

Appendix to Staff Working Paper No. 782 The impact of QE on liquidity: evidence from the UK Corporate Bond Purchase Scheme Lena Boneva, David Elliott, Iryna Kaminska, Oliver Linton, Nick McLaren and Ben Morley

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Appendix to Staff Working Paper No. 782 The impact of QE on liquidity: evidence from the UK Corporate Bond Purchase Scheme

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A Announcement effects: Full results

Table 1: Announcement effects: Number of trades

-	Number of trades	
	(1)	(2)
Eligible (indicator)	0.223	2.940*
	(0.843)	(1.508)
Amount outstanding (GBP mn)	0.009***	-0.013^{***}
,	(0.002)	(0.002)
Credit rating	$-0.207^{'}$	$-0.536^{'}$
	(0.263)	(0.415)
Residual maturity (years)	0.401**	0.111
, ,	(0.180)	(0.085)
Residual maturity squared (years)	-0.006^{**}	-0.0001
v 1 (v /	(0.003)	(0.0001)
Spread to reference government bond (bps)	$-0.010^{'}$	-0.016
	(0.008)	(0.018)
Gilt amount outstanding (GBP mn)	0.00001	,
	(0.00001)	
Control group	Sterling	Euro
Industry fixed effects	Yes	Yes
Observations	545	690
\mathbb{R}^2	0.085	0.153

*p<0.1; **p<0.05; ***p<0.01

Table 2: Announcement effects: Trading volume (GBP mn)

-	Trading volume (GBP mn)	
	(1)	(2)
Eligible (indicator)	0.860	4.515***
,	(0.993)	(1.519)
Amount outstanding (GBP mn)	0.012***	-0.008^{***}
	(0.002)	(0.002)
Credit rating	$-0.115^{'}$	$-0.224^{'}$
	(0.310)	(0.418)
Residual maturity (years)	0.381^{*}	$0.046^{'}$
V (V)	(0.211)	(0.086)
Residual maturity squared (years)	-0.008**	-0.00003
V 1 (V)	(0.004)	(0.0001)
Spread to reference government bond (bps)	$0.002^{'}$	-0.005
	(0.010)	(0.018)
Gilt amount outstanding (GBP mn)	0.00000	,
	(0.00001)	
Control group	Sterling	Euro
Industry fixed effects	Yes	Yes
Observations	545	690
\mathbb{R}^2	0.100	0.098

*p<0.1; **p<0.05; ***p<0.01

Table 3: Announcement effects: Average trade size (GBP mn)

	Average trade size (GBP mn)	
	(1)	(2)
Eligible (indicator)	-0.073	0.240^{*}
	(0.173)	(0.129)
Amount outstanding (GBP mn)	-0.0002	0.0002
	(0.0004)	(0.0001)
Credit rating	-0.051	-0.014
	(0.053)	(0.034)
Residual maturity (years)	$-0.011^{'}$	$-0.006^{'}$
,	(0.037)	(0.007)
Residual maturity squared (years)	-0.00002	0.00001
V 2 (V)	(0.001)	(0.00001)
Spread to reference government bond (bps)	0.0001	0.001
- ,	(0.002)	(0.002)
Gilt amount outstanding (GBP mn)	-0.00000	· ,
	(0.00000)	
Control group	Sterling	Euro
Industry fixed effects	Yes	Yes
Observations	316	505
\mathbb{R}^2	0.027	0.016

*p<0.1; **p<0.05; ***p<0.01

Table 4: Announcement effects: Number of block trades

-	Number of block trades	
	(1)	(2)
Eligible (indicator)	0.119	0.448**
,	(0.150)	(0.205)
Amount outstanding (GBP mn)	0.001***	-0.001^{***}
	(0.0003)	(0.0002)
Credit rating	-0.001	-0.007
	(0.047)	(0.056)
Residual maturity (years)	0.039	$0.005^{'}$
V (V /	(0.032)	(0.012)
Residual maturity squared (years)	$-0.001^{'}$	-0.00000
,	(0.001)	(0.00001)
Spread to reference government bond (bps)	0.00003	0.00001
	(0.001)	(0.002)
Gilt amount outstanding (GBP mn)	-0.00000	` ,
	(0.00000)	
Control group	Sterling	Euro
Industry fixed effects	Yes	Yes
Observations	545	690
\mathbb{R}^2	0.074	0.093

*p<0.1; **p<0.05; ***p<0.01

Table 5: Announcement effects: Effective spread (bps)

	Effective spread (bps)	
	(1)	(2)
Eligible (indicator)	5.249	23.418***
	(10.636)	(7.497)
Amount outstanding (GBP mn)	-0.022	0.012^{*}
,	(0.020)	(0.007)
Credit rating	1.028	$-2.370^{'}$
	(3.187)	(2.075)
Residual maturity (years)	-0.385	$-0.344^{'}$
,	(2.048)	(0.404)
Residual maturity squared (years)	-0.014	0.0004
<u> </u>	(0.031)	(0.0004)
Spread to reference government bond (bps)	0.110	-0.006
-	(0.105)	(0.087)
Gilt amount outstanding (GBP mn)	-0.0001	
	(0.0001)	
Control group	Sterling	Euro
Industry fixed effects	Yes	Yes
Observations	136	213
\mathbb{R}^2	0.078	0.113

*p<0.1; **p<0.05; ***p<0.01

Table 6: Announcement effects: Roll (bps)

	Roll (bps)	
	(1)	(2)
Eligible (indicator)	2.431	-8.237
	(9.778)	(6.333)
Amount outstanding (GBP mn)	-0.049**	-0.006
	(0.020)	(0.007)
Credit rating	$-3.941^{'}$	$-1.192^{'}$
	(2.746)	(1.640)
Residual maturity (years)	$2.587^{'}$	$0.335^{'}$
V (V)	(2.202)	(0.448)
Residual maturity squared (years)	$-0.024^{'}$	-0.0004
v 1 (v)	(0.033)	(0.0004)
Spread to reference government bond (bps)	-0.092	-0.026
	(0.091)	(0.074)
Gilt amount outstanding (GBP mn)	0.00004	,
	(0.0001)	
Control group	Sterling	Euro
Industry fixed effects	Yes	Yes
Observations	154	287
\mathbb{R}^2	0.114	0.050

*p<0.1; **p<0.05; ***p<0.01

The table shows estimated regression results for equation (1). The variables and control groups are defined in Section 4. Standard errors are robust to heteroskedasticity.

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Table 7: Announcement effects: Round-trip cost (bps)

	Round-trip cost (bps)	
	(1)	(2)
Eligible (indicator)	35.026*	-13.335
	(18.193)	(9.802)
Amount outstanding (GBP mn)	$0.020^{'}$	-0.016^{*}
	(0.036)	(0.009)
Credit rating	-4.068	$-0.460^{'}$
	(4.323)	(2.658)
Residual maturity (years)	-1.941	-2.285^{***}
,	(3.164)	(0.425)
Residual maturity squared (years)	0.014	0.002^{***}
<u> </u>	(0.048)	(0.0004)
Spread to reference government bond (bps)	0.274	0.424***
	(0.181)	(0.124)
Gilt amount outstanding (GBP mn)	0.00004	,
	(0.0001)	
Control group	Sterling	Euro
Industry fixed effects	Yes	Yes
Observations	52	94
R^2	0.233	0.323

*p<0.1; **p<0.05; ***p<0.01

Table 8: Announcement effects: Interquartile range (bps)

-	Interquartile range (bps)	
	(1)	(2)
Eligible (indicator)	1.515	4.841
	(7.299)	(5.163)
Amount outstanding (GBP mn)	-0.054^{***}	-0.012^{**}
	(0.015)	(0.005)
Credit rating	-4.286^{**}	-2.984^{**}
	(2.134)	(1.360)
Residual maturity (years)	3.313**	$0.255^{'}$
0 (0 /	(1.498)	(0.296)
Residual maturity squared (years)	$-0.032^{'}$	-0.0003
V 1 (V)	(0.024)	(0.0003)
Spread to reference government bond (bps)	-0.128^{*}	-0.009
	(0.071)	(0.061)
Gilt amount outstanding (GBP mn)	0.0001	,
3 ((0.0001)	
Control group	Sterling	Euro
Industry fixed effects	Yes	Yes
Observations	249	421
\mathbb{R}^2	0.126	0.074

