Online Appendix

accompanying the paper:

"The impact of arbitrage on market liquidity"

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1. Additional results

This section contains the following additional results, as discussed in the paper:

- Table A1 shows summary statistics by market.
- Table A2 shows that the results reported in Table 2 of the paper are robust to only using the largest price deviation from each stock-day.
- Table A3 shows that correlations are robust to estimating Pearson correlations, instead of Spearman rank correlations.
- Table A4 shows the effect of arbitrageurs' relative speed and arbitrage mix on illiquidity separately for home-market stocks and ADRs.
- Table A5 estimates the effect of arbitrageurs' relative speed on illiquidity using an instrument variable regression.
- Table A6 shows the effect of price deviations on illiquidity separately for home-market stocks and ADRs and by geographic area and years.
- The following tables show that instrumental variable regressions to study contemporaneous effects of impediments to arbitrage on liquidity in Table 7 of the paper are robust to:
  - using price deviations calculated as the absolute difference in the logarithm of home and ADR mid-quote prices (Table A7)
  - using USD price deviations instead of price deviations as a percent of home-market price (Table A8).
  - excluding price deviations below one basis point (Table A9) and below one dollar cent (Table A10) to cover additional transaction costs
  - excluding any price filters, i.e., when including price deviations above 100% or above USD 5 (Table A11)

- The following figures show that the impulse response functions (IRF) from the main vector autoregression to study the impact of impediments to arbitrage on liquidity in Figure 1 is robust to:
  - estimating IRFs using $INARB$ and $avg(\Delta TRD)$ (Figures A1 and A2, respectively)
  - estimating IRFs using price deviations estimated as the absolute difference in the logarithm of home and ADR mid-quote prices (Figure A4)
  - estimating IRFs using price deviations using USD price deviations instead of price deviations measures as a percent of home-market price (Table A5).
  - estimating the orthogonalized IRFs using the reverse order in the variables (Figure A6).
  - estimating IRFs using home-market stocks only (Figure A7)
  - estimating IRFs using ADRs only (Figure A8)
  - estimating IRFs using weekly data (Figures A9, A10, and A11)
- Figure A3 shows that IRFs in the paper are not robust to using average price deviations from quotes ($avg(\Delta QTE)$)

Table A1 – Summary statistics, 2001 - 2016
This table reports cross-sectional averages of time-series average by stock separately for each country in the sample. For each country: *Stocks* is the number of home-market/ADR pairs; *Days* is the number of days in the sample; *Corpact* is the number of days between corporate actions; IN is the number of minutes for a price deviation to persist, conditional on price deviations that arise and vanish within the same day; TRD is the price deviation computed from trade prices of simultaneous trades; and avg and max is the average and maximum price deviation computed from quotes Illiquidty measures are reported separately for the home-market stock and the ADR: the daily time-weighted average proportional quoted spread ($PQSPR$); the daily proportional effective spread ($PESPR$); and the difference in quoted spread between and outside overlapping trading times. For a more detailed description of these variables I refer to Table 1 of the paper. All variables (except, $\delta PQSPR$) are measured during the overlapping trading times only, i.e. when both the home- and host-market share are trading. All illiquidity and price deviations are in percent. All price deviation and spread measures are cross-sectionally winsorized each day at the 1% level. Data to compute all data underlying the computations is from Datastream and TRTH.

				Price deviations				$PQSPR$		$PESPR$		$\delta PQSPR$	
Country	Stocks	Days	Corpact	In	TRD	avg	max	Home	ADR	Home	ADR	Home	ADR
Argentina	13	2575	101	41.167	14.767	5.403	11.925	1.605	1.306	1.672	0.994		
Belgium	2	2418	43	0.904	0.138	0.026	0.210	0.084	0.106	0.137	0.081	-0.009	-0.075
Brazil	24	2072	547	25.221	3.368	1.494	3.698	0.525	0.386	0.506	0.283		
Chile	10	1868	394	20.946	1.183	0.137	1.145	0.841	0.753	1.020	0.519		
France	12	2313	311	2.817	0.581	0.256	0.943	0.169	0.468	0.177	0.350	-0.005	-0.080
Germany	12	2180	181	3.617	0.633	0.108	0.735	0.387	0.872	0.335	0.630	0.004	-0.238
Greece	2	1707	11	4.158	1.732	0.989	1.952	0.268	0.785	0.455	0.564	0.017	0.342
Ireland	3	2916	6	12.014	7.151	4.401	7.337	0.657	0.322	0.468	0.256	-0.040	0.027
Israel	8	417	50	3.920	6.397	0.164	0.788	0.345	0.932	0.505	0.688	0.023	0.024
Italy	3	3663	6	3.690	0.224	0.063	0.306	0.126	0.162	0.183	0.122	-0.001	-0.030
Luxembourg	1	3335	2	2.090	0.211	0.049	0.384	0.218	0.097	0.267	0.080	-0.003	0.014
Mexico	19	1816	171	15.573	1.663	0.199	1.488	1.483	1.023	1.229	0.739		
Netherlands	12	2424	84	2.211	0.318	0.089	0.480	0.165	0.213	0.286	0.162	-0.010	-0.043
Peru	2	894	13	25.836	2.300	0.123	1.510	1.925	1.094	1.577	0.777		
Portugal	1	2354	10	19.137	0.545	0.335	1.196	0.126	0.245	0.111	0.207	-0.006	0.014
Russia	2	1468	18	4.897	1.531	1.157	2.148	0.175	0.425	0.245	0.319	0.011	0.103
South Africa	8	2174	216	5.730	7.151	0.280	0.944	0.514	0.543	0.738	0.425	-0.249	0.104
Spain	6	2274	383	5.277	0.851	0.377	1.050	0.283	0.537	0.304	0.410	-0.004	0.024
Sweden	6	511	4	6.162	2.615	0.109	0.882	0.678	2.808	0.774	2.046	0.035	-0.442
Switzerland	5	2592	104	2.136	0.144	0.058	0.253	0.065	0.130	0.090	0.105	-0.001	-0.032
Turkey	1	1943	6	5.631	1.106	0.169	0.931	0.298	0.150	0.775	0.134	0.013	0.042
U.K.	42	2206	201	8.002	0.745	0.355	0.875	0.540	0.645	0.480	0.509	-0.065	-0.142

