30
96	1.04	1.06	1.10	1.15	1.01	1.04	1.11	1.21
108	1.10	1.11	1.14	1.17	1.08	1.03	1.05	1.12
120	1.15	1.15	1.17	1.19	1.20	1.06	1.02	1.05

Table 4: **Relative MSFEs of anchored forecasts. Baseline model: Yields only Sample: 2000:01 - 2011:12.** The table reports the ratios of MSFE for the models considered. The asterisk indicates significance according to the Diebold and Mariano (1995) test of equal accuracy against the alternative that the anchored forecast is more accurate ('***' at the 1%, '**' at the 5%, and '*' at the 10%). The Diebold and Mariano test was implemented using an HAC estimator with $h - 1$ truncation parameter.

Maturity	Anchored vs DNS				Anchored vs RW			
	h=3	h=6	h=9	h=12	h=3	h=6	h=9	h=12
3	0.32***	0.49*	0.63	0.78	0.79***	0.84*	0.90	1.00
6	0.51***	0.63***	0.72*	0.84	0.73***	0.77***	0.83*	0.91
9	0.63**	0.71*	0.77	0.88	0.79**	0.83*	0.87	0.93
12	0.72*	0.77	0.82	0.90	0.87*	0.88	0.91	0.96
15	0.79	0.82	0.85	0.92	0.92	0.93	0.94	0.98
18	0.84	0.85	0.87	0.94	0.96	0.96	0.98	1.01
21	0.86	0.87	0.89	0.94	0.99	0.99	1.01	1.04
24	0.87	0.88	0.90	0.95	1.01	1.02	1.04	1.07
30	0.88	0.90	0.91	0.96	1.03	1.06	1.09	1.11
36	0.87	0.90	0.91	0.96	1.04	1.08	1.12	1.15
48	0.87	0.91	0.92	0.95	1.05	1.10	1.16	1.19
60	0.89	0.93	0.93	0.95	1.04	1.09	1.14	1.17
72	0.94	0.97	0.95	0.95	1.02	1.05	1.09	1.10
84	1.02	1.02	0.99	0.96	1.03	1.03	1.03	1.01
96	1.10	1.08	1.03	0.97	1.09	1.04	0.98	0.92
108	1.19	1.15	1.09	0.99	1.21	1.08	0.96	0.85
120	1.24	1.21	1.15	1.02	1.39	1.16	0.98	0.81

Table 5: **Relative MSFEs of anchored forecasts. Baseline model:macro augmented Sample: 2000:01 - 2011:12.** The table reports the ratios of MSFE for the models considered. The asterisk indicates significance according to the Diebold and Mariano (1995) test of equal accuracy against the alternative that the anchored forecast is more accurate ('***' at the 1%, '**' at the 5%, and '*' at the 10%). The Diebold and Mariano test was implemented using an HAC estimator with $h - 1$ truncation parameter.

Maturity	Anchored vs DNS				Anchored vs RW			
	h=3	h=6	h=9	h=12	h=3	h=6	h=9	h=12
3	0.42***	0.58*	0.70	0.83	0.79***	0.84*	0.90	1.00
6	0.64***	0.73*	0.83	0.94	0.78***	0.85*	0.94	1.02
9	0.70***	0.78	0.87	0.98	0.83***	0.89	0.98	1.06
12	0.76*	0.82	0.92	1.03	0.88*	0.94	1.03	1.11
15	0.81	0.86	0.96	1.07	0.93	0.98	1.08	1.16
18	0.85	0.90	0.99	1.10	0.96	1.03	1.14	1.22
21	0.88	0.93	1.03	1.14	1.00	1.07	1.19	1.28
24	0.90	0.96	1.06	1.18	1.03	1.12	1.25	1.34
30	0.93	1.01	1.12	1.24	1.09	1.20	1.37	1.47
36	0.95	1.05	1.17	1.29	1.15	1.27	1.47	1.59
48	0.98	1.10	1.24	1.36	1.22	1.36	1.62	1.77
60	1.01	1.14	1.29	1.42	1.22	1.37	1.67	1.85
72	1.03	1.17	1.33	1.46	1.16	1.32	1.62	1.84
84	1.06	1.19	1.36	1.50	1.10	1.25	1.52	1.74
96	1.09	1.21	1.38	1.53	1.06	1.18	1.40	1.62
108	1.11	1.22	1.39	1.55	1.08	1.14	1.29	1.48
120	1.12	1.22	1.38	1.54	1.16	1.12	1.20	1.36