*p<0.1; **p<0.05; ***p<0.01

Table 9: Announcement effects: Amihud (bps)

	Amihud (bps)	
	(1)	(2)
Eligible (indicator)	-14.982	-15.670
,	(23.172)	(15.281)
Amount outstanding (GBP mn)	-0.061	-0.013°
	(0.045)	(0.016)
Credit rating	$-2.993^{'}$	$-4.910^{'}$
	(6.832)	(4.124)
Residual maturity (years)	$5.545^{'}$	2.956***
V (V)	(4.609)	(0.940)
Residual maturity squared (years)	$-0.029^{'}$	-0.003^{***}
· · · · · · · · · · · · · · · · · · ·	(0.074)	(0.001)
Spread to reference government bond (bps)	$-0.311^{'}$	$-0.256^{'}$
	(0.225)	(0.177)
Gilt amount outstanding (GBP mn)	0.0002	,
	(0.0002)	
Control group	Sterling	Euro
Industry fixed effects	Yes	Yes
Observations	226	355
\mathbb{R}^2	0.053	0.077

*p<0.1; **p<0.05; ***p<0.01

Table 10: Announcement effects: Volatility-over-volume (bps)

-	Volatility-over-volume (bps)		
	(1)	(2)	
Eligible (indicator)	-2.788	-6.002^*	
	(5.438)	(3.581)	
Amount outstanding (GBP mn)	-0.030^{***}	-0.006^{*}	
	(0.011)	(0.004)	
Credit rating	$0.459^{'}$	-0.930°	
	(1.527)	(0.927)	
Residual maturity (years)	1.676	0.302	
,	(1.225)	(0.253)	
Residual maturity squared (years)	$-0.015^{'}$	-0.0003	
V 1 (V)	(0.018)	(0.0002)	
Spread to reference government bond (bps)	$-0.010^{'}$	$0.0003^{'}$	
1 (1)	(0.051)	(0.042)	
Gilt amount outstanding (GBP mn)	0.0001	,	
	(0.00005)		
Control group	Sterling	Euro	
Industry fixed effects	Yes	Yes	
Observations	154	287	
\mathbb{R}^2	0.101	0.053	

*p<0.1; **p<0.05; ***p<0.01

B Impact of CBPS purchases on contemporaneous liquidity: Full results

Table 11: Impact of CBPS purchases on contemporaneous liquidity: Number of trades

-	Number of trades			
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.289*** (0.047)	0.246*** (0.063)	0.385*** (0.065)	0.389*** (0.064)
Amount offered (GBP mn)	0.023 (0.022)	0.053^* (0.031)		
Average offer spread (bps)	0.053^* (0.028)	0.129* (0.071)		
Reserve spread (bps)	0.010** (0.004)	-0.136^* (0.071)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	334	317	819	905
Number of auctions	81	81	82	82
Observations	4,275	2,601	14,637	16,579
\mathbb{R}^2	0.432	0.444	0.623	0.605

*p<0.1; **p<0.05; ***p<0.01

Table 12: Impact of CBPS purchases on contemporaneous liquidity: Trading volume (GBP mn)

-	Trading volume (GBP mn)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	0.739*** (0.060)	0.776*** (0.074)	0.978*** (0.068)	0.978*** (0.066)	
Amount offered (GBP mn)	0.035 (0.033)	0.080** (0.037)			
Average offer spread (bps)	0.039 (0.043)	$0.050 \\ (0.064)$			
Reserve spread (bps)	0.018** (0.008)	0.117 (0.092)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	334	317	819	905	
Number of auctions	81	81	82	82	
Observations	4,275	2,601	14,637	16,579	
\mathbb{R}^2	0.309	0.371	0.396	0.469	

*p<0.1; **p<0.05; ***p<0.01

Table 13: Impact of CBPS purchases on contemporaneous liquidity: Average trade size (GBP mn)

-	Average trade size (GBP mn)					
	(1)	(2)	(3)	(4)		
Amount purchased (GBP mn)	0.114*** (0.014)	0.142*** (0.018)	0.145*** (0.021)	0.144*** (0.021)		
Amount offered (GBP mn)	-0.001 (0.003)	-0.002 (0.005)				
Average offer spread (bps)	0.017** (0.007)	-0.008 (0.010)				
Reserve spread (bps)	0.001 (0.001)	0.047*** (0.018)				
Control group	Offer	Limit	Sterling	Euro		
Bond fixed effects	Yes	Yes	Yes	Yes		
Auction fixed effects	Yes	Yes	Yes	Yes		
Number of bonds	328	310	602	772		
Number of auctions	81	81	82	82		
Observations	3,929	2,425	6,615	12,287		
\mathbb{R}^2	0.300	0.394	0.371	0.325		

*p<0.1; **p<0.05; ***p<0.01

Table 14: Impact of CBPS purchases on contemporaneous liquidity: Number of block trades

	Number of block trades					
	(1)	(2)	(3)	(4)		
Amount purchased (GBP mn)	0.091*** (0.009)	0.090*** (0.011)	0.108*** (0.009)	0.110*** (0.009)		
Amount offered (GBP mn)	0.006 (0.006)	0.013** (0.005)				
Average offer spread (bps)	$0.008 \\ (0.007)$	0.010 (0.009)				
Reserve spread (bps)	0.002 (0.001)	0.006 (0.016)				
Control group	Offer	Limit	Sterling	Euro		
Bond fixed effects	Yes	Yes	Yes	Yes		
Auction fixed effects	Yes	Yes	Yes	Yes		
Number of bonds	334	317	819	905		
Number of auctions	81	81	82	82		
Observations	4,275	2,601	14,637	16,579		
\mathbb{R}^2	0.237	0.289	0.321	0.398		

*p<0.1; **p<0.05; ***p<0.01

Table 15: Impact of CBPS purchases on contemporaneous liquidity: Effective spread (bps)

-	Effective spread (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	-0.854^{**} (0.373)	-0.850^* (0.481)	-0.950^* (0.552)	-0.887^* (0.516)	
Amount offered (GBP mn)	0.036 (0.146)	0.204 (0.187)			
Average offer spread (bps)	0.287 (0.423)	-0.539 (0.651)			
Reserve spread (bps)	0.007 (0.039)	0.518 (0.892)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	298	275	523	714	
Number of auctions	81	80	82	82	
Observations	2,560	1,608	3,953	7,888	
\mathbb{R}^2	0.212	0.275	0.249	0.219	

*p<0.1; **p<0.05; ***p<0.01

Table 16: Impact of CBPS purchases on contemporaneous liquidity: Roll (bps)

	Roll (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	-0.357^* (0.195)	-0.693^{**} (0.344)	-0.537 (0.393)	-0.407 (0.387)	
Amount offered (GBP mn)	$0.050 \\ (0.148)$	0.195 (0.183)			
Average offer spread (bps)	-0.254 (0.366)	0.458 (0.583)			
Reserve spread (bps)	-0.035 (0.040)	-0.414 (0.733)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	303	279	507	714	
Number of auctions	81	80	82	82	
Observations	2,645	1,651	4,013	$9,\!258$	
$\frac{\mathbb{R}^2}{}$	0.337	0.364	0.315	0.288	

*p<0.1; **p<0.05; ***p<0.01

Table 17: Impact of CBPS purchases on contemporaneous liquidity: Round-trip cost (bps)

	Round-trip cost (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	0.097 (0.424)	-0.951 (0.641)	-0.469 (0.406)	-0.265 (0.395)	
Amount offered (GBP mn)	-0.007 (0.198)	0.269 (0.285)			
Average offer spread (bps)	0.112 (0.439)	1.066 (0.936)			
Reserve spread (bps)	0.016 (0.058)	-1.799 (1.123)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	271	232	461	655	
Number of auctions	81	79	82	82	
Observations	1,235	775	2,028	4,750	
\mathbb{R}^2	0.578	0.665	0.574	0.520	

*p<0.1; **p<0.05; ***p<0.01

Table 18: Impact of CBPS purchases on contemporaneous liquidity: Interquartile range (bps)

	Interquartile range (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	0.203 (0.222)	$0.006 \\ (0.351)$	-0.042 (0.302)	0.342 (0.325)	
Amount offered (GBP mn)	0.059 (0.126)	0.174 (0.178)			
Average offer spread (bps)	0.227 (0.247)	0.210 (0.462)			
Reserve spread (bps)	0.002 (0.025)	-0.007 (0.523)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	320	299	571	748	
Number of auctions	81	81	82	82	
Observations	3,527	2,182	5,641	11,316	
\mathbb{R}^2	0.434	0.482	0.428	0.451	

