

Bank of England

Measuring monetary policy in the UK: the UK Monetary Policy Event–Study Database

Appendix to Staff Working Paper No. 1,050

July 2024

Robin Braun, Silvia Miranda-Agrippino and Tuli Saha

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SUPPLEMENTARY MATERIAL FOR
Measuring Monetary Policy in the UK: the UK Monetary Policy
Event-Study Database*

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*For Online Publication Only.

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A Details on the construction of the UKMPD

A.1 Available asset prices

Table A.1 summarises the set of asset prices included in the UKMPD.

TABLE A.1: SUMMARY OF ASSET PRICES AND TRANSFORMATIONS

# RIC	Description	Availability	Transformation
Interest rate Futures			
FSScm1	3M Libor 1st quarterly contract	1997 - 2021	Yield (pp)
FSScm2	3M Libor 2nd quarterly contract	1997 - 2021	Yield (pp)
FSScm3	3M Libor 3rd quarterly contract	1997 - 2021	Yield (pp)
FSScm4	3M Libor 4th quarterly contract	1997 - 2021	Yield (pp)
Son3c1	3M Sonia 1st quarterly contract	Since 2021	Yield (pp)
Son3c2	3M Sonia 2nd quarterly contract	Since 2021	Yield (pp)
Son3c3	3M Sonia 3rd quarterly contract	Since 2021	Yield (pp)
Son3c4	3M Sonia 4th quarterly contract	Since 2021	Yield (pp)
Gilt Yields			
GBP1YT=RR	1 Year Reference Bond	Since 1997	Yield (pp)
GBP2YT=RR	2 Year Reference Bond	Since 1997	Yield (pp)
GBP5YT=RR	5 Year Reference Bond	Since 1997	Yield (pp)
GBP10YT=RR	10 Year Reference Bond	Since 1997	Yield (pp)
Overnight Indexed Swaps			
GBP1MOIS=RR	1 Month OIS rate	Since 2009	Yield (pp)
GBP2MOIS=RR	2 Month OIS rate	Since 2009	Yield (pp)
GBP3MOIS=RR	3 Month OIS rate	Since 2009	Yield (pp)
GBP1YOIS=RR	1 Year OIS rate	Since 2009	Yield (pp)
GBP2YOIS=RR	2 Year OIS rate	Since 2009	Yield (pp)
GBP3YOIS=RR	3 Year OIS rate	Since 2015	Yield (pp)
Exchange Rates and Stock Market Indexes			
FFIc1	FTSE100 future first month contract	Since 1997	$100 \times \ln$
.FTSE	FTSE 100 Index	Since 1997	$100 \times \ln$
.FTMC	FTSE 250 Index	Since 1997	$100 \times \ln$
.FTAS	FTSE All Share Index	Since 1997	$100 \times \ln$
EURGBP=	EUR/GBP exchange rate	Since 1998	$100 \times \ln$
GBP=	GBP/USD exchange rate	Since 1997	$100 \times \ln$

A.2 Treatment of raw intraday data

To construct the database, we rely on one-minute intraday summary bid and ask prices from Refinitiv Tick History. After cleaning the data, monetary policy surprises are computed on the mid price, which we define as the mean of the bid and ask price.

In order to shield the calculated surprises from misquotes and outliers, we broadly follow the proposed cleaning strategy of Altavilla et al. (2019). Namely, the following steps are applied to clean each asset price data series:

- For Short Sterling Futures, OIS data and Government bond yields, we discard entries where either the ask or bid price is larger than 2500 basis points;
- All entries where either the bid or the ask price is missing are deleted;
- All entries where the bid-ask spread is negative are deleted;
- Entries with either the bid or ask price exactly equal to zero are discarded;
- All entries for which the bid-ask spread is more than 50 times the median spread on that day are discarded;
- All observations that are over 10 mean absolute deviations away from the rolling median are discarded. The median (mid) quote and the mean absolute deviation thereof are computed using a rolling window of 50 observations (25 before and after, excluding the observation under consideration).

No data on ask prices were available for UK Government bonds between October 1998 and November 1999. Therefore, during that period we abstain from deleting corresponding entries where no ask quote is available, and use the Bid quote instead as a proxy of the mid price. Finally, for the Short Sterling Libor Futures (FSScm1-FSScm4) we switch to a 90 minute window for all events up until May 2000. In so doing, we intend to compensate for the fact that relatively few and infrequent observations are recorded during this period for those assets. This is further aggravated by discarding observations where neither ask or bid price was available.

A.3 Monetary Policy Events

Table A.2 gives a detailed overview of the events that we include. Times are expressed in GMT. During the winter, local time in the UK is Greenwich Mean Time (GMT, also Western European Time, UTC+00:00). From the last Sunday in March to the last Sunday in October each year, the UK implements daylight saving time, switching to British Summer Time (BST, or Western European Summer Time, UTC+01:00).

The query from Refinitiv's repository did not return any data for 9 July 1997, 8 Mar 2001, 10 April 2003. During the Covid period, a few MPC announcements were made outside of market operating hours (i.e. before 8AM), implying that we do not have surprises for those dates. This includes the 11 Mar 2020 7am surprise announcement, and the May, Aug and Nov 2020 MPR which were all at 7AM local time.

TABLE A.2: EVENTS IN THE UKMPD

Rate announcement	Bank Rate	Rate announcement	Bank Rate	IR/MPR publication
06/06/1997 11:00	6.50%	07/05/2009 11:00	0.50%	13/08/1997 09:30
10/07/1997 11:00	6.75%	04/06/2009 11:00	0.50%	12/11/1997 10:30
07/08/1997 11:00	7.00%	09/07/2009 11:00	0.50%	11/02/1998 10:30
11/09/1997 11:00	7.00%	06/08/2009 11:00	0.50%	13/05/1998 09:30
09/10/1997 11:00	7.00%	10/09/2009 11:00	0.50%	13/08/1998 09:30
06/11/1997 12:00	7.25%	08/10/2009 11:00	0.50%	11/11/1998 10:30
04/12/1997 12:00	7.25%	05/11/2009 12:00	0.50%	10/02/1999 10:30
08/01/1998 12:00	7.25%	10/12/2009 12:00	0.50%	12/05/1999 09:30
05/02/1998 12:00	7.25%	07/01/2010 12:00	0.50%	11/08/1999 09:30
05/03/1998 12:00	7.25%	04/02/2010 12:00	0.50%	10/11/1999 10:30
09/04/1998 11:00	7.25%	04/03/2010 12:00	0.50%	17/02/2000 10:30
07/05/1998 11:00	7.25%	08/04/2010 11:00	0.50%	10/05/2000 08:30
04/06/1998 11:00	7.50%	10/05/2010 11:00	0.50%	09/08/2000 08:30
09/07/1998 11:00	7.50%	10/06/2010 11:00	0.50%	16/11/2000 10:30
06/08/1998 11:00	7.50%	08/07/2010 11:00	0.50%	14/02/2001 10:30
10/09/1998 11:00	7.50%	05/08/2010 11:00	0.50%	16/05/2001 09:30
08/10/1998 11:00	7.25%	09/09/2010 11:00	0.50%	08/08/2001 09:30
05/11/1998 12:00	6.75%	07/10/2010 11:00	0.50%	14/11/2001 10:30
10/12/1998 12:00	6.25%	04/11/2010 12:00	0.50%	13/02/2002 10:30
07/01/1999 12:00	6.00%	09/12/2010 12:00	0.50%	15/05/2002 09:30
04/02/1999 12:00	5.50%	13/01/2011 12:00	0.50%	07/08/2002 09:30
03/03/1999 12:00	5.50%	10/02/2011 12:00	0.50%	13/11/2002 10:30
08/04/1999 11:00	5.25%	10/03/2011 12:00	0.50%	12/02/2003 10:30
06/05/1999 11:00	5.25%	07/04/2011 11:00	0.50%	15/05/2003 09:30
10/06/1999 11:00	5.00%	05/05/2011 11:00	0.50%	13/08/2003 09:30
08/07/1999 11:00	5.00%	09/06/2011 11:00	0.50%	12/11/2003 10:30
05/08/1999 11:00	5.00%	07/07/2011 11:00	0.50%	11/02/2004 10:30
08/09/1999 11:00	5.25%	04/08/2011 11:00	0.50%	12/05/2004 09:30
07/10/1999 11:00	5.25%	08/09/2011 11:00	0.50%	11/08/2004 09:30
04/11/1999 12:00	5.50%	06/10/2011 11:00	0.50%	10/11/2004 10:30
09/12/1999 12:00	5.50%	10/11/2011 12:00	0.50%	16/02/2005 10:30
13/01/2000 12:00	5.75%	08/12/2011 12:00	0.50%	11/05/2005 09:30
10/02/2000 12:00	6.00%	12/01/2012 12:00	0.50%	10/08/2005 09:30