Table 6: **Relative MSFEs of anchored forecasts using both 3m and 6m BC forecasts. Baseline model: Yields only Sample: 2000:01 - 2011:12.** The table reports the ratios of MSFE for the models considered. The asterisk indicates significance according to the Diebold and Mariano (1995) test of equal accuracy against the alternative that the anchored forecast is more accurate ('***' at the 1%, '**' at the 5%, and '*' at the 10%). The Diebold and Mariano test was implemented using an HAC estimator with $h - 1$ truncation parameter.

Maturity	Anchored vs DNS				Anchored vs RW			
	h=3	h=6	h=9	h=12	h=3	h=6	h=9	h=12
3	0.32***	0.49*	0.63	0.78	0.79***	0.84*	0.90	1.00
6	0.55***	0.69*	0.81	0.94	0.78***	0.85*	0.94	1.02
9	0.66**	0.76	0.86	0.98	0.83**	0.89	0.97	1.04
12	0.76	0.82	0.91	1.02	0.91	0.94	1.01	1.08
15	0.83	0.87	0.95	1.05	0.96	0.99	1.06	1.12
18	0.87	0.91	0.98	1.07	1.01	1.03	1.10	1.16
21	0.90	0.93	1.00	1.09	1.03	1.06	1.14	1.20
24	0.92	0.95	1.02	1.10	1.06	1.09	1.18	1.23
30	0.93	0.97	1.05	1.12	1.08	1.14	1.25	1.31
36	0.92	0.99	1.06	1.14	1.10	1.18	1.31	1.37
48	0.93	1.00	1.08	1.16	1.12	1.21	1.37	1.45
60	0.95	1.02	1.10	1.17	1.11	1.19	1.35	1.44
72	0.99	1.04	1.11	1.17	1.08	1.14	1.27	1.36
84	1.05	1.07	1.12	1.17	1.06	1.09	1.17	1.23
96	1.12	1.11	1.13	1.15	1.10	1.06	1.07	1.10
108	1.18	1.14	1.13	1.13	1.20	1.07	1.00	0.97
120	1.22	1.17	1.12	1.09	1.36	1.11	0.95	0.87

Table 7: **Relative MSFEs of anchored forecasts using both 3m and 6m BC forecasts. Baseline model:macro augmented Sample: 2000:01 - 2011:12.** The table reports the ratios of MSFE for the models considered. The asterisk indicates significance according to the Diebold and Mariano (1995) test of equal accuracy against the alternative that the anchored forecast is more accurate ('***' at the 1%, '**' at the 5%, and '*' at the 10%). The Diebold and Mariano test was implemented using an HAC estimator with $h - 1$ truncation parameter.

Maturity	Anchored vs DNS				Anchored vs RW			
	h=3	h=6	h=9	h=12	h=3	h=6	h=9	h=12
3	0.47***	0.62**	0.72	0.83	0.77***	0.82**	0.88	0.96
6	0.61***	0.68***	0.75*	0.84	0.70***	0.76***	0.81*	0.88
9	0.67***	0.72**	0.78	0.86	0.76***	0.80**	0.84	0.90
12	0.71**	0.75*	0.80	0.88	0.81**	0.83*	0.87	0.92
15	0.75*	0.78	0.82	0.90	0.84*	0.86	0.89	0.94
18	0.78	0.80	0.84	0.92	0.87	0.89	0.92	0.96
21	0.80	0.82	0.86	0.93	0.89	0.91	0.94	0.99
24	0.82	0.84	0.88	0.95	0.91	0.93	0.97	1.01
30	0.84	0.87	0.91	0.98	0.95	0.98	1.03	1.06
36	0.85	0.90	0.94	1.01	0.99	1.02	1.08	1.11
48	0.87	0.93	0.99	1.05	1.04	1.08	1.16	1.20
60	0.89	0.96	1.03	1.09	1.04	1.10	1.20	1.25
72	0.92	0.99	1.08	1.13	1.01	1.09	1.20	1.26
84	0.95	1.02	1.12	1.17	0.98	1.05	1.18	1.24
96	1.00	1.06	1.17	1.21	0.96	1.02	1.14	1.20
108	1.05	1.10	1.21	1.24	1.00	1.01	1.11	1.16
120	1.09	1.13	1.25	1.26	1.09	1.03	1.10	1.13