Table A2 – Average number of daily price deviations and reasons for why they arise, 2001 - 2016

Compared to Table 2 of the paper I only consider the largest price deviation from each stock-day.

This table presents the total number of price deviations (*# Price deviations*) by the asset that moves to create the deviation (*First mover*) and by the asset that moves to eliminate it (*Last mover*) (inspired by Schultz and Shive (2010)). Each I only consider the maximum price deviation within each stock-day. The first column indicates the asset that moves to create the price deviation: either the home-market share (*Home*), the host-market share (*Host*), both the home- and the host-market share (*Both*), or the respective currency pair (*Forex*). The second column (*#Price deviations*) indicates the total number of price deviations across all stocks and days in this category. The third column (*%Toxic*) indicates the percentage of all price deviations that are toxic, when one share moves to create the price deviation and later the other moves back to eliminate it (for example, if the *Home*-market share is the first mover *%Toxic* is defined as the number of price deviations starting in the *Host*-market and ending in the *Home* market as a percentage of all price deviations). The rest of the columns *Home*, *Host*, *Both*, and *Forex* indicate the percentage of all price deviations that get eliminated because of a movement in the respective asset. All data underlying the computations are from TRTH.

			Last mover:			
First mover	#Price deviations	%Toxic	*%Home*	*%Host*	*%Both*	*%Forex*
Panel B: Across the maximum price deviation within each stock-day						
Home	104,192	11.20	44.76	32.74	16.58	5.92
Host	137,530	10.21	27.25	47.52	16.02	9.21
Both	61,330		27.04	29.65	36.06	7.26
Forex	31,140		26.80	33.49	19.23	20.48

Table A3 – Pooled Spearman rank correlations of daily price deviation and illiquidity measures, 2001 - 2016

Compared to Table 3 of the paper I estimate Pearson correlations.

This table reports pooled Pearson correlations between the following daily measures: the average time it takes till an arbitrage disappears ($INARB$), the average and maximum price deviations from quotes ($avg(\Delta QTE)$ and $max(\Delta QTE)$, respectively), the average price deviation from simultaneous trades ($avg(\Delta TRD)$), home- and host-market proportional quoted ($PQSPR$) and effective spread ($PESPR$). For a description of these variables I refer to Table 1. All measures are computed during the overlapping trading time, i.e. when both the home- and host-market are in their continuous trading session. All correlations are significant at the 1% level. All data underlying the computations are from TRTH.

					$PQSPR$		$PESPR$	
	$INARB$	$avg(\Delta TRD)$	$avg(\Delta QTE)$	$max(\Delta QTE)$	$Home$	$Host$	$Home$	$Host$
$INARB$	100%							
$avg(\Delta TRD)$	5.84%	100%						
$avg(\Delta QTE)$	23.35%	77.27%	100%					
$max(\Delta QTE)$	15.55%	78.31%	79.37%	100%				
$PQSPR_{Home}$	11.38%	20.29%	8.23%	27.66%	100%			
$PQSPR_{Host}$	12.32%	11.65%	9.05%	22.45%	28.35%	100%		
$PESPR_{Home}$	8.15%	14.11%	5.97%	18.09%	63.93%	21.26%	100%	
$PESPR_{Host}$	11.94%	13.26%	8.87%	20.73%	31.27%	87.03%	20.30%	100%

Table A4 – Arbitrageurs' relative speed, arbitrage mix and liquidity in the ADR market, 2001 - 2016

Compared to Table 4 of the paper I separately estimate the regression for home-market stocks (Panel A) and ADRs (Panel B).

This table presents results of how liquidity varies on days between corporate actions, i.e., when either the host or the home-market is cum-dividend but the other is ex-dividend ($BetweenCorpAct_{i,d}$). Each column presents the results of the following panel regression with day and stock-pair fixed effects:

$$Illiq_{i,d} = FE + a_0 t + a_1 \pi_{i,d} + a_2 \phi_{i,d} + a_3 \alpha_{i,d} + a_4 \sigma_{i,d} + a_5 Vola_{i,d} + a_6 Trsize_{i,d} + a_7 Quotes_{i,d} + a_8 Ted_{i,d} + \epsilon_{i,d}$$

where illiquidity ($Illiq_{i,d}$) of home- or host-market stock i on day d is measured by the proportional quoted spread (Panel A: $PQSPR$), proportional effective spread (Panel B: $PESPR$), and the difference in PQSPR during and outside overlapping trading times (Panel C: $\delta PQSPR$), as defined in Table 1. And where ***Controls*** is a vector of control variables. *CorpAct* is a dummy variable set to one on days on which both the home and the host-market go ex-dividend; *log*(*price*) is the logarithm of the end-of-day closing price (in USD); $Vola$ is the 5-minute mid-return volatility; *Quotes* is the number of updates to the (NBBO) quote (in 10,000); $Trsize$ is the average trade size (in 10,000 shares); *Ted* is the Ted spread, the difference between 3-Month USD LIBOR and Treasury Bills. All stock specific variables (except *price*) are measured during the overlapping trading time, i.e. when both the home market and the cross-listed market are in their continuous trading session. Standard errors are clustered by stock and statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively. $p-$values are in parentheses below the coefficients. Data to compute *price* are from Datastream, *Ted* is from the Federal Reserve Bank of St. Louis, and all other data underlying the computations are from TRTH.