*p<0.1; **p<0.05; ***p<0.01

Table 19: Impact of CBPS purchases on contemporaneous liquidity: Amihud (bps)

	Amihud (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	-0.828^* (0.491)	-2.080^{***} (0.617)	-2.742^{***} (0.740)	$-2.301^{***} \\ (0.719)$	
Amount offered (GBP mn)	-0.387^* (0.219)	-0.250 (0.243)			
Average offer spread (bps)	0.079 (0.521)	1.145 (0.960)			
Reserve spread (bps)	-0.102 (0.071)	-1.156 (1.391)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects Auction fixed effects	Yes Yes	Yes Yes	Yes Yes	Yes Yes	
Number of bonds	318	296	562	741	
Number of auctions	81	80	82	82	
Observations	3,340	2,081	5,283	10,147	
$ \underline{\mathbb{R}^2} $	0.286	0.327	0.288	0.297	

*p<0.1; **p<0.05; ***p<0.01

Table 20: Impact of CBPS purchases on contemporaneous liquidity: Volatility-over-volume (bps)

-	Volatility-over-volume (bps)					
	(1)	(2)	(3)	(4)		
Amount purchased (GBP mn)	-0.684^{***} (0.122)	-0.877^{***} (0.152)	-0.941^{***} (0.136)	-0.847^{***} (0.156)		
Amount offered (GBP mn)	0.015 (0.070)	0.020 (0.085)				
Average offer spread (bps)	-0.054 (0.212)	0.106 (0.286)				
Reserve spread (bps)	-0.009 (0.022)	-0.801^{***} (0.308)				
Control group	Offer	Limit	Sterling	Euro		
Bond fixed effects	Yes	Yes	Yes	Yes		
Auction fixed effects	Yes	Yes	Yes	Yes		
Number of bonds	303	279	507	714		
Number of auctions	81	80	82	82		
Observations	2,645	1,651	4,013	$9,\!258$		
\mathbb{R}^2	0.501	0.566	0.570	0.510		

*p<0.1; **p<0.05; ***p<0.01

C Heterogeneity of impact by pre-CBPS liquidity: Full results

Table 21: Heterogeneity of impact by pre-CBPS liquidity: Number of trades

-		Number	of trades	
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.299***	0.257***	0.335***	0.384***
1 /	(0.044)	(0.060)	(0.069)	(0.078)
Amount purchased x Pre-CBPS liquidity	$-0.004^{'}$	$-0.005^{'}$	0.006	$0.005^{'}$
	(0.005)	(0.008)	(0.008)	(0.008)
Amount offered (GBP mn)	$0.023^{'}$	0.051**	,	,
,	(0.018)	(0.025)		
Amount offered x Pre-CBPS liquidity	0.0004	0.001		
1	(0.004)	(0.005)		
Average offer spread (bps)	$0.033^{'}$	0.084		
	(0.026)	(0.068)		
Average offer spread x Pre-CBPS liquidity	-0.0002	0.001		
	(0.001)	(0.002)		
Reserve spread (bps)	0.009**	-0.151^{**}		
·	(0.004)	(0.062)		
Reserve spread x Pre-CBPS liquidity	-0.0001	-0.006		
- · ·	(0.001)	(0.006)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	310	293	751	810
Number of auctions	81	81	82	82
Observations	3,947	2,425	13,964	15,345
\mathbb{R}^2	0.368	0.387	0.618	0.607

*p<0.1; **p<0.05; ***p<0.01

Table 22: Heterogeneity of impact by pre-CBPS liquidity: Trading volume (GBP mn)

		Trading volu	me (GBP mn)	
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.772***	0.797***	0.965***	0.980***
,	(0.060)	(0.077)	(0.080)	(0.068)
Amount purchased x Pre-CBPS liquidity	0.0003	$-0.001^{'}$	0.002	0.001
·	(0.008)	(0.007)	(0.006)	(0.006)
Amount offered (GBP mn)	0.038	0.088**	,	,
,	(0.031)	(0.034)		
Amount offered x Pre-CBPS liquidity	-0.005^{***}	-0.005^{*}		
1	(0.001)	(0.003)		
Average offer spread (bps)	0.017	0.011		
(17.4)	(0.041)	(0.064)		
Average offer spread x Pre-CBPS liquidity	-0.002	0.0002		
· · ·	(0.002)	(0.003)		
Reserve spread (bps)	0.016**	0.067		
- (- /	(0.007)	(0.093)		
Reserve spread x Pre-CBPS liquidity	0.001	$-0.010^{'}$		
-	(0.001)	(0.007)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	310	293	751	810
Number of auctions	81	81	82	82
Observations	3,947	2,425	13,964	15,345
\mathbb{R}^2	0.299	0.357	0.386	0.418

*p<0.1; **p<0.05; ***p<0.01

Table 23: Heterogeneity of impact by pre-CBPS liquidity: Average trade size (GBP mn)

_		Average trade	size (GBP mn)	
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.120***	0.137***	0.144***	0.145***
,	(0.016)	(0.020)	(0.022)	(0.022)
Amount purchased x Pre-CBPS liquidity	$0.012^{'}$	0.016	-0.004	-0.006
- · ·	(0.014)	(0.015)	(0.015)	(0.014)
Amount offered (GBP mn)	-0.0004	0.002	, ,	, ,
,	(0.004)	(0.005)		
Amount offered x Pre-CBPS liquidity	0.0004	-0.001		
- *	(0.003)	(0.004)		
Average offer spread (bps)	0.015**	-0.003		
	(0.007)	(0.011)		
Average offer spread x Pre-CBPS liquidity	-0.016^*	-0.022^*		
	(0.009)	(0.012)		
Reserve spread (bps)	0.001	0.034^*		
-	(0.001)	(0.020)		
Reserve spread x Pre-CBPS liquidity	0.001	0.012		
	(0.001)	(0.011)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	237	226	397	607
Number of auctions	81	81	82	82
Observations	3,154	1,951	5,029	10,792
\mathbb{R}^2	0.294	0.395	0.360	0.304

*p<0.1; **p<0.05; ***p<0.01

Table 24: Heterogeneity of impact by pre-CBPS liquidity: Number of block trades

		Number of	block trades	
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.094***	0.091***	0.104***	0.108***
-	(0.010)	(0.012)	(0.011)	(0.009)
Amount purchased x Pre-CBPS liquidity	-0.001	$-0.003^{'}$	0.004	0.003
1	(0.011)	(0.010)	(0.005)	(0.005)
Amount offered (GBP mn)	$0.005^{'}$	0.013**	, ,	,
,	(0.005)	(0.006)		
Amount offered x Pre-CBPS liquidity	-0.003^*	-0.003		
- •	(0.002)	(0.002)		
Average offer spread (bps)	0.006	0.005		
- , - ,	(0.007)	(0.009)		
Average offer spread x Pre-CBPS liquidity	-0.004	-0.004		
	(0.005)	(0.006)		
Reserve spread (bps)	0.002	-0.001		
	(0.001)	(0.016)		
Reserve spread x Pre-CBPS liquidity	-0.001	-0.011		
	(0.001)	(0.008)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	310	293	751	810
Number of auctions	81	81	82	82
Observations	3,947	2,425	13,964	15,345
\mathbb{R}^2	0.231	0.273	0.315	0.323

*p<0.1; **p<0.05; ***p<0.01

Table 25: Heterogeneity of impact by pre-CBPS liquidity: Effective spread (bps)

-	Effective spread (bps)			
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	-1.274**	-0.796	-1.532^{**}	-1.102*
	(0.502)	(0.624)	(0.612)	(0.599)
Amount purchased x Pre-CBPS liquidity	-0.019^*	-0.009	-0.016	-0.017
	(0.010)	(0.012)	(0.013)	(0.013)
Amount offered (GBP mn)	0.096	0.033		
	(0.156)	(0.206)		
Amount offered x Pre-CBPS liquidity	0.002	-0.002		
	(0.004)	(0.006)		
Average offer spread (bps)	0.430	-1.371^*		
	(0.515)	(0.734)		
Average offer spread x Pre-CBPS liquidity	0.006	-0.027		
	(0.016)	(0.023)		
Reserve spread (bps)	-0.003	1.921		
	(0.054)	(1.304)		
Reserve spread x Pre-CBPS liquidity	-0.001	0.029		
	(0.001)	(0.022)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	123	117	208	369
Number of auctions	81	78	82	82
Observations	1,337	842	2,165	$5,\!127$
\mathbb{R}^2	0.216	0.307	0.213	0.216