09/03/2000 12:00	6.00%	09/02/2012 12:00	0.50%	16/11/2005 10:30
06/04/2000 11:00	6.00%	08/03/2012 12:00	0.50%	15/02/2006 10:30
04/05/2000 11:00	6.00%	05/04/2012 11:00	0.50%	10/05/2006 09:30
07/06/2000 11:00	6.00%	10/05/2012 11:00	0.50%	09/08/2006 09:30
06/07/2000 11:00	6.00%	07/06/2012 11:00	0.50%	15/11/2006 10:30
03/08/2000 11:00	6.00%	05/07/2012 11:00	0.50%	14/02/2007 10:30
07/09/2000 11:00	6.00%	02/08/2012 11:00	0.50%	16/05/2007 09:30
05/10/2000 11:00	6.00%	06/09/2012 11:00	0.50%	08/08/2007 09:30
09/11/2000 12:00	6.00%	04/10/2012 11:00	0.50%	14/11/2007 10:30
07/12/2000 12:00	6.00%	08/11/2012 12:00	0.50%	13/02/2008 10:30
11/01/2001 12:00	6.00%	06/12/2012 12:00	0.50%	14/05/2008 09:30
08/02/2001 12:00	5.75%	10/01/2013 12:00	0.50%	13/08/2008 09:30
08/03/2001 12:00	5.75%	07/02/2013 12:00	0.50%	12/11/2008 10:30
05/04/2001 11:00	5.50%	07/03/2013 12:00	0.50%	11/02/2009 10:30
10/05/2001 11:00	5.25%	04/04/2013 11:00	0.50%	13/05/2009 09:30
06/06/2001 11:00	5.25%	09/05/2013 11:00	0.50%	12/08/2009 09:30
05/07/2001 11:00	5.25%	06/06/2013 11:00	0.50%	11/11/2009 10:30
02/08/2001 11:00	5.00%	04/07/2013 11:00	0.50%	10/02/2010 10:30
06/09/2001 11:00	5.00%	01/08/2013 11:00	0.50%	12/05/2010 09:30
18/09/2001 11:00	4.75%	05/09/2013 11:00	0.50%	11/08/2010 09:30
04/10/2001 11:00	4.50%	10/10/2013 11:00	0.50%	10/11/2010 10:30
08/11/2001 12:00	4.00%	07/11/2013 12:00	0.50%	16/02/2011 10:30
05/12/2001 12:00	4.00%	05/12/2013 12:00	0.50%	11/05/2011 09:30
10/01/2002 12:00	4.00%	09/01/2014 12:00	0.50%	10/08/2011 09:30
07/02/2002 12:00	4.00%	06/02/2014 12:00	0.50%	16/11/2011 10:30
07/03/2002 12:00	4.00%	06/03/2014 12:00	0.50%	15/02/2012 10:30
04/04/2002 11:00	4.00%	10/04/2014 11:00	0.50%	16/05/2012 09:30
09/05/2002 11:00	4.00%	08/05/2014 11:00	0.50%	08/08/2012 09:30
06/06/2002 11:00	4.00%	05/06/2014 11:00	0.50%	14/11/2012 10:30
04/07/2002 11:00	4.00%	10/07/2014 11:00	0.50%	13/02/2013 10:30
01/08/2002 11:00	4.00%	07/08/2014 11:00	0.50%	15/05/2013 09:30
05/09/2002 11:00	4.00%	04/09/2014 11:00	0.50%	07/08/2013 09:30
10/10/2002 11:00	4.00%	09/10/2014 11:00	0.50%	13/11/2013 10:30
07/11/2002 12:00	4.00%	06/11/2014 12:00	0.50%	12/02/2014 10:30
05/12/2002 12:00	4.00%	04/12/2014 12:00	0.50%	14/05/2014 09:30
09/01/2003 12:00	4.00%	08/01/2015 12:00	0.50%	13/08/2014 09:30

06/02/2003 12:00	3.75%	05/02/2015 12:00	0.50%	12/11/2014 10:30
06/03/2003 12:00	3.75%	05/03/2015 12:00	0.50%	12/02/2015 10:30
10/04/2003 11:00	3.75%	09/04/2015 11:00	0.50%	13/05/2015 09:30
08/05/2003 11:00	3.75%	11/05/2015 11:00	0.50%	06/08/2015 11:00
05/06/2003 11:00	3.75%	04/06/2015 11:00	0.50%	05/11/2015 12:00
10/07/2003 11:00	3.50%	09/07/2015 11:00	0.50%	04/02/2016 12:00
07/08/2003 11:00	3.50%	06/08/2015 11:00	0.50%	12/05/2016 11:00
04/09/2003 11:00	3.50%	10/09/2015 11:00	0.50%	04/08/2016 11:00
09/10/2003 11:00	3.50%	08/10/2015 11:00	0.50%	03/11/2016 12:00
06/11/2003 12:00	3.75%	05/11/2015 12:00	0.50%	02/02/2017 12:00
04/12/2003 12:00	3.75%	10/12/2015 12:00	0.50%	11/05/2017 11:00
08/01/2004 12:00	3.75%	14/01/2016 12:00	0.50%	03/08/2017 11:00
05/02/2004 12:00	4.00%	04/02/2016 12:00	0.50%	02/11/2017 12:00
04/03/2004 12:00	4.00%	17/03/2016 12:00	0.50%	08/02/2018 12:00
08/04/2004 11:00	4.00%	14/04/2016 11:00	0.50%	10/05/2018 11:00
06/05/2004 11:00	4.25%	12/05/2016 11:00	0.50%	02/08/2018 11:00
10/06/2004 11:00	4.50%	16/06/2016 11:00	0.50%	01/11/2018 12:00
08/07/2004 11:00	4.50%	14/07/2016 11:00	0.50%	07/02/2019 12:00
05/08/2004 11:00	4.75%	04/08/2016 11:00	0.25%	02/05/2019 11:00
09/09/2004 11:00	4.75%	15/09/2016 11:00	0.25%	01/08/2019 11:00
07/10/2004 11:00	4.75%	03/11/2016 12:00	0.25%	07/11/2019 12:00
04/11/2004 12:00	4.75%	15/12/2016 12:00	0.25%	30/01/2020 12:00
09/12/2004 12:00	4.75%	02/02/2017 12:00	0.25%	07/05/2020 11:00
13/01/2005 12:00	4.75%	16/03/2017 12:00	0.25%	06/08/2020 11:00
10/02/2005 12:00	4.75%	11/05/2017 11:00	0.25%	05/11/2020 12:00
10/03/2005 12:00	4.75%	15/06/2017 11:00	0.25%	04/02/2021 12:00
07/04/2005 11:00	4.75%	03/08/2017 11:00	0.25%	06/05/2021 11:00
09/05/2005 11:00	4.75%	14/09/2017 11:00	0.25%	05/08/2021 11:00
09/06/2005 11:00	4.75%	02/11/2017 12:00	0.50%	04/11/2021 12:00
07/07/2005 11:00	4.75%	14/12/2017 12:00	0.50%	03/02/2022 12:00
04/08/2005 11:00	4.50%	08/02/2018 12:00	0.50%	05/05/2022 11:00
08/09/2005 11:00	4.50%	22/03/2018 12:00	0.50%	04/08/2022 11:00
06/10/2005 11:00	4.50%	10/05/2018 11:00	0.50%	03/11/2022 12:00
10/11/2005 12:00	4.50%	21/06/2018 11:00	0.50%	02/02/2023 12:00
08/12/2005 12:00	4.50%	02/08/2018 11:00	0.75%	
12/01/2006 12:00	4.50%	13/09/2018 11:00	0.75%	