	Panel A: Home-market				Panel B: ADR			
	$PQSPR_{i,d}$		$PESPR_{i,d}$		$PQSPR_{i,d}$		$PESPR_{i,d}$	
$\pi_{i,d,Toxic}$	-0.005***	-0.005***	0.001	0.001	-0.008***	-0.007***	-0.005***	-0.004***
	(0.00)	(0.00)	(0.87)	(0.88)	(0.00)	(0.00)	(0.00)	(0.00)
$\pi_{i,d,notToxic}$		-0.011***		0.002		-0.014***		-0.006***
		(0.00)		(0.73)		(0.00)		(0.01)
$\phi_{i,d}$	0.035	0.030	0.000	0.008	0.038**	0.053***	-0.005	0.009
	(0.18)	(0.38)	(0.99)	(0.82)	(0.01)	(0.00)	(0.68)	(0.46)
$\alpha_{i,d}$	0.015***	0.015***	0.009	0.009	0.004**	0.004***	0.001	0.001
	(0.01)	(0.01)	(0.12)	(0.11)	(0.01)	(0.01)	(0.49)	(0.58)
$\sigma_{i,d,Toxic}$	0.106**	0.096**	0.118***	0.111***	0.081***	0.045*	0.056***	0.004
	(0.01)	(0.03)	(0.00)	(0.00)	(0.00)	(0.05)	(0.00)	(0.85)
$\sigma_{i,d}$		0.028**		0.018*		0.066*		0.094***
		(0.04)		(0.05)		(0.05)		(0.00)
$Vola_{i,d}$	1.618***	1.602***	1.503***	1.489***	0.117**	0.116**	0.012	0.010
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.27)	(0.28)
$Trsize_{i,d}$	-0.025	-0.019	-0.076**	-0.071*	0.105**	0.099**	-0.013	-0.020
	(0.20)	(0.40)	(0.04)	(0.05)	(0.01)	(0.02)	(0.64)	(0.44)
$Quotes_{i,d}$	-0.309***	-0.306***	-0.364***	-0.363***	-0.006*	-0.006*	0.002	0.002
	(0.00)	(0.00)	(0.00)	(0.00)	(0.09)	(0.09)	(0.19)	(0.19)
Ted_d	-0.014**	-0.013**	-0.002	-0.002	0.033***	0.033***	0.033***	0.032***
	(0.03)	(0.04)	(0.68)	(0.75)	(0.00)	(0.00)	(0.00)	(0.00)
Adj. R^2	0.7692	0.7516	0.3683	0.3547	0.7513	0.7577	0.7401	0.7648
Obs.	257,862	256,218	257,157	255,561	255,928	255,512	255,407	255,007

Table A5 – Arbitrageurs' relative speed, arbitrage mix and liquidity in the ADR market, 2001 - 2016

Compared to Table 4 of the paper I estimate the regression using an instrumental variable regression.

This table presents results of regressions explaining illiquidity by arbitrageurs' relative speed (π), arbitrage mix (ϕ), and price deviations (σ). Each column presents the results of the following panel regression with two dimensional stock-month fixed effects:

$$Illiq_{i,d} = FE + a_1\pi_{i,d} + a_2\phi_{i,d} + a_3\alpha_{i,d} + a_4\sigma_{i,d} + \boldsymbol{\zeta} \times \boldsymbol{Controls}_{i,d} + \epsilon_{i,d}$$

where illiquidity ($Illiq_{i,d}$) of home- or host-market stock i on day d is measured by the proportional quoted spread (Panel A: $PQSPR$) and proportional effective spread (Panel B: $PESPR$). $\pi_{i,d}$ is the number of toxic price deviations that end with a trade divided by the number of toxic price deviations; $\phi_{i,d}$ is the number of toxic price deviations divided by the number of all price deviations; $\alpha_{i,d}$ is the number of price deviations divided by the number of trades; $\sigma_{i,d}$ is the average deviation in mid-quote prices. And where $\boldsymbol{Controls}$ is a vector of control variables: $Vola$ is the 5-minute mid-return volatility; $Trsize$ is the average trade size (in 10,000 shares); $Quotes$ is the number of updates to the (NBBO) quote (in 10,000); Ted is the Ted spread, the difference between 3-Month USD LIBOR and Treasury Bills. The regression is estimated using instrument variable approach, with $\widehat{\pi_{i,d}}$ the fitted value from explaining $\pi_{i,d}$ by a dummy variable set to 1 for ADRs trading on the NYSE after the introduction of the NYSE-Hybrid program (after 2007-01-24). All regressions are estimated with a linear time-trend (unreported). All stock specific variables (except *price*) are measured during the overlapping trading time, i.e. when both the home- and host-market are in their continuous trading session. Standard errors are clustered by stock and statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively. $p-$values are in parentheses below the coefficients. Data to compute *price* are from Datastream, Ted is from the Federal Reserve Bank of St. Louis, and all other data underlying the computations are from TRTH.