Table 8: **Relative MSFEs of anchored forecasts. DNS model:Yields only Sample: 2000:01 - 2008:12.** The table reports the ratios of MSFE for the models considered. The asterisk indicates significance according to the Diebold and Mariano (1995) test of equal accuracy against the alternative that the anchored forecast is more accurate ('***' at the 1%, '**' at the 5%, and '*' at the 10%). The Diebold and Mariano test was implemented using an HAC estimator with $h - 1$ truncation parameter.

Maturity	Anchored vs DNS				Anchored vs RW			
	h=3	h=6	h=9	h=12	h=3	h=6	h=9	h=12
3	0.41***	0.60**	0.73	0.87	0.77***	0.82**	0.88	0.96
6	0.58***	0.71***	0.80*	0.91	0.71***	0.76***	0.81*	0.88
9	0.67***	0.77**	0.84	0.93	0.77***	0.82**	0.85	0.90
12	0.74*	0.81	0.87	0.95	0.83*	0.86	0.89	0.93
15	0.79	0.85	0.90	0.97	0.88	0.90	0.92	0.95
18	0.83	0.88	0.92	0.98	0.92	0.93	0.95	0.98
21	0.85	0.90	0.93	0.99	0.95	0.96	0.98	1.01
24	0.87	0.91	0.94	1.00	0.97	0.99	1.01	1.03
30	0.88	0.93	0.96	1.01	1.01	1.04	1.07	1.08
36	0.89	0.94	0.97	1.01	1.04	1.07	1.11	1.12
48	0.90	0.96	1.00	1.02	1.07	1.12	1.18	1.19
60	0.92	0.97	1.02	1.04	1.08	1.14	1.22	1.22
72	0.95	1.00	1.04	1.05	1.06	1.13	1.22	1.22
84	1.00	1.03	1.07	1.06	1.05	1.11	1.20	1.20
96	1.07	1.08	1.11	1.07	1.07	1.10	1.19	1.16
108	1.14	1.13	1.16	1.09	1.15	1.13	1.19	1.13
120	1.19	1.18	1.20	1.10	1.29	1.19	1.22	1.12

Table 9: **Relative MSFEs of anchored forecasts. DNS model:macro augmented Sample: 2000:01 - 2008:12.** The table reports the ratios of MSFE for the models considered. The asterisk indicates significance according to the Diebold and Mariano (1995) test of equal accuracy against the alternative that the anchored forecast is more accurate ('***' at the 1%, '**' at the 5%, and '*' at the 1%). The Diebold and Mariano test was implemented using an HAC estimator with $h - 1$ truncation parameter.