09/02/2006 12:00	4.50%	01/11/2018 12:00	0.75%
09/03/2006 12:00	4.50%	20/12/2018 12:00	0.75%
06/04/2006 11:00	4.50%	07/02/2019 12:00	0.75%
04/05/2006 11:00	4.50%	21/03/2019 12:00	0.75%
08/06/2006 11:00	4.50%	02/05/2019 11:00	0.75%
06/07/2006 11:00	4.50%	20/06/2019 11:00	0.75%
03/08/2006 11:00	4.75%	01/08/2019 11:00	0.75%
07/09/2006 11:00	4.75%	19/09/2019 11:00	0.75%
05/10/2006 11:00	4.75%	07/11/2019 12:00	0.75%
09/11/2006 12:00	5.00%	19/12/2019 12:00	0.75%
07/12/2006 12:00	5.00%	30/01/2020 12:00	0.75%
11/01/2007 12:00	5.25%	11/03/2020 07:01	0.25%
08/02/2007 12:00	5.25%	19/03/2020 14:33	0.10%
08/03/2007 12:00	5.25%	26/03/2020 12:00	0.10%
05/04/2007 11:00	5.25%	07/05/2020 6:00	0.10%
10/05/2007 11:00	5.50%	18/06/2020 11:00	0.10%
07/06/2007 11:00	5.50%	06/08/2020 06:00	0.10%
05/07/2007 11:00	5.75%	17/09/2020 11:00	0.10%
02/08/2007 11:00	5.75%	05/11/2020 07:00	0.10%
06/09/2007 11:00	5.75%	17/12/2020 12:00	0.10%
04/10/2007 11:00	5.75%	04/02/2021 12:00	0.10%
08/11/2007 12:00	5.75%	18/03/2021 12:00	0.10%
06/12/2007 12:00	5.50%	06/05/2021 11:00	0.10%
10/01/2008 12:00	5.50%	24/06/2021 11:00	0.10%
07/02/2008 12:00	5.25%	05/08/2021 11:00	0.10%
06/03/2008 12:00	5.25%	23/09/2021 11:00	0.10%
10/04/2008 11:00	5.00%	04/11/2021 12:00	0.10%
08/05/2008 11:00	5.00%	16/12/2021 12:00	0.25%
05/06/2008 11:00	5.00%	03/02/2022 12:00	0.50%
10/07/2008 11:00	5.00%	17/03/2022 12:00	0.75%
07/08/2008 11:00	5.00%	05/05/2022 11:00	1.00%
04/09/2008 11:00	5.00%	16/06/2022 11:00	1.25%
08/10/2008 11:00	4.50%	04/08/2022 11:00	1.75%
06/11/2008 12:00	3.00%	22/09/2022 11:00	2.25%
04/12/2008 12:00	2.00%	03/11/2022 12:00	3.00%
08/01/2009 12:00	1.50%	15/12/2022 12:00	3.50%

05/02/2009 12:00	1.00%	02/02/2023 12:00	4.00%
05/03/2009 12:00	0.50%	23/03/2023 12:00	4.25%
09/04/2009 11:00	0.50%		

B Supplementary results on the Factors Extraction

The following section provides test results for the number of factors in UK interest rate surprises, and compares our baseline factors to those obtained using alternative identification strategies.

B.1 Testing for the number of factors

Let X^{mpc} (286×7) be the matrix that contains high-frequency interest rate surprises computed in the Monetary Policy Committee (MPC) announcement window. This includes surprises based on the first four quarterly sterling futures, as well as Gilt yields at 2-, 5- and 10 year maturities. Equivalently, let X^{pc} (106×7) be the corresponding matrix for interest rate surprises computed in the Press Conference (PC) window. Then, $X^{all} = [X^{mpc} : X^{pc}]'$ (392×7) contains the stacked monetary policy surprises obtained during the MPC and the PC window.

Table B.1 summarises results from a formal statistical test for the number of factors underlying X^{pc} , X^{pc} and X^{all} , or equivalently, their matrix rank (Cragg and Donald, 1997). The procedure involves a sequence of tests $H_0 : r = r_0$ vs $H_a : r > r_0$ for $r_0 = 0, \dots, r_{max}$ until the null hypothesis of matrix rank r_0 cannot be rejected. Due to missing ask price quotes and illiquidity of some contracts in the earlier part of the sample, we run the test starting from January 2000.

The test results provide strong support for three factors underlying UK monetary interest rate surprises. The results do not vary if we study separately the number of factors for surprises of the MPC announcement window (Panel A), surprises of the Press Conference window (Panel B), or the union thereof (Panel C).

B.2 Supplementary results for the baseline factors

Supported by the test results, we estimate three factors using Principal Component Analysis (PCA) for the stacked matrix X^{all} . In order to facilitate economic interpretation, the factors are then rotated based on three identifying restrictions discussed in the main part of the paper. Specifically, only the Target factor is allowed to load on the surprise of the first quarterly sterling future, yielding two restrictions. To distinguish between Path and QE factor, a third restriction minimises the variance of the QE factor prior to September 2008, which corresponds to the onset of the global financial crisis.

TABLE B.1: TESTS FOR THE NUMBER OF FACTORS
UNDERLYING UK INTEREST RATE SURPRISES.

Panel A: Test results for X^{mpc} (MPC window)			
$H_0 : r = r_0$	degrees of freedom	Wald statistic	p value
0	21	58.25	0.00002
1	14	37.11	0.00071
2	8	21.07	0.00696
3	3	4.03	0.25807
Panel B: Test results for X^{pc} (PC window)			
$H_0 : r = r_0$	degrees of freedom	Wald statistic	p value
0	21	71.27	0.00000
1	14	41.21	0.00016
2	8	21.85	0.00520
3	3	2.85	0.41454
Panel C: Test results for X^{all} (stacked surprises)			
$H_0 : r = r_0$	degrees of freedom	Wald statistic	p value
0	21	81.36	0.00000
1	14	50.18	0.00001
2	8	20.29	0.00927
3	3	4.42	0.21948

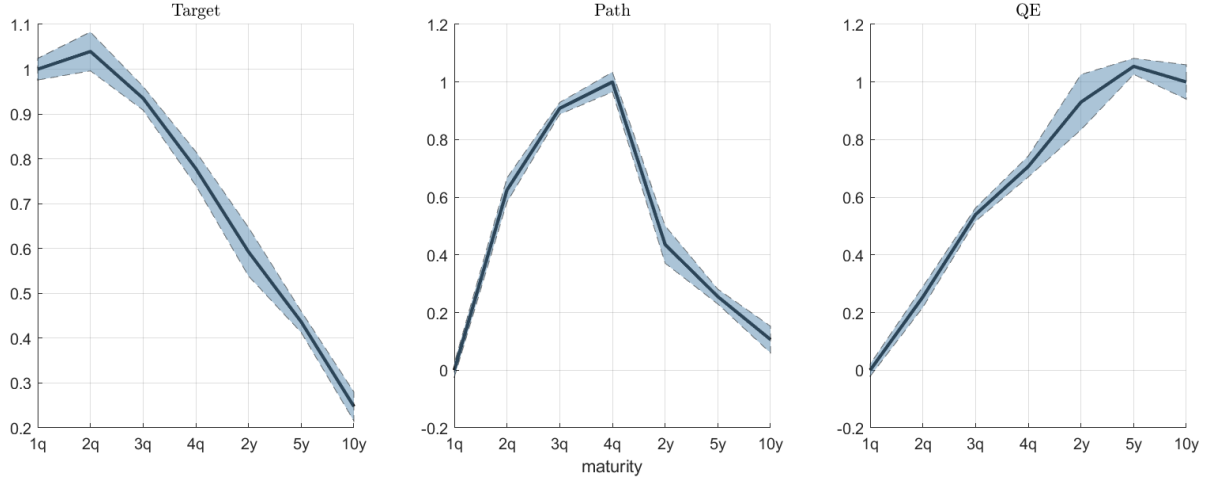
Note: Results the test of Cragg and Donald (1997) for the number of factors underlying UK monetary policy rate surprises over the sample 2000M1-2023M12.