	Panel A: $PQSPR_{i,d}$		Panel B: $PESPR_{i,d}$	
$\widehat{\pi_{i,d,Toxic}}$	-0.009	-0.011	-0.096	-0.106
	(0.77)	(0.77)	(0.40)	(0.35)
$\pi_{i,d,notToxic}$		-0.006**		0.010
		(0.05)		(0.14)
$\phi_{i,d}$ 0.020	0.024	-0.012	-0.008	
	(0.20)	(0.19)	(0.50)	(0.70)
$\alpha_{i,d}$	0.006***	0.006***	0.001	0.001
	(0.00)	(0.00)	(0.45)	(0.43)
$\sigma_{i,d,Toxic}$	0.105***	0.082***	0.104***	0.076***
	(0.00)	(0.01)	(0.00)	(0.00)
$\sigma_{i,d}$		0.048**		0.056***
		(0.01)		(0.00)
$Vola_{i,d}$	0.140**	0.139**	0.034	0.032
	(0.02)	(0.02)	(0.19)	(0.19)
$Trsize_{i,d}$	-0.005	0.000	-0.060*	-0.056
	(0.77)	(1.00)	(0.10)	(0.13)
$Quotes_{i,d}$	-0.005	-0.005	-0.001	-0.001
	(0.11)	(0.11)	(0.65)	(0.64)
Ted_d	0.024***	0.024***	0.029***	0.029***
	(0.00)	(0.00)	(0.00)	(0.00)
Obs.	502,625	500,574	501,421	499,431

Table A6 – Instrumental variable regressions to address contemporaneous effects of impediments to arbitrage on illiquidity, 2001 - 2016

Compared to Table 7 of the paper I separately estimate the regression for home-market stocks, ADRs, group of countries, and years.

This table presents the second stage regressions of instrumenting price deviations when explaining liquidity by a dummy variable which is one on days between corporate actions ($BetweenCorpAct_{i,d}$), i.e., when either the host or the home-market is cum-dividend but the other is ex-dividend. Each column presents the results of the following panel regression with day and stock-pair fixed effects:

$$Illiq_{i,d} = FE + \beta_1 \times \Delta\widehat{Price}_{i,d} + \epsilon_{i,d}$$

where illiquidity ($Illiq_{i,d}$) of home- or host-market stock i on day d is measured by the proportional quoted spread (Panel A: $PQSPR$), proportional effective spread (Panel B: $PESPR$), and the difference in PQSPR during and outside overlapping trading times (Panel C: $\delta PQSPR$), as defined in Table 1. $\widehat{\Delta Price_{i,d}}$ is the fitted value from the first stage regressions. For a description of these variables I refer to Table 1 and Table 5. The regression is estimated separately by region and time-period (indicated by the first and second column) and by home-market stocks and their respective ADRs (indicated by the column name). The three different regions are: *America* refers to stock-pairs if the home-market stock is from Argentina, Brazil, Chile, Mexico, or Peru; *EU* refers to stock-pairs if the home-market stock is from Belgium, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, or United Kingdom; and *Rest* refers to stock-pairs if the home-market stock is from South Africa, Switzerland, Israel, Turkey, or Russian Federation. In Panel C, I drop all stock-pairs if the home-market stock is from Argentina, Brazil, Chile, Mexico, and Peru. Standard errors are clustered by stock and statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively. $p-$values are in parentheses below the coefficients. Data to compute *size* and *price* is from Datastream all other data underlying the computations is from TRTH.

Panel A: $PQSPR_{i,d}$

		$INARB_{i,d}$		$avg(\Delta TRD_{i,d})$		$avg(\Delta QTE_{i,d})$		$max(\Delta QTE_{i,d})$	
		Home	ADR	Home	ADR	Home	ADR	Home	ADR
America	2001 - 2005	0.015	0.006	0.024	0.009	0.120	0.045	0.056*	0.021
		(0.15)	(0.33)	(0.16)	(0.54)	(0.11)	(0.29)	(0.10)	(0.26)
	2006 - 2010	0.000	0.010	-0.005	-0.003	-0.006	0.100	-0.003	0.048
		(0.99)	(0.35)	(0.72)	(0.77)	(0.93)	(0.29)	(0.93)	(0.28)
	2011 - 2016	0.005	0.000	0.029	0.006	0.074	-0.008	0.030	-0.003
		(0.38)	(0.89)	(0.27)	(0.57)	(0.31)	(0.59)	(0.25)	(0.58)
EU	2001 - 2005	-0.002*	0.017***	-0.002	0.026*	-0.004	0.038	-0.002	0.026*
		(0.09)	(0.01)	(0.15)	(0.07)	(0.18)	(0.10)	(0.14)	(0.07)
	2006 - 2010	-0.006	0.028	0.000	0.006*	-0.006	0.051**	-0.004	0.032*
		(0.48)	(0.37)	(0.69)	(0.06)	(0.36)	(0.04)	(0.34)	(0.05)
	2011 - 2016	0.002	0.002	0.001	0.002	0.002	0.005	0.002	0.004
		(0.42)	(0.44)	(0.35)	(0.14)	(0.34)	(0.15)	(0.35)	(0.17)
Rest	2001 - 2005	0.015	-0.239	0.007	-0.102	-0.018	0.603	-0.013	0.432
		(0.47)	(0.54)	(0.11)	(0.36)	(0.65)	(0.26)	(0.65)	(0.23)
	2006 - 2010	-0.001	0.014	0.000	-0.010	0.001	0.044***	0.000	0.027**
		(0.59)	(0.35)	(0.66)	(0.35)	(0.87)	(0.01)	(0.87)	(0.01)