*p<0.1; **p<0.05; ***p<0.01

Table 26: Heterogeneity of impact by pre-CBPS liquidity: Roll (bps)

	Roll (bps)			
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	-0.515^*	-0.900^*	-0.510	-0.423
, , , , , , , , , , , , , , , , , , , ,	(0.297)	(0.484)	(0.498)	(0.536)
Amount purchased x Pre-CBPS liquidity	0.004	0.008	$-0.001^{'}$	$0.002^{'}$
· · ·	(0.010)	(0.012)	(0.013)	(0.012)
Amount offered (GBP mn)	0.204	0.200	,	,
,	(0.207)	(0.283)		
Amount offered x Pre-CBPS liquidity	0.004	0.001		
- •	(0.005)	(0.006)		
Average offer spread (bps)	-0.062	0.819		
	(0.451)	(0.659)		
Average offer spread x Pre-CBPS liquidity	0.005	0.003		
	(0.013)	(0.017)		
Reserve spread (bps)	-0.011	-0.368		
	(0.045)	(0.986)		
Reserve spread x Pre-CBPS liquidity	-0.0004	0.007		
	(0.001)	(0.008)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	134	126	219	421
Number of auctions	81	78	82	82
Observations	1,527	945	2,386	6,966
\mathbb{R}^2	0.359	0.382	0.316	0.286

*p<0.1; **p<0.05; ***p<0.01

Table 27: Heterogeneity of impact by pre-CBPS liquidity: Round-trip cost (bps)

	Round-trip cost (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	-0.438	-1.396	-0.398	-0.404	
- , ,	(0.693)	(1.324)	(0.446)	(0.451)	
Amount purchased x Pre-CBPS liquidity	0.011	$-0.002^{'}$	$-0.010^{'}$	-0.006	
	(0.012)	(0.024)	(0.015)	(0.016)	
Amount offered (GBP mn)	$0.182^{'}$	$0.393^{'}$,	,	
	(0.322)	(0.450)			
Amount offered x Pre-CBPS liquidity	$-0.010^{'}$	$-0.006^{'}$			
·	(0.008)	(0.014)			
Average offer spread (bps)	0.277	2.039^*			
· · · · · · · · · · · · · · · · · · ·	(0.876)	(1.135)			
Average offer spread x Pre-CBPS liquidity	0.018	0.053			
	(0.019)	(0.046)			
Reserve spread (bps)	0.097	-2.018			
	(0.070)	(1.554)			
Reserve spread x Pre-CBPS liquidity	-0.001	-0.035**			
	(0.001)	(0.014)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	57	50	98	220	
Number of auctions	74	66	82	82	
Observations	346	210	727	2,380	
\mathbb{R}^2	0.586	0.761	0.520	0.475	

*p<0.1; **p<0.05; ***p<0.01

Table 28: Heterogeneity of impact by pre-CBPS liquidity: Interquartile range (bps)

	Interquartile range (bps)			
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.173	-0.141	-0.067	0.432
,	(0.278)	(0.404)	(0.291)	(0.345)
Amount purchased x Pre-CBPS liquidity	0.004	0.0004	$0.003^{'}$	$-0.001^{'}$
- ·	(0.007)	(0.007)	(0.010)	(0.010)
Amount offered (GBP mn)	-0.044	$0.172^{'}$, ,
,	(0.126)	(0.161)		
Amount offered x Pre-CBPS liquidity	0.004^*	0.002		
- •	(0.003)	(0.004)		
Average offer spread (bps)	0.355	0.478		
	(0.278)	(0.538)		
Average offer spread x Pre-CBPS liquidity	-0.005	0.001		
	(0.007)	(0.011)		
Reserve spread (bps)	-0.001	-0.396		
	(0.027)	(0.532)		
Reserve spread x Pre-CBPS liquidity	0.0002	-0.014^*		
	(0.001)	(0.008)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	198	188	332	538
Number of auctions	81	81	82	82
Observations	$2,\!562$	1,587	3,959	9,374
\mathbb{R}^2	0.443	0.490	0.444	0.452

*p<0.1; **p<0.05; ***p<0.01

Table 29: Heterogeneity of impact by pre-CBPS liquidity: Amihud (bps)

	Amihud (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	-0.376	-2.062^{***}	-3.143^{***}	-1.930**	
-	(0.515)	(0.785)	(0.880)	(0.782)	
Amount purchased x Pre-CBPS liquidity	-0.004	-0.002	$-0.014^{'}$	$-0.017^{'}$	
	(0.006)	(0.010)	(0.011)	(0.013)	
Amount offered (GBP mn)	-0.490**	-0.054	, ,	, ,	
	(0.235)	(0.326)			
Amount offered x Pre-CBPS liquidity	0.001	-0.003			
	(0.003)	(0.003)			
Average offer spread (bps)	-0.349	0.985			
	(0.673)	(1.238)			
Average offer spread x Pre-CBPS liquidity	-0.014*	-0.016			
	(0.007)	(0.011)			
Reserve spread (bps)	-0.092	-2.497			
	(0.070)	(1.736)			
Reserve spread x Pre-CBPS liquidity	-0.0005	0.006			
	(0.0005)	(0.015)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	175	168	300	486	
Number of auctions	81	80	82	82	
Observations	2,280	1,411	3,537	7,877	
\mathbb{R}^2	0.293	0.347	0.279	0.295	

*p<0.1; **p<0.05; ***p<0.01

Table 30: Heterogeneity of impact by pre-CBPS liquidity: Volatility-over-volume (bps)

	Volatility-over-volume (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	-0.796***	-1.038***	-0.780***	-0.529***	
1 /	(0.161)	(0.226)	(0.158)	(0.124)	
Amount purchased x Pre-CBPS liquidity	$-0.004^{'}$	$-0.005^{'}$	-0.009	$-0.012^{'}$	
	(0.006)	(0.008)	(0.010)	(0.010)	
Amount offered (GBP mn)	0.049	0.086	,	,	
,	(0.100)	(0.121)			
Amount offered x Pre-CBPS liquidity	-0.007^{*}	-0.007^{**}			
	(0.004)	(0.004)			
Average offer spread (bps)	$0.394^{'}$	$0.577^{'}$			
	(0.247)	(0.393)			
Average offer spread x Pre-CBPS liquidity	0.018	$0.017^{'}$			
· · ·	(0.014)	(0.021)			
Reserve spread (bps)	$-0.003^{'}$	-1.010^{**}			
- (- /	(0.026)	(0.438)			
Reserve spread x Pre-CBPS liquidity	$-0.001^{'}$	$-0.005^{'}$			
	(0.001)	(0.008)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	134	126	219	421	
Number of auctions	81	78	82	82	
Observations	1,527	945	2,386	6,966	
\mathbb{R}^2	0.522	0.601	0.606	0.522	

*p<0.1; **p<0.05; ***p<0.01

D Variation in contemporaneous impact over time: Full results

Table 31: Variation in contemporaneous impact over time: Number of trades

-	Number of trades					
	(1)	(2)	(3)	(4)		
Amount purchased (GBP mn)	0.266***	0.229***	0.342***	0.347***		
,	(0.045)	(0.059)	(0.055)	(0.055)		
Amount purchased x Trend	-0.009^{*}	-0.006	-0.010^{*}	-0.009		
•	(0.005)	(0.006)	(0.005)	(0.006)		
Amount offered (GBP mn)	$0.015^{'}$	$0.047^{'}$,	,		
,	(0.024)	(0.038)				
Amount offered x Trend	$-0.001^{'}$	-0.001				
	(0.002)	(0.002)				
Average offer spread (bps)	0.057**	0.177**				
	(0.029)	(0.070)				
Average offer spread x Trend	0.002	0.009				
	(0.002)	(0.006)				
Reserve spread (bps)	0.014^{**}	-0.149				
	(0.007)	(0.094)				
Reserve spread x Trend	-0.001	-0.005				
	(0.001)	(0.007)				
Control group	Offer	Limit	Sterling	Euro		
Bond fixed effects	Yes	Yes	Yes	Yes		
Auction fixed effects	Yes	Yes	Yes	Yes		
Number of bonds	334	317	819	905		
Number of auctions	81	81	82	82		
Observations	4,275	2,601	14,637	16,579		
\mathbb{R}^2	0.433	0.444	0.624	0.605		