Figure B.1 plots the loadings of the three identified factors on the contracts used for their estimation. For ease of interpretation, we standardise the factors such that the Target has a unit loading on the first short sterling futures (\simeq 3-month maturity), the Path factor has unit loading on the fourth short sterling futures (\simeq one year), and the QE factor on the 10-year gilt yield.

The pattern depicted in Figure B.1 is equivalent to what documented for other central banks announcements (see e.g. Miranda-Agrippino and Nenova, 2022). The loadings of the Target factor peak at the short-end of the yield curve, and decrease afterwards. The factor can thus be interpreted as summarising conventional Bank Rate policy. Loadings for the Path factor peak at the 1-year horizon. The factor can therefore be interpreted as summarising anticipated monetary policy changes e.g. arising from the MPC's forward guidance (either explicit – post-2013 – or implicit, in the preceding years). Finally, the loadings of the QE factor build up gradually to peak at the 10-year maturity.

Figure B.2 displays a time series of the daily factors, further split into variation due to the MPC window (blue bar) and PC window (red bar). Note that after the introduction of Super Thursday, the bar chart becomes stacked given that MPC and

FIGURE B.1: ESTIMATED BASELINE FACTOR LOADINGS



Notes: The black line plots the point estimates of a regression of the monetary policy surprises on the Target, Path and QE factor (loadings). The blue shaded area indicate 95% confidence intervals.

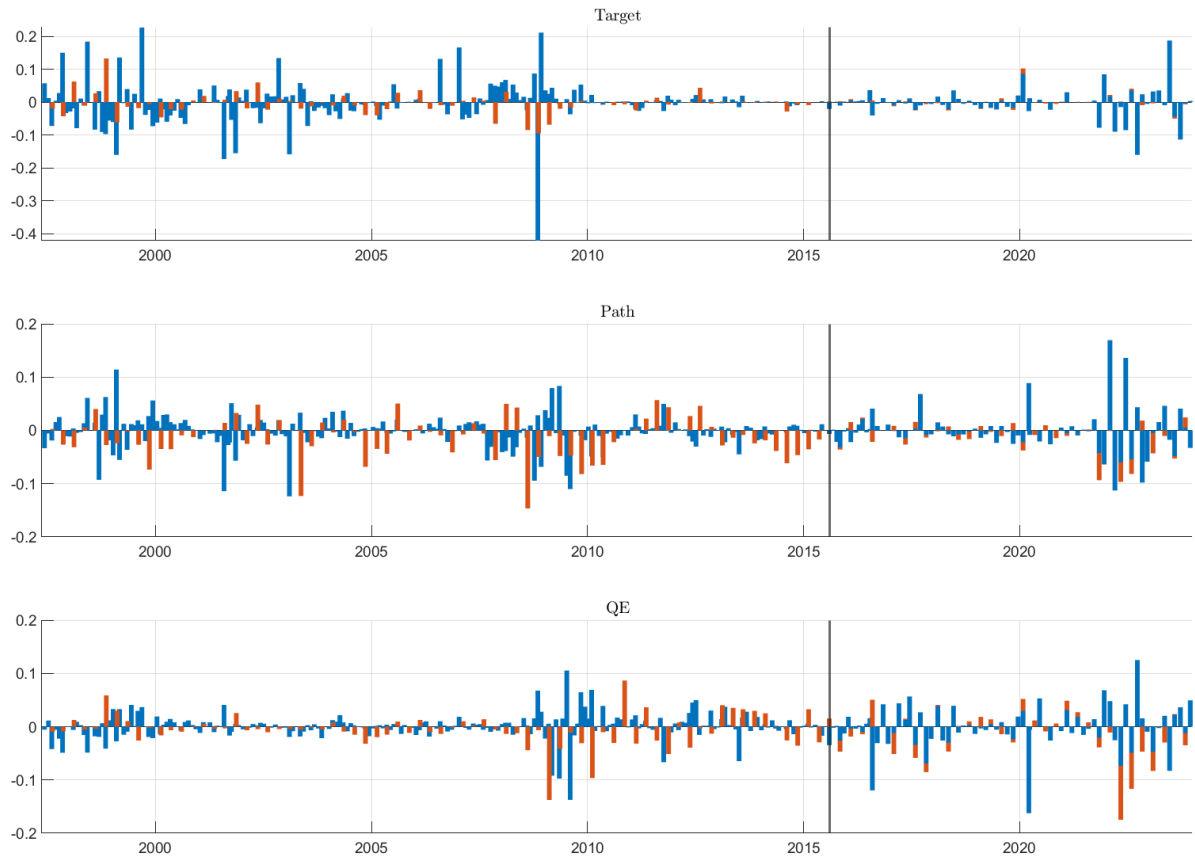
PC were held on the same day.

Consistent with the estimated loadings, the Target factor displays substantial variation prior to the financial crisis, with largest surprises e.g. during 2008, and very little variation during the effective lower bound years. The Path factor spikes most significantly in recent times, but shows important variation throughout the sample. The QE factor picks up the most relevant QE announcement dates such as March 2009 (£75bn) or March 2020 (£200bn). However, the factor also picks up expectations about future QE programmes, e.g. guidance about future QE (February 2009) or QT (May and August, 2022).

We note that, in contrast to the Path and QE factors, very little information about the Target factor is released during the Press Conference window.

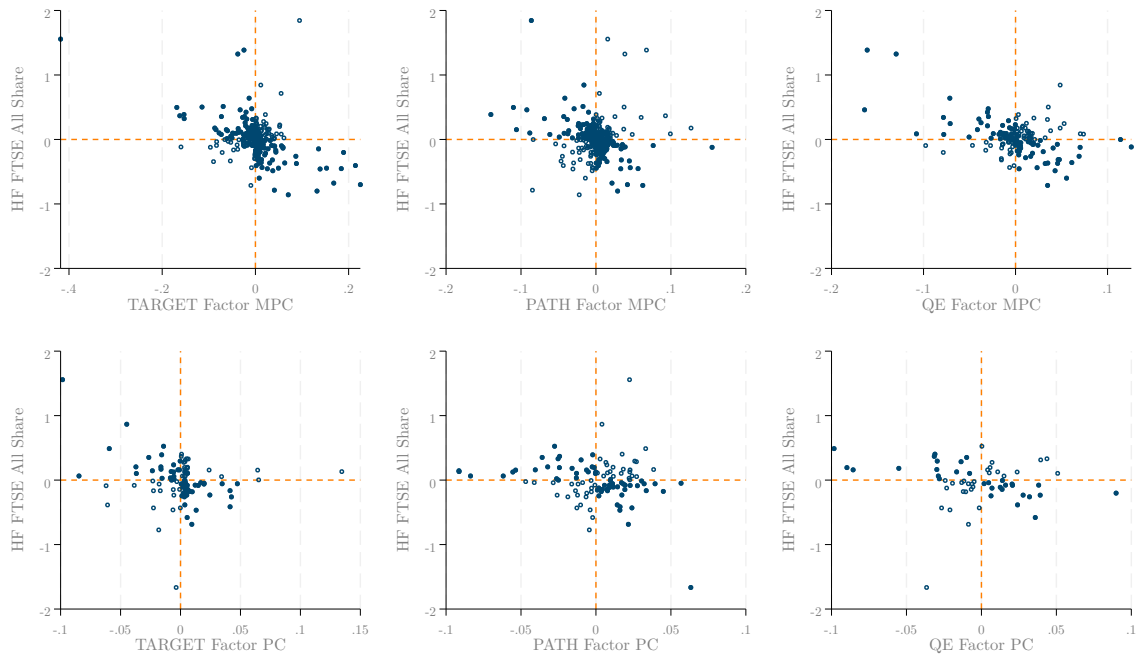
Figure B.3 plots the high-frequency comovement of the three factors across the two windows with the FTSE All Share. The picture is very similar to what obtained when using the FTSE 250 which we use in the main body of the paper.