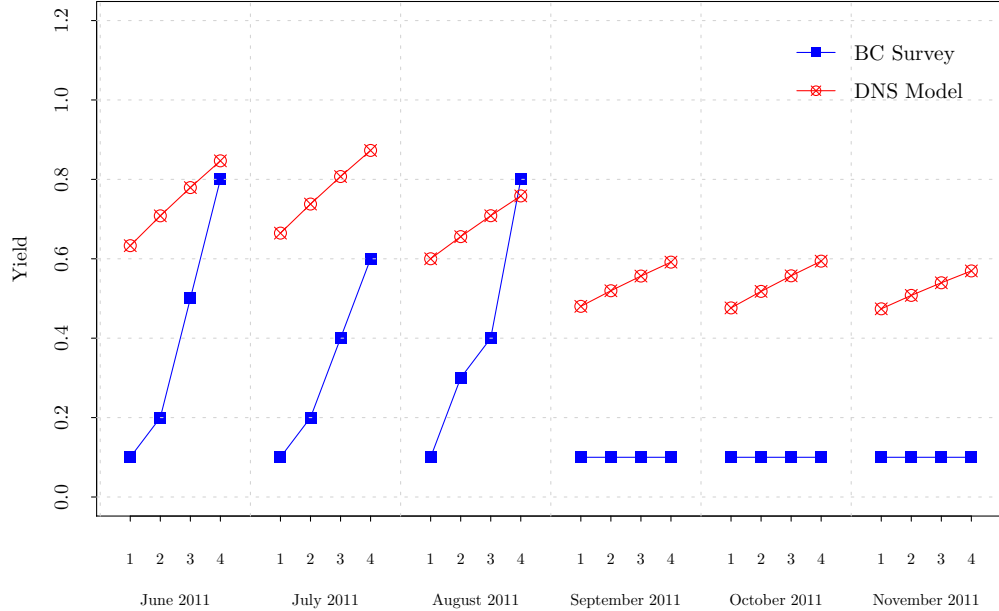


Figure 11: The figure reports the 1- to 4-quarter-ahead forecasts of the 3-month yield given by the DNS model and the BC survey before and after the FOMC Statement of August 9, 2011.

Maturity	Anchored vs DNS				Anchored vs RW			
	h=3	h=6	h=9	h=12	h=3	h=6	h=9	h=12
3	0.47***	0.62**	0.72	0.83	0.77***	0.82**	0.88	0.96
6	0.67***	0.75**	0.84	0.92	0.77***	0.83**	0.90	0.96
9	0.71***	0.79	0.87	0.96	0.81***	0.87	0.94	1.00
12	0.76**	0.83	0.91	0.99	0.86**	0.92	0.98	1.03
15	0.80	0.86	0.95	1.03	0.90	0.96	1.03	1.07
18	0.83	0.90	0.98	1.06	0.93	0.99	1.07	1.12
21	0.87	0.93	1.02	1.09	0.96	1.03	1.11	1.16
24	0.89	0.96	1.05	1.12	1.00	1.07	1.16	1.20
30	0.93	1.01	1.11	1.18	1.06	1.14	1.24	1.29
36	0.97	1.06	1.16	1.24	1.12	1.20	1.32	1.37
48	1.01	1.12	1.25	1.33	1.19	1.30	1.46	1.51
60	1.03	1.17	1.32	1.41	1.21	1.34	1.53	1.61
72	1.05	1.21	1.38	1.48	1.16	1.33	1.55	1.65
84	1.06	1.24	1.44	1.55	1.09	1.27	1.52	1.64
96	1.06	1.26	1.49	1.60	1.03	1.21	1.45	1.60
108	1.06	1.27	1.51	1.63	1.01	1.16	1.38	1.53
120	1.04	1.25	1.49	1.62	1.04	1.13	1.31	1.46

Table 10: **Relative MSFEs of anchored forecasts using 3m and 6m BC survey forecasts. DNS model: Yields only Sample: 2000:01 - 2008:12.** The table reports the ratios of MSFE for the models considered. The asterisk indicates significance according to the Diebold and Mariano (1995) test of equal accuracy against the alternative that the anchored forecast is more accurate ('***' at the 1%, '**' at the 5%, and '*' at the 10%). The Diebold and Mariano test was implemented using an HAC estimator with $h - 1$ truncation parameter.