Table A6 continued		$INARB_{i,d}$		$avg(\Delta TRD_{i,d})$		$avg(\Delta QTE_{i,d})$		$max(\Delta QTE_{i,d})$	
		Home	ADR	Home	ADR	Home	ADR	Home	ADR
	2011 - 2016	-0.011	-0.005	0.005	0.003*	-0.055	-0.030	-0.049	-0.027
		(0.40)	(0.55)	(0.27)	(0.06)	(0.31)	(0.42)	(0.33)	(0.43)
Panel B: $PESPR_{i,d}$									
America	2001 - 2005	0.003	0.005	0.019	0.014	0.038	0.035	0.018	0.017
		(0.55)	(0.15)	(0.13)	(0.40)	(0.35)	(0.24)	(0.35)	(0.21)
	2006 - 2010	-0.005	0.007	0.002	0.001	-0.037	0.104	-0.017	0.049
		(0.39)	(0.35)	(0.84)	(0.77)	(0.62)	(0.28)	(0.61)	(0.27)
	2011 - 2016	0.013	0.001	0.116	0.001	0.129	-0.004	0.053	-0.002
		(0.42)	(0.80)	(0.24)	(0.82)	(0.26)	(0.85)	(0.23)	(0.85)
EU	2001 - 2005	0.000	0.009**	-0.001	0.018*	-0.001	0.023*	0.000	0.015*
		(0.66)	(0.01)	(0.19)	(0.07)	(0.72)	(0.09)	(0.72)	(0.06)
	2006 - 2010	-0.004	0.014	-0.001	0.003**	-0.013	0.022**	-0.008	0.014**
		(0.50)	(0.37)	(0.28)	(0.04)	(0.27)	(0.04)	(0.25)	(0.04)
	2011 - 2016	0.002	0.004	0.002	0.003	0.004	0.006	0.003	0.004
		(0.63)	(0.30)	(0.38)	(0.20)	(0.34)	(0.21)	(0.35)	(0.23)
Rest	2001 - 2005	-0.030	-0.276	-0.010	-0.160	0.099	0.892	0.071	0.637
		(0.43)	(0.45)	(0.54)	(0.35)	(0.27)	(0.26)	(0.25)	(0.24)
	2006 - 2010	0.129	0.030	-0.038	-0.013	0.164**	0.055**	0.101**	0.034**
		(0.42)	(0.42)	(0.34)	(0.38)	(0.01)	(0.03)	(0.02)	(0.04)
	2011 - 2016	0.029	-0.010	0.005	0.002	-0.019	-0.043	-0.017	-0.038
		(0.71)	(0.41)	(0.84)	(0.29)	(0.93)	(0.22)	(0.93)	(0.23)
Panel C: $\delta PQSPR_{i,d}$									
EU	2001 - 2005	-0.001	0.022**	0.000	0.032*	-0.002	0.048*	-0.001	0.033*
		(0.50)	(0.01)	(0.93)	(0.06)	(0.60)	(0.09)	(0.59)	(0.06)
	2006 - 2010	-0.002	0.026	0.000	0.004*	-0.003	0.039**	-0.002	0.025*
		(0.72)	(0.46)	(0.41)	(0.07)	(0.56)	(0.05)	(0.56)	(0.08)
	2011 - 2016	0.000	0.008	0.000	0.001*	0.000	0.002	0.000	0.002
		(0.68)	(0.35)	(0.46)	(0.08)	(0.36)	(0.11)	(0.37)	(0.13)
Rest	2001 - 2005	0.006	-0.255	0.003	-0.111	-0.002	0.645	-0.001	0.462
		(0.79)	(0.57)	(0.68)	(0.35)	(0.97)	(0.28)	(0.97)	(0.26)
	2006 - 2010	-0.005	0.011	0.001	-0.013	-0.005	0.056***	-0.003	0.035***
		(0.46)	(0.28)	(0.65)	(0.34)	(0.54)	(0.00)	(0.52)	(0.01)
	2011 - 2016	0.008	0.007	-0.005	-0.001	0.042	0.019	0.038	0.017
		(0.45)	(0.78)	(0.33)	(0.72)	(0.33)	(0.79)	(0.33)	(0.79)

Table A7 – Price deviations during days between corporate actions, 2001 - 2016

Compared to Table 7 of the paper I use price deviations estimated as the absolute difference in the logarithm of home and ADR mid-quote prices.

This table presents the second stage regressions of instrumenting price deviations when explaining liquidity by a dummy variable which is one on days between corporate actions ($BetweenCorpAct_{i,d}$), i.e., when either the host or the home-market is cum-dividend but the other is ex-dividend. Each column presents the results of the following panel regression with two dimensional stock-month fixed effects:

$$Illiq_{i,d} = FE + \beta_1 \times \Delta\widehat{Price}_{i,d} + \boldsymbol{\zeta_1} \times \boldsymbol{Controls}_{i,d} + \epsilon_{i,d}$$

where illiquidity ($Illiq_{i,d}$) of home- or host-market stock i on day d is measured by the proportional quoted spread (Panel A: $PQSPR$), proportional effective spread (Panel B: $PESPR$), and the difference in PQSPR during and outside overlapping trading times (Panel C: $\delta PQSPR$), as defined in Table 1. $avg(\Delta MID_{i,d})$ is the absolute difference in the logarithm of home and ADR mid-quote prices and $\widehat{avg(\Delta MID_{i,d})}$ is the fitted value from (unreported) first stage regressions. And $\boldsymbol{Controls}$ is a vector of control variables. For a description of these variables I refer to Table 1 and Table 5. In Panel C, I drop all stock-pairs if the home-market stock is from Argentina, Brazil, Chile, Mexico, and Peru. Standard errors are clustered by stock and statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively. R^2 statistics are not reported, because they cannot be properly interpreted in two stage regressions. $p-$values are in parentheses below the coefficients. Data to compute *size* and *price* is from Datastream all other data underlying the computations is from TRTH.