FIGURE B.2: ESTIMATED DAILY BASELINE FACTORS



Notes: The blue bars denote variation due to the Monetary Policy Committee (MPC) announcement window, while the red bars denote variation due to the Press conference (PC) window. The vertical line indicates the introduction of Super Thursday, after which MPC and PC are being held on the same day.

FIGURE B.3: HIGH-FREQUENCY CO-MOVEMENT BETWEEN UK MONETARY POLICY FACTORS AND THE FTSE AS



Notes: Scatter plots of the intraday comovement between the factors and the FTSE All Share stock market index. In the top panels the factors are computed around MPC announcements only, in the bottom panel using both MPC and MPR press conference windows. The darker markers denote observations that align with the theoretical responses to monetary policy as in Jarociński and Karadi (2020).

B.3 Alternative identification strategies

In what follows, we compare our baseline factors to those obtained based on two alternative identification schemes.

The first alternative (alt-1) is designed to mitigate concerns about our shortest maturity contract being based on the three month Libor (or Sterling) interest rate. Therefore, rate surprises for this contract may partly reflect expectations about the future policy stance. In light of this backdrop, the exclusion restriction of the Path factor on the first contract may seem overly restrictive. Alt-1 relaxes this restriction and instead disentangles the Target and Path factors by minimising the variance of the former during the press conference window.

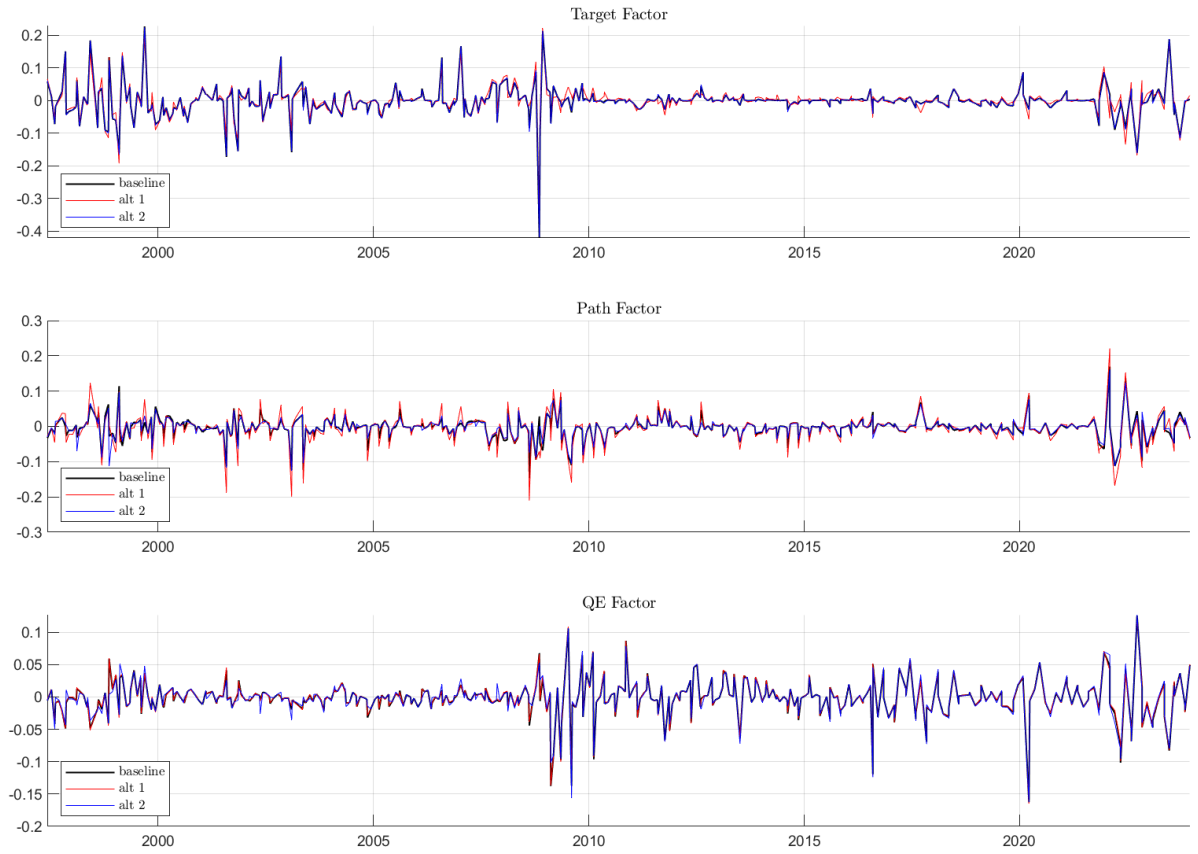
The second alternative (alt-2) is based on estimation of the principal components for the MPC (X^{mpc}) and PC surprises (X^{pc}) separately. Then, the same identifying restrictions are imposed as in our baseline procedure (i.e. same as in Swanson, 2021). This approach relaxes the restriction that the factors must have the same loading over the MPC and PC windows. However, since the factors are estimated over two different samples, they are no longer uncorrelated by design.

Figure B.4 compares estimates of daily factors across the three identification schemes. Generally, the estimates are highly correlated under the three identification schemes, showing very similar variation throughout the sample. Pairwise correlation coefficients between baseline and alternative identification schemes range between 94% and 99%.

In the remainder, we compare the estimated loadings to those obtained under our baseline identification scheme. To ease comparability, the factors are standardised to unit variance. Figure B.5 shows estimates based on alt-1; while the factors have a qualitatively similar size and shape, three differences arise. Unlike in our baseline results, the Target factor's largest loading is on the shortest maturity contract. Furthermore, since the Path factor is no longer restricted to be zero, it has a significant impact on the first quarterly futures. Third, more variation is picked up by the Path factor in alt-1 given the larger loadings throughout.

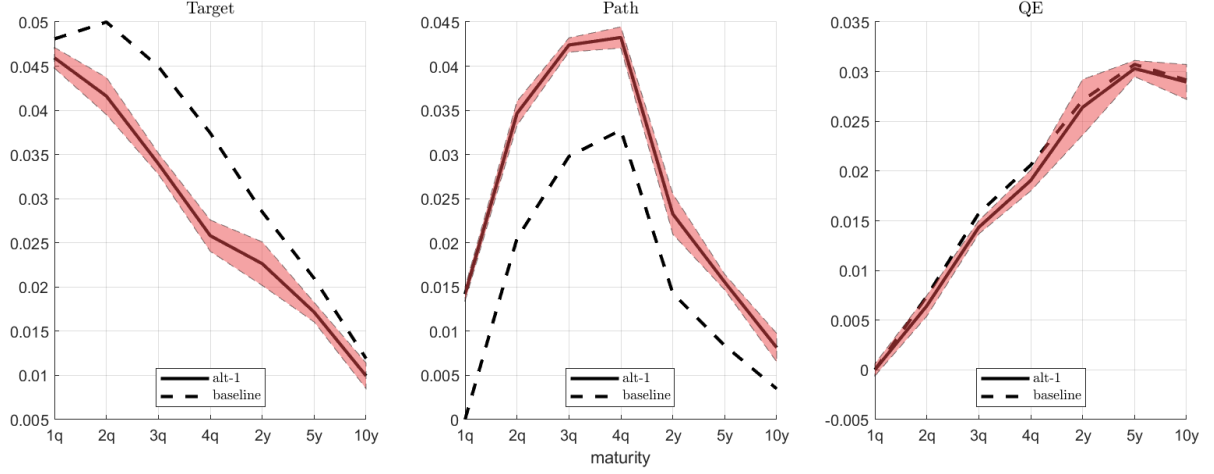
Figure B.6 shows estimates based on alt-2, where the loadings are allowed to be different between the MPC (green) and PC window (orange). Generally, the loadings corresponding to the Path and QE factors in alt-2 are fairly similar to those obtained under the baseline identification scheme. Only the loadings of the Target factor extracted over the Press Conference window are different in magnitude and shape. However, we discount this result somewhat since the Target factor is a relatively unimportant driver in the Press Conference window (see Figure B.2).