*p<0.1; **p<0.05; ***p<0.01

Table 32: Variation in contemporaneous impact over time: Trading volume (GBP mn)

-	Trading volume (GBP mn)					
	(1)	(2)	(3)	(4)		
Amount purchased (GBP mn)	0.682***	0.694***	0.899***	0.899***		
,	(0.066)	(0.076)	(0.066)	(0.066)		
Amount purchased x Trend	-0.022^{***}	-0.021^{**}	-0.018^{***}	-0.017^{***}		
•	(0.007)	(0.008)	(0.006)	(0.006)		
Amount offered (GBP mn)	$0.035^{'}$	0.098**	,	,		
,	(0.036)	(0.045)				
Amount offered x Trend	0.001	$0.003^{'}$				
	(0.003)	(0.003)				
Average offer spread (bps)	0.036	$0.095^{'}$				
	(0.051)	(0.081)				
Average offer spread x Trend	0.002	0.012^*				
	(0.002)	(0.007)				
Reserve spread (bps)	0.031**	0.128				
	(0.013)	(0.136)				
Reserve spread x Trend	-0.002*	-0.007				
	(0.001)	(0.011)				
Control group	Offer	Limit	Sterling	Euro		
Bond fixed effects	Yes	Yes	Yes	Yes		
Auction fixed effects	Yes	Yes	Yes	Yes		
Number of bonds	334	317	819	905		
Number of auctions	81	81	82	82		
Observations	4,275	2,601	14,637	16,579		
\mathbb{R}^2	0.313	0.374	0.397	0.469		

*p<0.1; **p<0.05; ***p<0.01

Table 33: Variation in contemporaneous impact over time: Average trade size (GBP mn)

_		Average trade	size (GBP mn)	
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.103***	0.130***	0.128***	0.128***
,	(0.012)	(0.017)	(0.020)	(0.019)
Amount purchased x Trend	-0.004^{***}	-0.003^*	-0.004****	-0.003***
•	(0.001)	(0.002)	(0.001)	(0.001)
Amount offered (GBP mn)	-0.0003	-0.001	,	,
,	(0.004)	(0.006)		
Amount offered x Trend	0.0004	0.0004		
	(0.0003)	(0.0005)		
Average offer spread (bps)	0.012	-0.031*		
	(0.010)	(0.017)		
Average offer spread x Trend	-0.001	-0.002		
-	(0.001)	(0.002)		
Reserve spread (bps)	0.004**	0.077***		
- (- /	(0.001)	(0.027)		
Reserve spread x Trend	-0.0004**	0.003		
	(0.0002)	(0.002)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	328	310	602	772
Number of auctions	81	81	82	82
Observations	3,929	2,425	6,615	12,287
\mathbb{R}^2	0.307	0.400	0.374	0.327

*p<0.1; **p<0.05; ***p<0.01

Table 34: Variation in contemporaneous impact over time: Number of block trades

-		Number of	block trades	
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.085***	0.080***	0.098***	0.099***
,	(0.010)	(0.012)	(0.009)	(0.009)
Amount purchased x Trend	-0.002^{**}	-0.003^{**}	-0.002^{***}	-0.002^{***}
•	(0.001)	(0.001)	(0.001)	(0.001)
Amount offered (GBP mn)	$0.005^{'}$	0.016**	,	,
,	(0.006)	(0.006)		
Amount offered x Trend	0.0001	0.0004		
	(0.0005)	(0.0005)		
Average offer spread (bps)	0.007	0.012		
	(0.008)	(0.013)		
Average offer spread x Trend	0.0001	0.001		
-	(0.0003)	(0.001)		
Reserve spread (bps)	0.004*	0.007		
- (- /	(0.002)	(0.024)		
Reserve spread x Trend	-0.0003	-0.001		
	(0.0002)	(0.002)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	334	317	819	905
Number of auctions	81	81	82	82
Observations	4,275	2,601	14,637	16,579
\mathbb{R}^2	0.239	0.291	0.322	0.398

*p<0.1; **p<0.05; ***p<0.01

Table 35: Variation in contemporaneous impact over time: Effective spread (bps)

-	Effective spread (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	-0.556	-0.573	-0.757	-0.867^{*}	
	(0.361)	(0.504)	(0.509)	(0.491)	
Amount purchased x Trend	0.048	0.056	0.041	0.004	
	(0.040)	(0.060)	(0.045)	(0.039)	
Amount offered (GBP mn)	-0.140	0.015			
	(0.139)	(0.222)			
Amount offered x Trend	-0.029**	-0.027			
	(0.012)	(0.017)			
Average offer spread (bps)	0.362	-0.200			
	(0.421)	(0.746)			
Average offer spread x Trend	0.035	0.034			
	(0.038)	(0.078)			
Reserve spread (bps)	0.109	-0.053			
	(0.070)	(0.914)			
Reserve spread x Trend	-0.015^{*}	-0.050°			
	(0.008)	(0.092)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	298	275	523	714	
Number of auctions	81	80	82	82	
Observations	2,560	1,608	3,953	7,888	
\mathbb{R}^2	0.217	0.278	0.250	0.219	

*p<0.1; **p<0.05; ***p<0.01

Table 36: Variation in contemporaneous impact over time: Roll (bps)

		· -	Roll (bps)	
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	-0.332	-1.248***	-0.528	-0.607
,	(0.216)	(0.395)	(0.383)	(0.382)
Amount purchased x Trend	$-0.005^{'}$	-0.082^{*}	$0.002^{'}$	-0.044**
•	(0.024)	(0.045)	(0.027)	(0.022)
Amount offered (GBP mn)	0.098	0.599***	,	,
,	(0.146)	(0.199)		
Amount offered x Trend	0.011	0.051***		
	(0.011)	(0.017)		
Average offer spread (bps)	$-0.207^{'}$	1.263^{*}		
	(0.384)	(0.749)		
Average offer spread x Trend	0.016	0.098		
	(0.035)	(0.069)		
Reserve spread (bps)	$0.017^{'}$	-1.416^{*}		
1 (1)	(0.070)	(0.763)		
Reserve spread x Trend	$-0.008^{'}$	-0.124^{*}		
-	(0.008)	(0.065)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	303	279	507	714
Number of auctions	81	80	82	82
Observations	2,645	1,651	4,013	9,258
\mathbb{R}^2	0.337	0.369	0.315	0.288

*p<0.1; **p<0.05; ***p<0.01

Table 37: Variation in contemporaneous impact over time: Round-trip cost (bps)

-	Round-trip cost (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	0.021	-0.505	-0.757	-0.892**	
-	(0.423)	(0.746)	(0.487)	(0.438)	
Amount purchased x Trend	0.009	0.077	-0.064	-0.140^{***}	
-	(0.044)	(0.068)	(0.047)	(0.041)	
Amount offered (GBP mn)	-0.137	-0.069	,	,	
` ,	(0.178)	(0.370)			
Amount offered x Trend	-0.028**	-0.045^*			
	(0.012)	(0.024)			
Average offer spread (bps)	0.209	1.184			
	(0.482)	(1.160)			
Average offer spread x Trend	0.011	0.026			
	(0.042)	(0.116)			
Reserve spread (bps)	-0.046	-0.412			
	(0.052)	(1.526)			
Reserve spread x Trend	0.015	0.176			
	(0.010)	(0.122)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	271	232	461	655	
Number of auctions	81	79	82	82	
Observations	1,235	775	2,028	4,750	
\mathbb{R}^2	0.582	0.672	0.575	0.525	

*p<0.1; **p<0.05; ***p<0.01

Table 38: Variation in contemporaneous impact over time: Interquartile range (bps)