	Panel A: $PQSPR_{i,d}$		Panel B: $PESPR_{i,d}$		Panel C: $\delta PQSPR_{i,d}$	
$\widehat{avg(\Delta MID_{i,d})}$	0.006***	0.006**	0.007**	0.008***	0.006**	0.004***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.00)
$log(price)_{i,d}$		-0.363***		-0.316***		
		(0.00)		(0.00)		
$Vola_{i,d}$		0.190***		0.046*		
		(0.00)		(0.09)		
$OIB_{i,d}$		-0.000		-0.000		
		(0.74)		(0.84)		
$Trades_{i,d}$		-0.022***		0.001		
		(0.00)		(0.74)		
$Quotes_{i,d}$		-0.004		-0.001		
		(0.29)		(0.54)		
$Trsize_{i,d}$		0.036		-0.010		
		(0.35)		(0.77)		
Ted_d		0.040***		0.039***		
		(0.00)		(0.00)		
$\delta Vola_{i,d}$						0.194***
						(0.00)
$\delta OIB_{i,d}$						0.000
						(0.34)
$\delta Trades_{i,d}$						-0.005***
						(0.00)
$\delta Quotes_{i,d}$						-0.001*
						(0.08)
$\delta Trsize_{i,d}$						-0.001
						(0.84)
$\Delta Trades_{i,d}$						0.033
						(0.24)
Adj. R^2	0.6467	0.6802	0.3528	0.3577	0.2824	0.2970
Obs.	825,148	798,163	813,504	791,923	527,844	525,018

Table A8 – Price deviations during days between corporate actions, 2001 - 2016

Compared to Table 7 of the paper I use price deviations in USD.

This table presents the second stage regressions of instrumenting price deviations when explaining liquidity by a dummy variable which is one on days between corporate actions ($BetweenCorpAct_{i,d}$), i.e., when either the host or the home-market is cum-dividend but the other is ex-dividend. Each column presents the results of the following panel regression with two dimensional stock-month fixed effects:

$$Illiq_{i,d} = FE + \beta_1 \times \Delta\widehat{Price}_{i,d} + \boldsymbol{\zeta_1} \times \boldsymbol{Controls}_{i,d} + \epsilon_{i,d}$$

where illiquidity ($Illiq_{i,d}$) of home- or host-market stock i on day d is measured by the proportional quoted spread (Panel A: $PQSPR$), proportional effective spread (Panel B: $PESPR$), and the difference in PQSPR during and outside overlapping trading times (Panel C: $\delta PQSPR$), as defined in Table 1. $max(\Delta USD_{i,d})$ is the maximum price deviation computed from quotes in USD and $\widehat{max(\Delta USD_{i,d})}$ is the fitted value from (unreported) first stage regressions. And ***Controls*** is a vector of control variables. For a description of these variables I refer to Table 1 and Table 5. In Panel C, I drop all stock-pairs if the home-market stock is from Argentina, Brazil, Chile, Mexico, and Peru. Standard errors are clustered by stock and statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively. R^2 statistics are not reported, because they cannot be properly interpreted in two stage regressions. $p-$values are in parentheses below the coefficients. Data to compute *size* and *price* is from Datastream all other data underlying the computations is from TRTH.

	Panel A: $PQSPR_{i,d}$		Panel B: $PESPR_{i,d}$		Panel C: $\delta PQSPR_{i,d}$	
$\widehat{max(\Delta USD_{i,d})}$	0.027**	0.026**	0.029**	0.031**	0.021**	0.016***
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.00)
$log(price)_{i,d}$		-0.368***		-0.322***		
		(0.00)		(0.00)		
$Vola_{i,d}$		0.189***		0.045*		
		(0.00)		(0.09)		
$OIB_{i,d}$		-0.000		-0.000		
		(0.71)		(0.84)		
$Trades_{i,d}$		-0.022***		0.002		
		(0.00)		(0.55)		
$Quotes_{i,d}$		-0.006		-0.004		
		(0.11)		(0.11)		
$Trsize_{i,d}$		0.034		-0.012		
		(0.37)		(0.73)		
Ted_d		0.038***		0.037***		
		(0.00)		(0.00)		
$\delta Vola_{i,d}$						0.192***
						(0.00)
$\delta OIB_{i,d}$						0.000
						(0.25)
$\delta Trades_{i,d}$						-0.005***
						(0.00)
$\delta Quotes_{i,d}$						-0.001*
						(0.07)
$\delta Trsize_{i,d}$						-0.001
						(0.82)
$\Delta Trades_{i,d}$						0.033
						(0.24)
Adj. R^2	64.70	68.11	35.24	35.73	28.68	30.06
Obs.	825,148	798,163	813,504	791,923	527,844	525,018

Table A9 – Price deviations during days between corporate actions, 2001 - 2016

Compared to Table 7 of the paper I only consider price deviations of at least 1 basis point.