FIGURE B.4: ESTIMATED DAILY FACTORS ACROSS THREE IDENTIFICATION SCHEMES



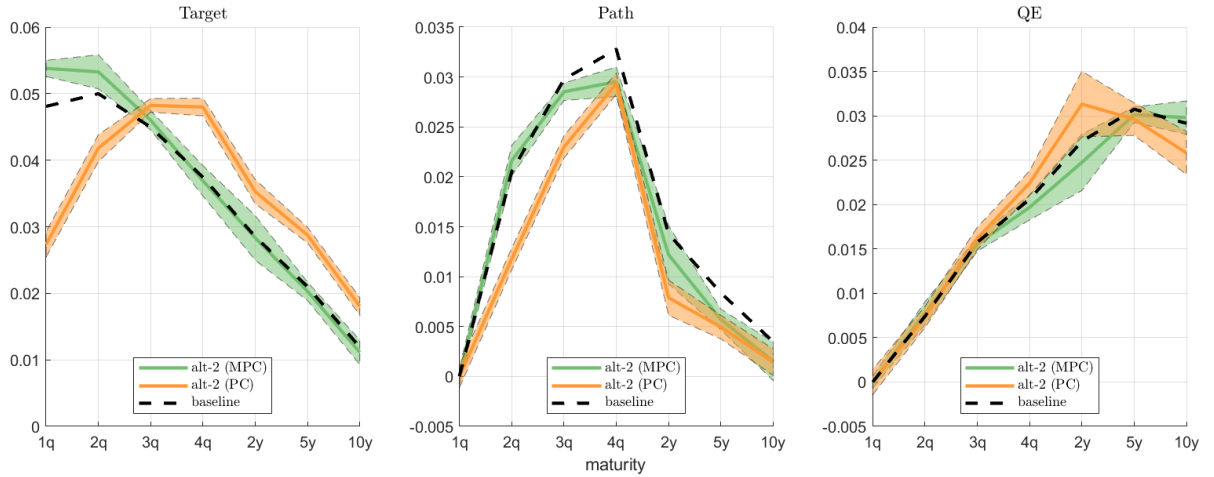
Notes: the black line shows estimated factors based on our baseline identification procedure. The red line shows results under the alternative identification scheme, where the Target and Path factors are disentangled minimizing the former's variance during the Press Conference (PC) window. The blue line shows factors that are estimated and identified separately over MPC and PC surprises.

FIGURE B.5: ESTIMATED FACTOR LOADINGS: ALTERNATIVE IDENTIFICATION
SCHEME 1



Notes: The black line plots the point estimates of a regression of the monetary policy surprises on the Target, Path and QE factor (loadings) under the alternative identification scheme 1. The dashed line shows estimated loadings under our baseline identification scheme. Shaded areas indicate 95% confidence intervals.

FIGURE B.6: ESTIMATED FACTOR LOADINGS: ALTERNATIVE IDENTIFICATION
SCHEME 2



Notes: The green line plots the point estimates of a regression of the interest rate surprises on the Target, Path and QE factor (loadings) under the alternative identification scheme 2 (MPC window). The orange line gives the same estimates obtained for surprises corresponding to the Press Conference window. The dashed line shows estimated loadings under our baseline identification scheme. Shaded areas indicate 95% confidence intervals.

C Additional Tables

In this section we report additional results on the responses of asset prices to UK monetary policy news.

Table C.1 reports results of intraday responses to Bank Rate and communication shocks in the post Super Thursday sample that excludes the tightening cycle of 2022 and 2023.

Table C.2 reports results on the role of MPC dissent using the alternative dissent index of Riboni and Ruge-Murcia (2014).

Table C.3 reports results on the response of inflation compensation as extracted from swap rates.

TABLE C.1: INTRADAY REACTIONS 2015-2021

	GBT1Y	GBT2Y	GBT5Y	GBT10Y	GBPEUR	GBPUSD	FTSEAS	FTSE250	FTSE100
Panel A: Announcement window									
TARGET	1.341*** (0.209) [6.418]	1.147*** (0.314) [3.655]	1.173*** (0.342) [3.429]	1.019** (0.384) [2.656]	10.898 (6.527) [1.670]	13.984* (6.769) [2.066]	-6.782*** (1.864) [-3.639]	-5.595 (5.463) [-1.024]	-5.694 (4.480) [-1.271]
PATH	-0.142 (0.292) [-0.486]	0.416 (0.535) [0.777]	0.503 (0.579) [0.869]	0.116 (0.626) [0.185]	8.051 (10.636) [0.757]	2.650 (10.036) [0.264]	-4.137 (3.325) [-1.244]	-7.789 (7.505) [-1.038]	-7.090 (6.354) [-1.116]
R^2	0.796	0.723	0.669	0.504	0.505	0.512	0.671	0.406	0.491
N	19	19	19	19	19	19	18	18	18
Panel B: Announcement & Press Conference window									
TARGET	1.553*** (0.274) [5.667]	1.503*** (0.358) [4.202]	1.355*** (0.370) [3.659]	1.383*** (0.384) [3.596]	12.674* (6.990) [1.813]	16.789** (6.279) [2.674]	-9.804* (4.784) [-2.049]	-10.222* (5.306) [-1.926]	-9.931** (4.682) [-2.121]
PATH	0.485* (0.256) [1.897]	0.175 (0.402) [0.435]	0.425 (0.441) [0.964]	-0.285 (0.409) [-0.697]	2.556 (8.160) [0.313]	-1.372 (7.840) [-0.175]	-2.177 (3.833) [-0.568]	3.566 (5.058) [0.705]	2.340 (4.257) [0.550]
R^2	0.843	0.631	0.500	0.390	0.392	0.427	0.633	0.130	0.235
N	20	20	20	20	20	20	19	19	19

Notes: All regressions include a constant and use only the monetary policy news of each factor. The monetary policy news is extracted as in Jarociński and Karadi (2020). Sample: August 2015 to December 2021. Coefficients are expressed in % points. Announcement Frequency. Robust SE in parentheses, t-stats in square brackets, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE C.2: MPC DISSENT AND RESPONSE TO BANK RATE NEWS

	GBT1Y	GBT2Y	GBT5Y	GBT10Y	GBPEUR	GBPUSD	FTSEAS	FTSE250	FTSE100
TARGET	0.562** (0.224) [2.506]	0.556** (0.239) [2.327]	0.453 (0.274) [1.656]	0.301 (0.279) [1.079]	4.464** (1.684) [2.651]	4.959*** (1.702) [2.914]	-3.964** (1.588) [-2.497]	-4.053** (1.749) [-2.317]	-3.935** (1.654) [-2.378]
Dissent	0.106** (0.043) [2.433]	0.128*** (0.045) [2.820]	0.126*** (0.046) [2.740]	0.106** (0.048) [2.226]	0.691* (0.374) [1.847]	0.677* (0.357) [1.896]	-0.323 (0.332) [-0.974]	-0.617* (0.340) [-1.816]	-0.556* (0.313) [-1.777]
TARGET×Dissent	-0.893 (0.684) [-1.306]	-0.566 (0.714) [-0.792]	-0.534 (0.822) [-0.650]	-0.315 (0.801) [-0.393]	4.097 (5.149) [0.796]	5.300 (5.182) [1.023]	-2.225 (4.167) [-0.534]	-1.342 (4.734) [-0.283]	-1.429 (4.476) [-0.319]
R^2	0.239	0.199	0.111	0.039	0.142	0.193	0.139	0.121	0.134
N	44	44	44	44	44	44	43	43	43