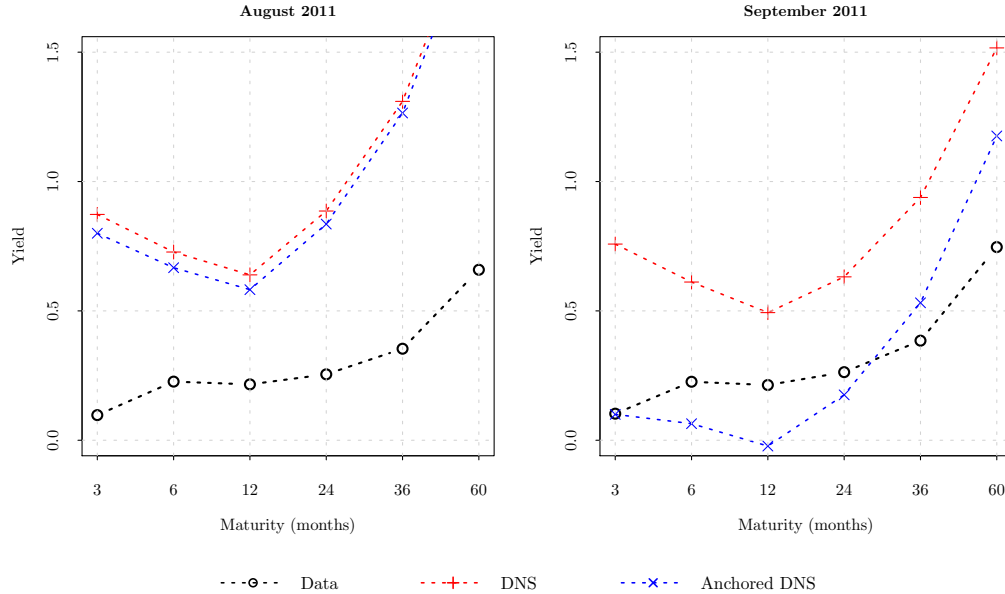


Figure 12: The figure shows the 12-month-ahead yield curve forecast implied by the DNS model and the corresponding anchored forecast made before and after the FOMC Statement of August 9, 2011, together with the actual yield curve realization.

Maturity	Anchored vs DNS				Anchored vs RW			
	h=3	h=6	h=9	h=12	h=3	h=6	h=9	h=12
3	0.41***	0.60**	0.73	0.87	0.77***	0.82**	0.88	0.96
6	0.63***	0.78**	0.89	1.00	0.77***	0.83**	0.90	0.96
9	0.70***	0.83	0.93	1.03	0.81***	0.88	0.94	0.99
12	0.77*	0.87	0.97	1.05	0.86*	0.92	0.98	1.03
15	0.82	0.91	1.00	1.08	0.91	0.97	1.02	1.06
18	0.86	0.94	1.02	1.10	0.95	1.00	1.06	1.10
21	0.88	0.96	1.04	1.11	0.98	1.04	1.10	1.13
24	0.90	0.98	1.06	1.13	1.01	1.07	1.14	1.17
30	0.93	1.01	1.09	1.15	1.05	1.13	1.21	1.24
36	0.94	1.03	1.12	1.17	1.09	1.18	1.28	1.30
48	0.96	1.06	1.15	1.20	1.14	1.24	1.37	1.40
60	0.98	1.08	1.18	1.23	1.15	1.26	1.42	1.45
72	1.00	1.10	1.20	1.24	1.12	1.25	1.41	1.45
84	1.03	1.12	1.22	1.24	1.08	1.20	1.37	1.40
96	1.06	1.14	1.23	1.23	1.07	1.16	1.31	1.33
108	1.09	1.15	1.21	1.20	1.11	1.14	1.25	1.25
120	1.11	1.15	1.18	1.15	1.20	1.16	1.21	1.18