-		Interqua	artile range (bps)
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.212	0.006	-0.219	-0.269
	(0.233)	(0.367)	(0.309)	(0.355)
Amount purchased x Trend	-0.001	-0.027	-0.039	-0.132^{***}
	(0.024)	(0.031)	(0.025)	(0.029)
Amount offered (GBP mn)	-0.107	0.011		
	(0.120)	(0.201)		
Amount offered x Trend	-0.030**	-0.019		
	(0.012)	(0.018)		
Average offer spread (bps)	0.230	0.032		
	(0.253)	(0.529)		
Average offer spread x Trend	0.006	0.010		
	(0.026)	(0.050)		
Reserve spread (bps)	$-0.010^{'}$	1.241**		
1 (1)	(0.047)	(0.629)		
Reserve spread x Trend	$0.002^{'}$	0.129**		
	(0.006)	(0.054)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	320	299	571	748
Number of auctions	81	81	82	82
Observations	3,527	2,182	5,641	11,316
\mathbb{R}^2	0.437	0.487	0.428	0.456

*p<0.1; **p<0.05; ***p<0.01

Table 39: Variation in contemporaneous impact over time: Amihud (bps)

	Amihud (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	-0.776	-2.171^{***}	-2.488***	-2.760***	
,	(0.540)	(0.626)	(0.760)	(0.745)	
Amount purchased x Trend	$0.029^{'}$	$-0.034^{'}$	$0.057^{'}$	-0.099^{*}	
•	(0.063)	(0.076)	(0.062)	(0.060)	
Amount offered (GBP mn)	-0.420^{*}	$-0.314^{'}$,	,	
,	(0.231)	(0.329)			
Amount offered x Trend	-0.008	$-0.007^{'}$			
	(0.019)	(0.026)			
Average offer spread (bps)	0.013	1.087			
	(0.660)	(1.059)			
Average offer spread x Trend	-0.021	0.010			
	(0.052)	(0.093)			
Reserve spread (bps)	-0.153	-0.759			
	(0.115)	(1.472)			
Reserve spread x Trend	0.008	0.030			
	(0.015)	(0.136)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	318	296	562	741	
Number of auctions	81	80	82	82	
Observations	3,340	2,081	5,283	10,147	
\mathbb{R}^2	0.286	0.327	0.288	0.298	

*p<0.1; **p<0.05; ***p<0.01

Table 40: Variation in contemporaneous impact over time: Volatility-over-volume (bps)

_	Volatility-over-volume (bps)					
	(1)	(2)	(3)	(4)		
Amount purchased (GBP mn)	-0.569^{***}	-0.771^{***}	-0.889^{***}	-0.983***		
,	(0.123)	(0.160)	(0.129)	(0.164)		
Amount purchased x Trend	0.029*	0.011	0.012	-0.030^{**}		
-	(0.015)	(0.017)	(0.010)	(0.015)		
Amount offered (GBP mn)	$-0.057^{'}$	-0.082	,	,		
,	(0.059)	(0.063)				
Amount offered x Trend	-0.013^{**}	-0.013^{***}				
	(0.006)	(0.005)				
Average offer spread (bps)	$-0.069^{'}$	$0.152^{'}$				
,	(0.245)	(0.337)				
Average offer spread x Trend	-0.003	0.013				
	(0.021)	(0.029)				
Reserve spread (bps)	-0.006	-0.440				
	(0.031)	(0.437)				
Reserve spread x Trend	0.0004	0.038				
	(0.005)	(0.032)				
Control group	Offer	Limit	Sterling	Euro		
Bond fixed effects	Yes	Yes	Yes	Yes		
Auction fixed effects	Yes	Yes	Yes	Yes		
Number of bonds	303	279	507	714		
Number of auctions	81	80	82	82		
Observations	2,645	1,651	4,013	9,258		
\mathbb{R}^2	0.503	0.568	0.570	0.511		

*p<0.1; **p<0.05; ***p<0.01

E Impact of lagged CBPS purchases on liquidity: Full results

Table 41: Impact of lagged CBPS purchases on liquidity: Number of trades

		Number	of trades	
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.289*** (0.046)	0.248*** (0.062)	0.385*** (0.065)	0.389*** (0.063)
Lagged amount purchased (GBP mn)	0.053 (0.046)	$0.058 \\ (0.059)$	0.031 (0.051)	0.037 (0.052)
Amount offered (GBP mn)	$0.022 \\ (0.021)$	0.053^* (0.031)		
Average offer spread (bps)	$0.052* \\ (0.028)$	0.128* (0.070)		
Reserve spread (bps)	0.010** (0.004)	-0.131^* (0.070)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	334	317	819	905
Number of auctions	81	81	82	82
Observations	4,275	2,601	14,637	16,579
\mathbb{R}^2	0.432	0.444	0.623	0.605

*p<0.1; **p<0.05; ***p<0.01

Table 42: Impact of lagged CBPS purchases on liquidity: Trading volume (GBP mn)

-		Trading volu	me (GBP mn)	
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.739*** (0.059)	0.779*** (0.073)	0.979*** (0.068)	0.978*** (0.066)
Lagged amount purchased (GBP mn)	$0.068 \\ (0.070)$	$0.075 \\ (0.071)$	0.037 (0.074)	0.042 (0.073)
Amount offered (GBP mn)	0.034 (0.033)	0.079** (0.036)		
Average offer spread (bps)	0.037 (0.043)	0.049 (0.064)		
Reserve spread (bps)	0.019** (0.008)	0.124 (0.092)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	334	317	819	905
Number of auctions	81	81	82	82
Observations	4,275	2,601	14,637	16,579
\mathbb{R}^2	0.310	0.371	0.396	0.469

*p<0.1; **p<0.05; ***p<0.01

Table 43: Impact of lagged CBPS purchases on liquidity: Average trade size (GBP mn)

	Average trade size (GBP mn)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	0.114*** (0.014)	0.142*** (0.018)	0.145*** (0.021)	0.144*** (0.021)	
Lagged amount purchased (GBP mn)	0.003 (0.008)	0.004 (0.011)	0.006 (0.012)	0.009 (0.011)	
Amount offered (GBP mn)	-0.001 (0.003)	-0.002 (0.005)			
Average offer spread (bps)	0.017** (0.007)	-0.008 (0.010)			
Reserve spread (bps)	0.001 (0.001)	0.047*** (0.018)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	328	310	602	772	
Number of auctions	81	81	82	82	
Observations	3,929	2,425	6,615	12,287	
\mathbb{R}^2	0.300	0.394	0.371	0.325	

*p<0.1; **p<0.05; ***p<0.01

Table 44: Impact of lagged CBPS purchases on liquidity: Number of block trades

_	Number of block trades				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	0.091*** (0.009)	0.091*** (0.011)	0.108*** (0.009)	0.110*** (0.009)	
Lagged amount purchased (GBP mn)	0.011 (0.012)	0.011 (0.011)	0.003 (0.013)	0.004 (0.013)	
Amount offered (GBP mn)	$0.005 \\ (0.006)$	0.013** (0.005)			
Average offer spread (bps)	$0.008 \\ (0.007)$	0.010 (0.009)			
Reserve spread (bps)	0.002 (0.001)	$0.008 \\ (0.015)$			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	334	317	819	905	
Number of auctions	81	81	82	82	
Observations	$4,\!275$	2,601	14,637	16,579	
\mathbb{R}^2	0.238	0.290	0.321	0.398	

*p<0.1; **p<0.05; ***p<0.01

Table 45: Impact of lagged CBPS purchases on liquidity: Effective spread (bps)

-	Effective spread (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	-0.855^{**} (0.373)	-0.852^* (0.482)	-0.948^* (0.551)	-0.887^* (0.515)	
Lagged amount purchased (GBP mn)	0.110 (0.290)	-0.043 (0.418)	-0.149 (0.383)	-0.064 (0.398)	
Amount offered (GBP mn)	0.034 (0.144)	$0.205 \\ (0.187)$			
Average offer spread (bps)	0.285 (0.421)	-0.538 (0.649)			
Reserve spread (bps)	$0.008 \\ (0.039)$	0.513 (0.893)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	298	275	523	714	
Number of auctions	81	80	82	82	
Observations	2,560	1,608	3,953	7,888	
\mathbb{R}^2	0.212	0.275	0.249	0.219	

*p<0.1; **p<0.05; ***p<0.01

Table 46: Impact of lagged CBPS purchases on liquidity: Roll (bps)

	Roll (bps)			
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	-0.357^* (0.195)	-0.664^* (0.348)	-0.533 (0.394)	-0.402 (0.388)
Lagged amount purchased (GBP mn)	0.502 (0.309)	0.554 (0.390)	$0.403 \\ (0.434)$	0.610 (0.397)
Amount offered (GBP mn)	0.041 (0.149)	0.185 (0.187)		
Average offer spread (bps)	-0.254 (0.365)	0.452 (0.585)		
Reserve spread (bps)	-0.031 (0.040)	-0.352 (0.744)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	303	279	507	714
Number of auctions	81	80	82	82
Observations	2,645	1,651	4,013	$9,\!258$
\mathbb{R}^2	0.338	0.365	0.315	0.288