This table presents the second stage regressions of instrumenting price deviations when explaining liquidity by a dummy variable which is one on days between corporate actions ($BetweenCorpAct_{i,d}$), i.e., when either the host or the home-market is cum-dividend but the other is ex-dividend. Each column presents the results of the following panel regression with two dimensional stock-month fixed effects:

$$Illiq_{i,d} = FE + \beta_1 \times \Delta\widehat{Price}_{i,d} + \boldsymbol{\zeta_1} \times \boldsymbol{Controls}_{i,d} + \epsilon_{i,d}$$

where illiquidity ($Illiq_{i,d}$) of home- or host-market stock i on day d is measured by the proportional quoted spread (Panel A: $PQSPR$), proportional effective spread (Panel B: $PESPR$), and the difference in PQSPR during and outside overlapping trading times (Panel C: $\delta PQSPR$), as defined in Table 1. $max(\Delta UQTE_{i,d})$ is the maximum price deviation computed from quotes, unadjusted by corporate actions, and $\widehat{max(\Delta UQTE_{i,d})}$ is the fitted value from (unreported) first stage regressions. And $\boldsymbol{Controls}$ is a vector of control variables. For a description of these variables I refer to Table 1 and Table 5. In Panel C, I drop all stock-pairs if the home-market stock is from Argentina, Brazil, Chile, Mexico, and Peru. Standard errors are clustered by stock and statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively. R^2 statistics are not reported, because they cannot be properly interpreted in two stage regressions. $p-$values are in parentheses below the coefficients. Data to compute *size* and *price* is from Datastream all other data underlying the computations is from TRTH.

	Panel A: $PQSPR_{i,d}$		Panel B: $PESPR_{i,d}$		Panel C: $\delta PQSPR_{i,d}$	
$\widehat{max(\Delta UQTE_{i,d})}$	0.004**	0.004**	0.005**	0.005**	0.005**	0.004***
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.00)
$log(price)_{i,d}$		-0.359***		-0.315***		
		(0.00)		(0.00)		
$Vola_{i,d}$		0.188***		0.046*		
		(0.00)		(0.09)		
$OIB_{i,d}$		-0.000		-0.000		
		(0.75)		(0.84)		
$Trades_{i,d}$		-0.022***		0.002		
		(0.00)		(0.59)		
$Quotes_{i,d}$		-0.006		-0.004		
		(0.10)		(0.11)		
$Trsize_{i,d}$		0.034		-0.009		
		(0.37)		(0.80)		
Ted_d		0.039***		0.038***		
		(0.00)		(0.00)		
$\delta Vola_{i,d}$						0.193***
						(0.00)
$\delta OIB_{i,d}$						0.000
						(0.24)
$\delta Trades_{i,d}$						-0.005***
						(0.00)
$\delta Quotes_{i,d}$						-0.001*
						(0.08)
$\delta Trsize_{i,d}$						-0.001
						(0.83)
$\Delta Trades_{i,d}$						0.033
						(0.25)
Adj. R^2	0.6457	0.6799	0.3699	0.3748	0.2873	0.3005
Obs.	822,506	795,732	811,158	789,644	526,428	523,638

Table A10 – Price deviations during days between corporate actions, 2001 - 2016

Compared to Table 7 of the paper I only consider price deviations of at least USD 0.01.

This table presents the second stage regressions of instrumenting price deviations when explaining liquidity by a dummy variable which is one on days between corporate actions ($BetweenCorpAct_{i,d}$), i.e., when either the host or the home-market is cum-dividend but the other is ex-dividend. Each column presents the results of the following panel regression with two dimensional stock-month fixed effects:

$$Illiq_{i,d} = FE + \beta_1 \times \Delta \widehat{Price}_{i,d} + \boldsymbol{\zeta_1} \times \boldsymbol{Controls}_{i,d} + \epsilon_{i,d}$$

where illiquidity ($Illiq_{i,d}$) of home- or host-market stock i on day d is measured by the proportional quoted spread (Panel A: $PQSPR$), proportional effective spread (Panel B: $PESPR$), and the difference in PQSPR during and outside overlapping trading times (Panel C: $\delta PQSPR$), as defined in Table 1. $max(\Delta UQTE_{i,d})$ is the maximum price deviation computed from quotes, unadjusted by corporate actions, and $\widehat{max(\Delta UQTE_{i,d})}$ is the fitted value from (unreported) first stage regressions. And $\boldsymbol{Controls}$ is a vector of control variables. For a description of these variables I refer to Table 1 and Table 5. In Panel C, I drop all stock-pairs if the home-market stock is from Argentina, Brazil, Chile, Mexico, and Peru. Standard errors are clustered by stock and statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively. R^2 statistics are not reported, because they cannot be properly interpreted in two stage regressions. $p-$values are in parentheses below the coefficients. Data to compute *size* and *price* is from Datastream all other data underlying the computations is from TRTH.