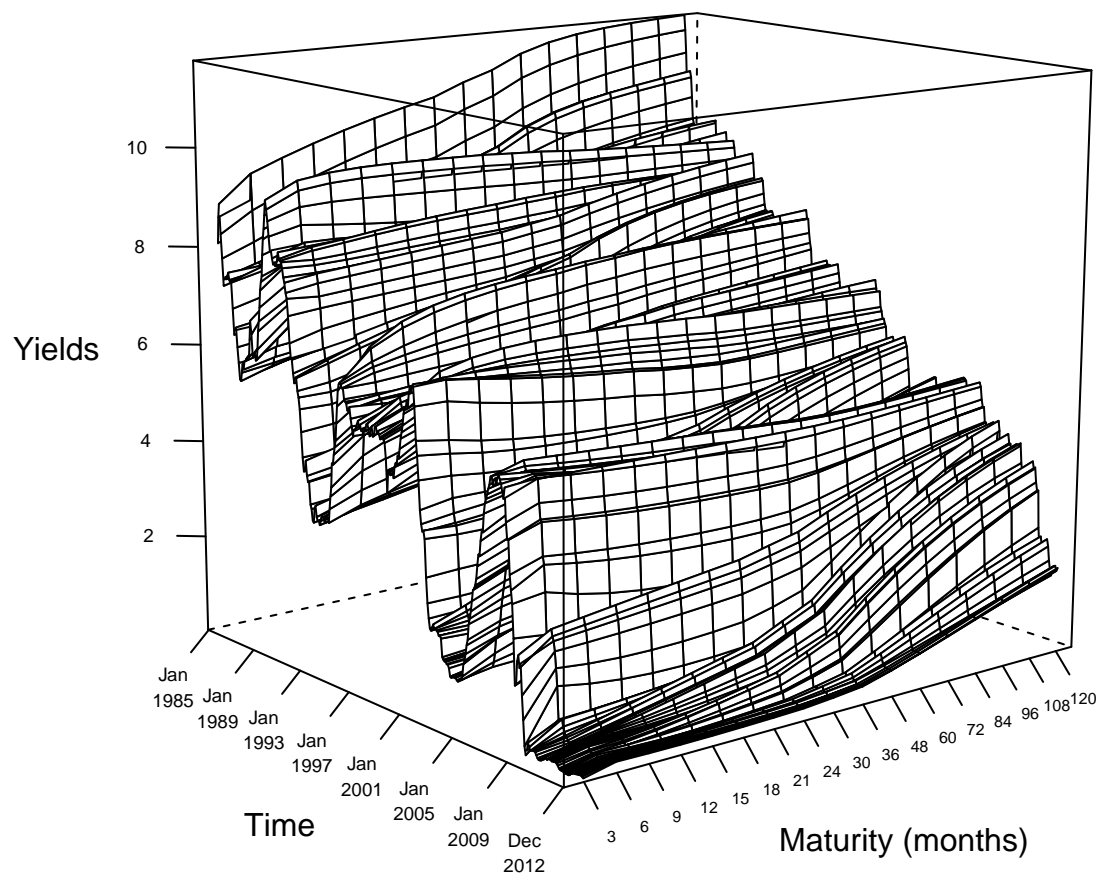
Table 11: **Relative MSFEs of anchored forecasts using 3m and 6m BC survey forecasts. DNS model:macro augmented Sample: 2000:01 - 2008:12.** The table reports the ratios of MSFE for the models considered. The asterisk indicates significance according to the Diebold and Mariano (1995) test of equal accuracy against the alternative that the anchored forecast is more accurate ('***' at the 1%, '**' at the 5%, and '*' at the 10%). The Diebold and Mariano test was implemented using an HAC estimator with $h - 1$ truncation parameter.

Maturity	Conditional forecast vs DNS				Conditional vs RW			
	h=3	h=6	h=9	h=12	h=3	h=6	h=9	h=12
3	0.42***	0.58*	0.70	0.83	0.79***	0.84*	0.90	1.00
6	0.56***	0.65**	0.73*	0.82	0.68***	0.75**	0.82*	0.89
9	0.65**	0.70*	0.76	0.85	0.77**	0.81*	0.85	0.91
12	0.72*	0.75	0.79	0.87	0.83*	0.85	0.89	0.94
15	0.77	0.78	0.82	0.89	0.88	0.89	0.92	0.97
18	0.80	0.81	0.84	0.91	0.91	0.93	0.96	1.01
21	0.83	0.84	0.86	0.93	0.94	0.96	1.00	1.04
24	0.84	0.86	0.88	0.94	0.96	0.99	1.03	1.08
30	0.85	0.89	0.91	0.97	1.00	1.05	1.11	1.15
36	0.86	0.91	0.94	0.99	1.04	1.10	1.18	1.22
48	0.87	0.95	0.98	1.03	1.09	1.17	1.28	1.33
60	0.91	0.98	1.01	1.05	1.10	1.18	1.31	1.38
72	0.95	1.01	1.05	1.08	1.07	1.15	1.28	1.35
84	1.01	1.05	1.09	1.10	1.04	1.11	1.22	1.28
96	1.07	1.10	1.13	1.13	1.04	1.08	1.14	1.19
108	1.14	1.15	1.17	1.15	1.12	1.07	1.08	1.10
120	1.19	1.19	1.22	1.18	1.24	1.10	1.06	1.04