Notes: All regressions include a constant. The monetary policy news is extracted as in Jarociński and Karadi (2020). Dissent measured as in Riboni and Ruge-Murcia (2014). Announcement Frequency. Robust SE in parentheses, t-stats in square brackets, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE C.3: DAILY REACTIONS SWAP-BASED INFLATION COMPENSATION

	SWAPI2Y	SWAPI5Y	SWAPI5Y5Y	SWAPI10Y
Panel A: October 2004 to June 2023				
TARGET	0.120 (0.182) [0.662]	0.012 (0.080) [0.150]	-0.155* (0.079) [-1.957]	-0.072 (0.059) [-1.206]
PATH	0.073 (0.265) [0.274]	-0.149 (0.165) [-0.905]	-0.129 (0.115) [-1.123]	-0.139 (0.116) [-1.198]
R^2	-0.023	-0.021	-0.002	-0.013
N	76	76	76	76
Panel B: August 2015 to June 2023				
TARGET	-0.328 (0.366) [-0.895]	-0.026 (0.221) [-0.118]	0.011 (0.249) [0.043]	-0.008 (0.202) [-0.038]
PATH	0.093 (0.097) [0.958]	-0.264*** (0.072) [-3.664]	-0.242 (0.142) [-1.705]	-0.253*** (0.064) [-3.980]
R^2	-0.055	0.114	0.074	0.139
N	25	25	25	25
Panel C: March 2009 to June 2023				
QE	0.254* (0.142) [1.781]	-0.012 (0.105) [-0.116]	0.031 (0.120) [0.262]	0.010 (0.086) [0.112]
R^2	-0.006	-0.008	-0.008	-0.008
N	132	132	132	132

Notes: All regressions include a constant and use only the monetary policy news of each factor. The monetary policy news is extracted as in Jarociński and Karadi (2020). The measurement window includes both MPC announcements and MPR Press Conference in all regressions. Coefficients are expressed in % points. Announcement Frequency. Robust SE in parentheses, t-stats in square brackets, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D Additional Figures

This section reports additional figures.

Figure D.1 sketches the changes in the BOE policy and communication cycle that were introduced in August 2015.

Figure D.2 compares the size of short-term policy surprises in the UK, US and EA.

Figure D.3 compares the shares of large policy surprises across different policy tools in the UK, US and EA. All factors are extracted as in Swanson (2021). UK policy surprises are generally not correlated with policy surprises in the US and the EA. Exceptions are the ECB and BOE Target factors, which are mildly negatively correlated in the pre-2009 sample (correlation equal to -0.26, p-value 0.002), and the BOE and Fed QE factor that are positively correlated in the post crisis sample (0.23, p-value 0.018). We take the US and EA factors from Miranda-Agrippino and Nenova (2022). These are available over the samples 1991-2017 (US) and 1999-2018 (EA). Correlations are computed over the overlapping samples.

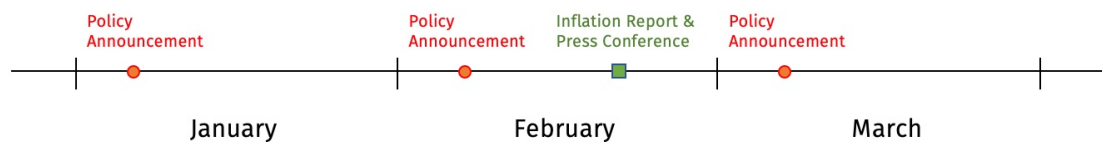
Figure D.4 reports the IRFs to the Target and Path factors computed using the alternative identification scheme 1 (see Section B.3).

Figure D.5 reports the IRFs to the QE factor.

Figure D.6 reports the IRFs to the QE factor computed using the alternative identification scheme 1 (see Section B.3).