*p<0.1; **p<0.05; ***p<0.01

Table 47: Impact of lagged CBPS purchases on liquidity: Round-trip cost (bps)

	Round-trip cost (bps)			
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.102 (0.429)	-0.931 (0.637)	-0.498 (0.403)	-0.299 (0.391)
Lagged amount purchased (GBP mn)	0.226 (0.350)	0.371 (0.503)	0.778 (0.502)	0.921* (0.485)
Amount offered (GBP mn)	-0.013 (0.196)	0.256 (0.281)		
Average offer spread (bps)	0.098 (0.442)	1.030 (0.944)		
Reserve spread (bps)	0.017 (0.057)	-1.766 (1.119)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	271	232	461	655
Number of auctions	81	79	82	82
Observations	1,235	775	2,028	4,750
\mathbb{R}^2	0.578	0.666	0.575	0.521

*p<0.1; **p<0.05; ***p<0.01

Table 48: Impact of lagged CBPS purchases on liquidity: Interquartile range (bps)

	Interquartile range (bps)			
	(1)	(2)	(3)	(4)
Amount purchased (GBP mn)	0.204 (0.222)	0.003 (0.352)	-0.042 (0.303)	0.345 (0.326)
Lagged amount purchased (GBP mn)	-0.020 (0.247)	-0.079 (0.320)	0.066 (0.400)	0.281 (0.450)
Amount offered (GBP mn)	0.060 (0.126)	0.175 (0.178)		
Average offer spread (bps)	0.228 (0.248)	0.210 (0.462)		
Reserve spread (bps)	0.002 (0.025)	-0.015 (0.523)		
Control group	Offer	Limit	Sterling	Euro
Bond fixed effects	Yes	Yes	Yes	Yes
Auction fixed effects	Yes	Yes	Yes	Yes
Number of bonds	320	299	571	748
Number of auctions	81	81	82	82
Observations	3,527	2,182	5,641	11,316
\mathbb{R}^2	0.434	0.482	0.428	0.451

*p<0.1; **p<0.05; ***p<0.01

Table 49: Impact of lagged CBPS purchases on liquidity: Amihud (bps)

	Amihud (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	-0.828^* (0.491)	-2.114^{***} (0.615)	-2.758^{***} (0.733)	-2.312^{***} (0.714)	
Lagged amount purchased (GBP mn)	-0.132 (0.500)	-0.860 (0.624)	-1.274^* (0.683)	-0.975 (0.667)	
Amount offered (GBP mn)	-0.385^* (0.217)	-0.236 (0.237)			
Average offer spread (bps)	0.081 (0.523)	1.164 (0.956)			
Reserve spread (bps)	-0.103 (0.071)	-1.252 (1.383)			
Control group	Offer	 Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	318	296	562	741	
Number of auctions	81	80	82	82	
Observations	3,340	2,081	5,283	10,147	
\mathbb{R}^2	0.286	0.327	0.289	0.298	

*p<0.1; **p<0.05; ***p<0.01

Table 50: Impact of lagged CBPS purchases on liquidity: Volatility-over-volume (bps)

-	Volatility-over-volume (bps)				
	(1)	(2)	(3)	(4)	
Amount purchased (GBP mn)	-0.684^{***} (0.122)	-0.869^{***} (0.149)	-0.937^{***} (0.140)	-0.843^{***} (0.160)	
Lagged amount purchased (GBP mn)	0.197 (0.163)	0.159 (0.157)	0.360* (0.204)	0.436** (0.221)	
Amount offered (GBP mn)	0.012 (0.069)	0.018 (0.085)			
Average offer spread (bps)	-0.054 (0.212)	0.105 (0.287)			
Reserve spread (bps)	-0.007 (0.023)	-0.783^{**} (0.304)			
Control group	Offer	Limit	Sterling	Euro	
Bond fixed effects	Yes	Yes	Yes	Yes	
Auction fixed effects	Yes	Yes	Yes	Yes	
Number of bonds	303	279	507	714	
Number of auctions	81	80	82	82	
Observations	2,645	1,651	4,013	9,258	
\mathbb{R}^2	0.501	0.566	0.570	0.511	

*p<0.1; **p<0.05; ***p<0.01

F Stock effects: Full results

Table 51: Stock effects: Number of trades

	Number of trades		
	(1)	(2)	
Amount purchased (GBP mn)	0.008 (0.031)	-0.006 (0.023)	
Amount outstanding (GBP mn)	$-0.001\ (0.003)$	$-0.001\ (0.002)$	
Credit rating	$-0.160\ (0.389)$	$0.201\ (0.284)$	
Residual maturity (years)	0.338(0.342)	$0.293\ (0.192)$	
Residual maturity squared (years)	-0.005(0.007)	-0.006*(0.003)	
Spread to reference gilt (bps)	$-0.021\ (0.016)$	$-0.009 \ (0.009)$	
Gilt amount outstanding (GBP mn)	$0.00001 \ (0.00001)$	$0.00001 \ (0.00001)$	
Change in credit rating	4.651*** (1.306)	4.028*** (0.960)	
Change in gilt amount outstanding (GBP mn)	-0.00003 (0.0001)	-0.00004 (0.00004)	
Gilt QE purchases (GBP mn)	$-0.0001 \ (0.0001)$	$-0.0001 \ (0.0001)$	
Control group	Eligible	Sterling	
Industry fixed effects	Yes	Yes	
Observations	311	493	
\mathbb{R}^2	0.094	0.093	

*p<0.1; **p<0.05; ***p<0.01

Table 52: Stock effects: Trading volume (GBP mn)

	Trading volume (GBP mn)			
	(1)	(2)		
Amount purchased (GBP mn)	-0.040 (0.032)	$-0.067^{***} (0.025)$		
Amount outstanding (GBP mn)	$0.001\ (0.003)$	$0.002 \ (0.002)$		
Credit rating	-0.288(0.393)	-0.010(0.303)		
Residual maturity (years)	$0.189\ (0.346)$	$0.167 \ (0.205)$		
Residual maturity squared (years)	-0.002(0.007)	-0.003(0.003)		
Spread to reference gilt (bps)	$-0.004 \ (0.016)$	$-0.003\ (0.009)$		
Gilt amount outstanding (GBP mn)	-0.00000 (0.00001)	$0.00000 \ (0.00001)$		
Change in credit rating	2.729** (1.321)	2.657*** (1.024)		
Change in gilt amount outstanding (GBP mn)	$-0.0001 \ (0.0001)$	-0.00003 (0.00005)		
Gilt QE purchases (GBP mn)	0.0001 (0.0001)	0.00000 (0.0001)		
Control group	Eligible	Sterling		
Industry fixed effects	Yes	Yes		
Observations	311	493		
\mathbb{R}^2	0.065	0.073		

*p<0.1; **p<0.05; ***p<0.01

Table 53: Stock effects: Average trade size (GBP mn)

	Average trade size (GBP mn)			
	(1)	(2)		
Amount purchased (GBP mn)	0.001 (0.007)	-0.001 (0.005)		
Amount outstanding (GBP mn)	$0.001\ (0.001)$	$0.001\ (0.0004)$		
Credit rating	-0.056 (0.091)	-0.019(0.070)		
Residual maturity (years)	$0.095\ (0.086)$	$0.040\ (0.046)$		
Residual maturity squared (years)	-0.002(0.002)	-0.001 (0.001)		
Spread to reference gilt (bps)	$0.003\ (0.004)$	0.003 (0.002)		
Gilt amount outstanding (GBP mn)	-0.00000 (0.00000)	$0.00000 \ (0.00000)$		
Change in credit rating	-0.113 (0.345)	-0.042 (0.203)		
Change in gilt amount outstanding (GBP mn)	$-0.00003^* \ (0.00001)$	$-0.00001 \ (0.00001)$		
Gilt QE purchases (GBP mn)	0.0001*** (0.00002)	0.00004** (0.00002)		
Control group	Eligible	Sterling		
Industry fixed effects	Yes	Yes		
Observations	183	279		
\mathbb{R}^2	0.117	0.093		