Table 12: **Relative MSFEs of conditional forecasts. Baseline model: Yields only**
Sample: 2000:01 - 2011:12. The table reports the ratios of MSFE for the models considered. The asterisk indicates significance according to the Diebold and Mariano (1995) test of equal accuracy against the alternative that the anchored forecast is more accurate ('***' at the 1%, '**' at the 5%, and '*' at the 10%). The Diebold and Mariano test was implemented using an HAC estimator with $h - 1$ truncation parameter.

Maturity	Conditional forecast vs DNS				Conditional vs RW			
	h=3	h=6	h=9	h=12	h=3	h=6	h=9	h=12
3	0.32***	0.49*	0.63	0.78	0.79***	0.84*	0.90	1.00
6	0.50***	0.61**	0.71*	0.81	0.70***	0.76**	0.82*	0.88
9	0.64**	0.71*	0.77	0.85	0.81**	0.83*	0.86	0.90
12	0.75	0.78	0.82	0.88	0.90	0.89	0.91	0.93
15	0.83	0.83	0.85	0.90	0.97	0.95	0.95	0.96
18	0.88	0.87	0.88	0.91	1.01	0.99	0.99	0.99
21	0.91	0.89	0.90	0.92	1.04	1.02	1.02	1.01
24	0.92	0.91	0.91	0.93	1.06	1.05	1.05	1.04
30	0.92	0.92	0.92	0.93	1.07	1.08	1.10	1.08
36	0.90	0.92	0.93	0.93	1.08	1.10	1.14	1.12
48	0.90	0.93	0.93	0.93	1.09	1.12	1.17	1.16
60	0.92	0.95	0.94	0.92	1.08	1.10	1.16	1.14
72	0.98	0.99	0.97	0.93	1.07	1.08	1.11	1.07
84	1.06	1.05	1.01	0.94	1.08	1.06	1.06	0.99
96	1.17	1.12	1.07	0.96	1.15	1.08	1.02	0.91
108	1.26	1.20	1.14	0.99	1.28	1.13	1.01	0.85
120	1.34	1.28	1.20	1.03	1.49	1.22	1.02	0.82

Table 13: **Relative MSFEs of conditional forecasts. Baseline model:macro augmented Sample: 2000:01 - 2011:12.** The table reports the ratios of MSFE for the models considered. The asterisk indicates significance according to the Diebold and Mariano (1995) test of equal accuracy against the alternative that the anchored forecast is more accurate (‘***’ at the 1%, ‘**’ at the 5%, and ‘*’ at the 1%). The Diebold and Mariano test was implemented using an HAC estimator with $h - 1$ truncation parameter.



Replication information

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```
## ##----- Thu Mar 23 00:54:22 2017 -----##
```

The specs for the platform and the R installation were:

```
R.version
```

```
##
## platform      x86_64-apple-darwin13.4.0
## arch          x86_64
## os            darwin13.4.0
## system        x86_64, darwin13.4.0
## status
## major         3
## minor         3.2
## year          2016
## month         10
## day           31
## svn rev       71607
## language      R
## version.string R version 3.3.2 (2016-10-31)
## nickname      Sincere Pumpkin Patch
```

The following packages were used:

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## Hmisc[1] '4.0.2'
## RColorBrewer[1] '1.1.2'
## RcppRoll[1] '0.2.2'
## dplyr[1] '0.5.0'
## forecast[1] '8.0'
## ggplot2[1] '2.2.1'
## ggthemes[1] '3.4.0'
## lubridate[1] '1.6.0'
## purrr[1] '0.2.2'
## reshape2[1] '1.4.2'
## sandwich[1] '2.3.4'
## xts[1] '0.9.7'
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