FIGURE D.1: BANK OF ENGLAND POLICY CYCLE

Pre-2015, monthly policy cycle

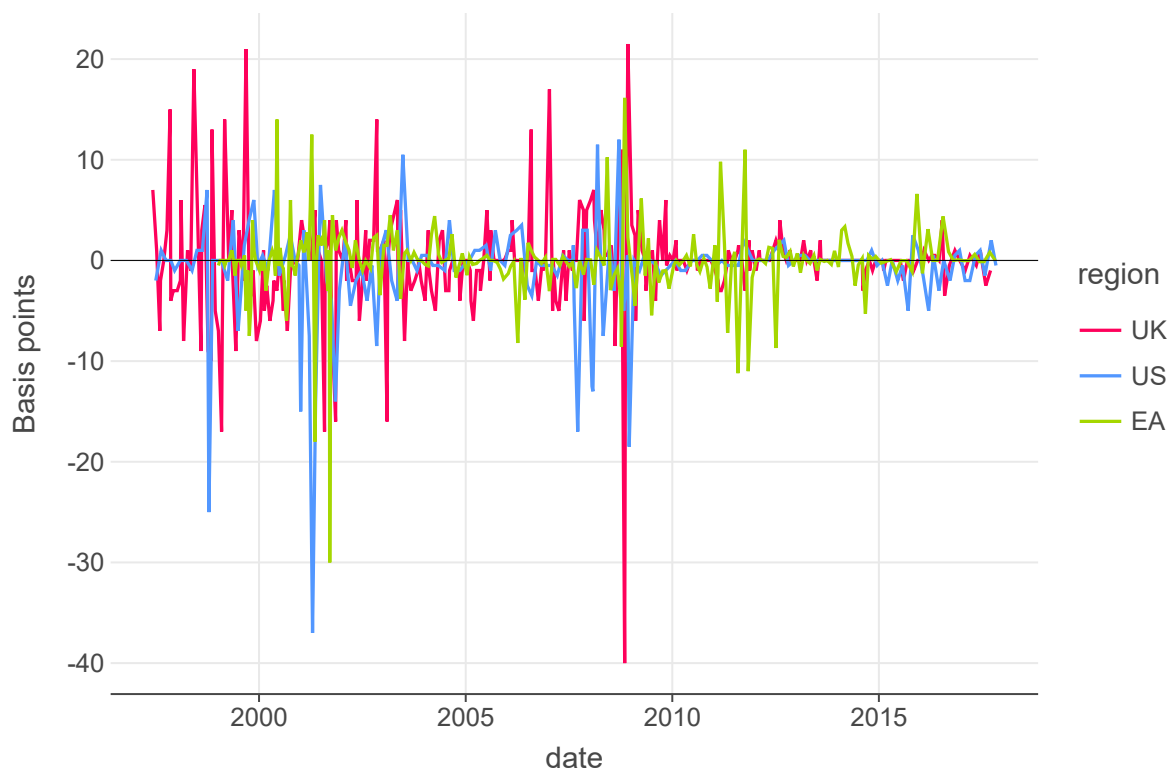


Post-2015, 6-week policy cycle



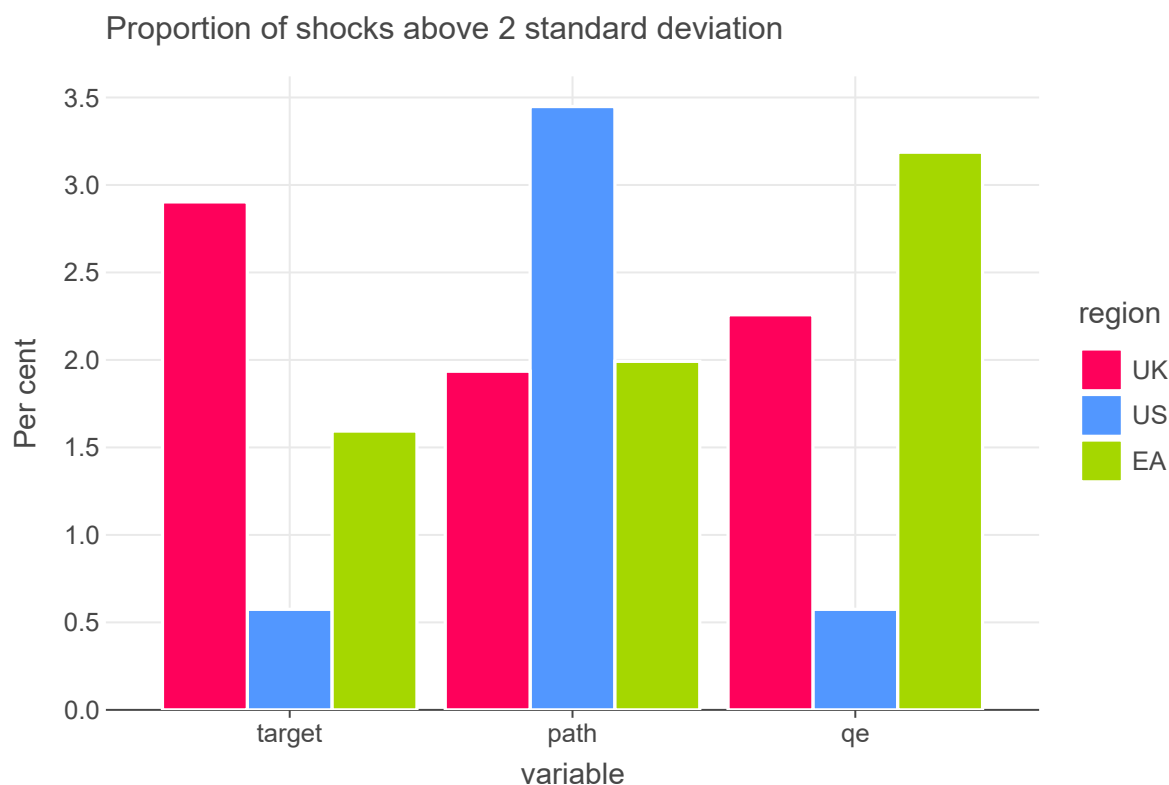
Notes: The figure sketches the changes in the BOE policy and communication cycle that were introduced in August 2015. The figure repeats for each quarter in every year over the relevant sample.

FIGURE D.2: SIZE OF SHORT-TERM POLICY SURPRISES ACROSS REGIONS



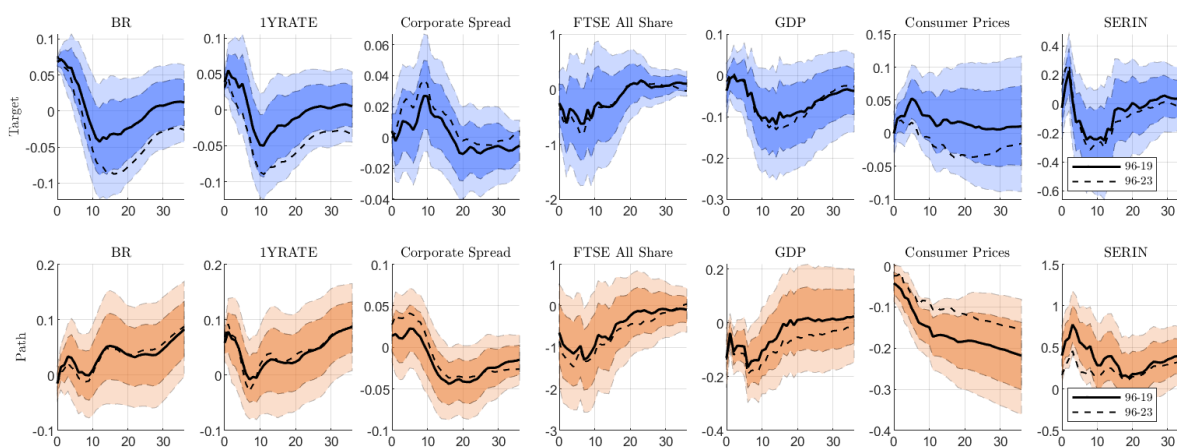
Notes: The figure uses the first short sterling futures for the UK, the fourth federal funds futures for the US, and the 3-month OIS for the EA.

FIGURE D.3: OCCURRENCE OF LARGE POLICY SURPRISES ACROSS REGIONS



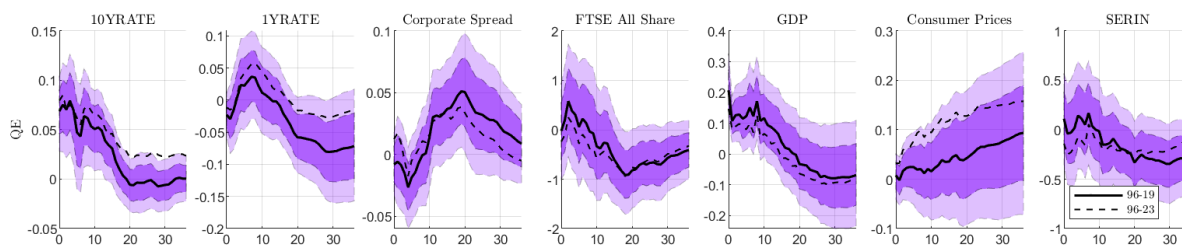
Notes: The figure reports the share of observations in each standardised factor that are above two standard deviations. All factors are standardised to zero mean and unit variance. US and EA factors are taken from Miranda-Agrippino and Nenova (2022).

FIGURE D.4: RESPONSES TO BOE POLICY SHOCKS (ALT-1 FACTORS)



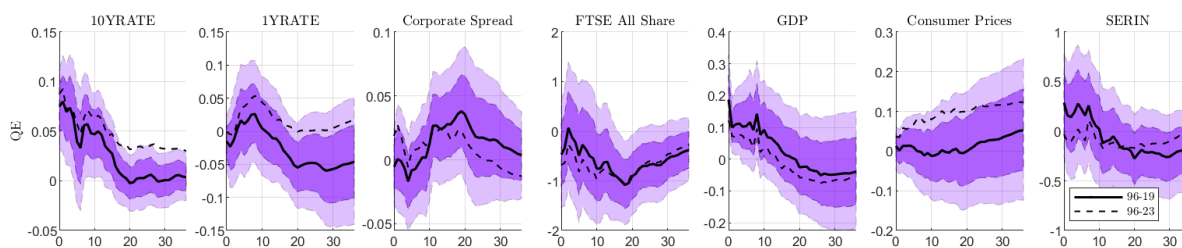
Notes: Impulse response functions to a UK Target (top panel) and Path (bottom panel) shock obtained using alternative factors 1 as external instruments. Shaded areas correspond to 68% and 90% confidence bands. Sample: 1997-2019 (solid line), and 1997-2023 (dashed line).

FIGURE D.5: RESPONSES TO A QE SHOCK



Notes: Impulse response functions to a UK Target (top panel) and Path (bottom panel) shock obtained using the QE factor as external instruments. Shaded areas correspond to 68% and 90% confidence bands. Sample: 1997-2019 (solid line), and 1997-2023 (dashed line).

FIGURE D.6: RESPONSES TO A QE SHOCK (ALT-1 FACTORS)



Notes: Impulse response functions to a UK Target (top panel) and Path (bottom panel) shock obtained using the QE factor (alt-1) as external instruments. Shaded areas correspond to 68% and 90% confidence bands. Sample: 1997-2019 (solid line), and 1997-2023 (dashed line).

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