*p<0.1; **p<0.05; ***p<0.01

Table 54: Stock effects: Number of block trades

	Number of block trades		
	(1)	(2)	
Amount purchased (GBP mn)	-0.005 (0.005)	$-0.009^{**} (0.004)$	
Amount outstanding (GBP mn)	0.0001(0.0005)	$0.0001 \ (0.0003)$	
Credit rating	$-0.032 \ (0.062)$	0.009(0.048)	
Residual maturity (years)	$0.032\ (0.054)$	0.017(0.033)	
Residual maturity squared (years)	-0.0002(0.001)	-0.0001(0.001)	
Spread to reference gilt (bps)	0.001 (0.002)	$-0.001 \ (0.001)$	
Gilt amount outstanding (GBP mn)	-0.00000 (0.00000)	0.00000 (0.00000)	
Change in credit rating	0.421** (0.208)	0.404** (0.162)	
Change in gilt amount outstanding (GBP mn)	-0.00002*(0.00001)	-0.00000 (0.00001)	
Gilt QE purchases (GBP mn)	0.00003* (0.00002)	0.00001 (0.00001)	
Control group	Eligible	Sterling	
Industry fixed effects	Yes	Yes	
Observations	311	493	
\mathbb{R}^2	0.086	0.079	

*p<0.1; **p<0.05; ***p<0.01

Table 55: Stock effects: Effective spread (bps)

	Effective spread (bps)	
	(1)	(2)
Amount purchased (GBP mn)	-0.011 (0.504)	$0.386\ (0.346)$
Amount outstanding (GBP mn)	0.072*(0.039)	$0.035\ (0.028)$
Credit rating	$-1.610\ (5.970)$	-0.527(3.960)
Residual maturity (years)	8.707* (5.124)	2.326 (2.802)
Residual maturity squared (years)	$-0.200^{**}(0.095)$	-0.059(0.042)
Spread to reference gilt (bps)	0.170 (0.208)	0.099(0.112)
Gilt amount outstanding (GBP mn)	$0.0003^* \ (0.0002)$	0.00005 (0.0001)
Change in credit rating	0.846*** (19.241)	4.539 (11.089)
Change in gilt amount outstanding (GBP mn)	$-0.0001 \ (0.001)$	-0.0001(0.001)
Gilt QE purchases (GBP mn)	0.001 (0.002)	0.001 (0.001)
Control group	Eligible	Sterling
Industry fixed effects	Yes	Yes
Observations	41	83
\mathbb{R}^2	0.544	0.240

*p<0.1; **p<0.05; ***p<0.01

Table 56: Stock effects: Roll (bps)

	Roll (bps)	
	(1)	(2)
Amount purchased (GBP mn)	$0.134\ (0.569)$	0.075 (0.334)
Amount outstanding (GBP mn)	$0.034\ (0.039)$	0.002(0.026)
Credit rating	0.202(5.600)	-5.054(4.292)
Residual maturity (years)	-2.045(7.929)	1.475(3.202)
Residual maturity squared (years)	0.098 (0.150)	0.005(0.047)
Spread to reference gilt (bps)	$0.185\ (0.220)$	-0.144(0.138)
Gilt amount outstanding (GBP mn)	$0.0001 \ (0.0003)$	$0.0002 \ (0.0001)$
Change in credit rating	4.600 (25.731)	0.239 (12.197)
Change in gilt amount outstanding (GBP mn)	$0.0003 \ (0.001)$	-0.0001 (0.001)
Gilt QE purchases (GBP mn)	0.003* (0.002)	0.002 (0.001)
Control group	Eligible	Sterling
Industry fixed effects	Yes	Yes
Observations	57	88
\mathbb{R}^2	0.389	0.212

*p<0.1; **p<0.05; ***p<0.01

Table 57: Stock effects: Round-trip cost (bps)

	Round-trip cost (bps)	
	(1)	(2)
Amount purchased (GBP mn)	1.126	-0.859 (1.187)
Amount outstanding (GBP mn)	-0.169	$0.184\ (0.251)$
Credit rating	34.460	$-6.491\ (12.365)$
Residual maturity (years)	28.526	-21.683(34.120)
Residual maturity squared (years)	-0.597	0.340 (0.538)
Spread to reference gilt (bps)	1.424	$-0.738\ (0.554)$
Gilt amount outstanding (GBP mn)	0.001	-0.001 (0.001)
Change in credit rating		-4.149(31.246)
Change in gilt amount outstanding (GBP r	nn)	0.002 (0.004)
Gilt QE purchases (GBP mn)	,	0.0004 (0.002)
Control group	Eligible	Sterling
Industry fixed effects	Yes	Yes
Observations	9	18
\mathbb{R}^2	1.000	0.833

*p<0.1; **p<0.05; ***p<0.01

Table 58: Stock effects: Interquartile range (bps)

	Interquartile range (bps)	
	(1)	(2)
Amount purchased (GBP mn)	-0.117 (0.238)	-0.121 (0.176)
Amount outstanding (GBP mn)	-0.047**(0.020)	$-0.043^{**} (0.017)$
Credit rating	-5.703**(2.783)	-4.653^* (2.528)
Residual maturity (years)	3.704 (2.817)	3.197*(1.719)
Residual maturity squared (years)	-0.050(0.054)	$-0.039 \ (0.027)$
Spread to reference gilt (bps)	$-0.001\ (0.108)$	-0.060(0.082)
Gilt amount outstanding (GBP mn)	$0.0001 \ (0.0001)$	$0.0001 \ (0.0001)$
Change in credit rating	12.015 (11.840)	$0.540 \ (7.632)$
Change in gilt amount outstanding (GBP mn)	$0.0002 \ (0.0005)$	-0.0001 (0.0004)
Gilt QE purchases (GBP mn)	0.0004 (0.001)	0.001 (0.001)
Control group	Eligible	Sterling
Industry fixed effects	Yes	Yes
Observations	124	194
\mathbb{R}^2	0.247	0.117

*p<0.1; **p<0.05; ***p<0.01

Table 59: Stock effects: Amihud (bps)

	Amihud (bps)	
	(1)	(2)
Amount purchased (GBP mn)	-0.627 (0.805)	-0.845 (0.543)
Amount outstanding (GBP mn)	$-0.030\ (0.065)$	$0.014\ (0.051)$
Credit rating	-1.643(10.310)	10.732 (8.294)
Residual maturity (years)	10.782 (9.329)	6.067(5.237)
Residual maturity squared (years)	-0.069(0.174)	-0.045(0.080)
Spread to reference gilt (bps)	-0.193(0.371)	-0.083(0.242)
Gilt amount outstanding (GBP mn)	0.0003(0.0004)	0.0002(0.0002)
Change in credit rating	16.812*** (38.398)	0.999(22.745)
Change in gilt amount outstanding (GBP mn)	-0.001 (0.002)	-0.001 (0.001)
Gilt QE purchases (GBP mn)	0.003 (0.003)	0.004*(0.002)
Control group	Eligible	Sterling
Industry fixed effects	Yes	Yes
Observations	94	158
\mathbb{R}^2	0.247	0.138

*p<0.1; **p<0.05; ***p<0.01

Table 60: Stock effects: Volatility-over-volume (bps)

	Volatility-over-volume (bps)	
	(1)	(2)
Amount purchased (GBP mn)	-0.030(0.343)	$0.024 \ (0.207)$
Amount outstanding (GBP mn)	-0.013(0.024)	-0.008(0.016)
Credit rating	4.757(3.377)	3.212(2.662)
Residual maturity (years)	-1.047(4.782)	$0.363\ (1.986)$
Residual maturity squared (years)	0.034 (0.090)	-0.003(0.029)
Spread to reference gilt (bps)	0.117 (0.132)	$0.103\ (0.086)$
Gilt amount outstanding (GBP mn)	$0.00003 \ (0.0002)$	$0.0001 \ (0.0001)$
Change in credit rating	-2.839(15.518)	-5.434 (7.566)
Change in gilt amount outstanding (GBP mn)	0.0002(0.001)	-0.00001 (0.0004)
Gilt QE purchases (GBP mn)	0.0002 (0.001)	0.0004 (0.001)
Control group	Eligible	Sterling
Industry fixed effects	Yes	Yes
Observations	57	88
\mathbb{R}^2	0.200	0.142

*p<0.1; **p<0.05; ***p<0.01