	Panel A: $PQSPR_{i,d}$		Panel B: $PESPR_{i,d}$		Panel C: $\delta PQSPR_{i,d}$	
$\widehat{max(\Delta UQTE_{i,d})}$	0.003*	0.003*	0.004*	0.004*	0.005**	0.003***
	(0.08)	(0.09)	(0.08)	(0.09)	(0.02)	(0.00)
$log(price)_{i,d}$		-0.335***		-0.300***		
		(0.00)		(0.00)		
$Vola_{i,d}$		0.240**		0.068		
		(0.02)		(0.16)		
$OIB_{i,d}$		-0.000		0.000*		
		(0.31)		(0.05)		
$Trades_{i,d}$		-0.023***		-0.003		
		(0.00)		(0.35)		
$Quotes_{i,d}$		-0.006		-0.004		
		(0.15)		(0.11)		
$Trsize_{i,d}$		0.010		0.019		
		(0.81)		(0.73)		
Ted_d		0.032***		0.033***		
		(0.00)		(0.00)		
$\delta Vola_{i,d}$						0.183***
						(0.00)
$\delta OIB_{i,d}$						0.000
						(0.28)
$\delta Trades_{i,d}$						-0.005***
						(0.00)
$\delta Quotes_{i,d}$						-0.001*
						(0.07)
$\delta Trsize_{i,d}$						-0.002
						(0.77)
$\Delta Trades_{i,d}$						0.023
						(0.35)
Adj. R^2	0.6878	0.6765	0.3283	0.3307	0.2935	0.2867
Obs.	722,884	702,187	714,206	697,501	483,034	480,808

Table A11 – Instrumental variable regressions to address contemporaneous effects of impediments to arbitrage on illiquidity, 2001 - 2016

Compared to Table 7 of the paper I do not filter on price deviations, i.e., I allow price deviations above 100% or above USD 5.

This table presents the second stage regressions of instrumenting price deviations when explaining liquidity by a dummy variable which is one on days between corporate actions ($BetweenCorpAct_{i,d}$), i.e., when either the host or the home-market is cum-dividend but the other is ex-dividend. Each column presents the results of the following panel regression with day and stock-pair fixed effects:

$$Illiq_{i,d} = FE + \beta_1 \times \Delta\widehat{Price}_{i,d} + \boldsymbol{\zeta_1} \times \boldsymbol{Controls}_{i,d} + \epsilon_{i,d}$$

where illiquidity ($Illiq_{i,d}$) of home- or host-market stock i on day d is measured by the proportional quoted spread (Panel A: $PQSPR$), proportional effective spread (Panel B: $PESPR$), and the difference in PQSPR during and outside overlapping trading times (Panel C: $\delta PQSPR$), as defined in Table 1. $\widehat{\Delta Price_{i,d}}$ is the fitted value from first stage regressions reported in Table 6. And $\boldsymbol{Controls}$ is a vector of control variables. For a description of these variables I refer to Table 1 and Table 5. In Panel C, I drop all stock-pairs if the home-market stock is from Argentina, Brazil, Chile, Mexico, and Peru. Standard errors are clustered by stock and statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively. $p-$values are in parentheses below the coefficients. Data to compute *size* and *price* is from Datastream all other data underlying the computations is from TRTH.

	Panel A: $PQSPR_{i,d}$									
$\widehat{INARB_{i,d}}$	0.005**	0.005**								
	(0.04)	(0.04)								
$\widehat{avg(\Delta TRD_{i,d})}$			0.000***	0.000*						
			(0.01)	(0.05)						
$\widehat{avg(\Delta QTE_{i,d})}$					0.009**	0.008**				
					(0.04)	(0.04)				
$\widehat{max(\Delta QTE_{i,d})}$							0.007**	0.006**		
							(0.03)	(0.03)		
$\widehat{max(\Delta UQTE_{i,d})}$									0.001**	0.001**
									(0.04)	(0.05)
$log(price)_{i,d}$		-0.350***		-0.138***		-0.354***		-0.341***		-0.352***
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
$Vola_{i,d}$		0.177***		1.490***		0.189***		0.189***		0.190***
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
$OIB_{i,d}$		-0.000		0.000		-0.000		0.000		-0.000
		(0.65)		(0.21)		(0.70)		(0.74)		(0.78)
$Trades_{i,d}$		-0.015**		-0.065***		-0.021***		-0.021***		-0.020***
		(0.03)		(0.00)		(0.00)		(0.00)		(0.00)
$Quotes_{i,d}$		0.000		-0.040**		-0.005		-0.004		-0.005
		(0.93)		(0.02)		(0.12)		(0.17)		(0.13)
$Trsize_{i,d}$		0.079		0.018		0.031		0.026		0.031
		(0.18)		(0.53)		(0.41)		(0.49)		(0.41)

Table A11 continued

Ted_d		0.039***		0.005		0.037***		0.036***		0.037***
		(0.00)		(0.36)		(0.00)		(0.00)		(0.00)
Adj. R^2	0.6103	0.6349	-17.8871	-6.2586	0.6167	0.6634	-1.7488	0.5460	0.5392	0.6788
Obs.	636,986	617,629	730,674	713,537	837,574	810,071	837,574	810,071	837,574	810,071
	Panel B: $PESPR_{i,d}$									
$\widehat{INARB_{i,d}}$	0.005**	0.005**								
	(0.05)	(0.03)								
$\widehat{avg(\Delta TRD_{i,d})}$			0.001**	0.000**						
			(0.02)	(0.03)						
$\widehat{avg(\Delta QTE_{i,d})}$					0.008*	0.008**				
					(0.05)	(0.04)				
$\widehat{max(\Delta QTE_{i,d})}$							0.006**	0.006**		
							(0.04)	(0.02)		
$\widehat{max(\Delta UQTE_{i,d})}$									0.001**	0.001**
									(0.05)	(0.04)
$log(price)_{i,d}$		-0.304***		-0.186***		-0.326***		-0.316***		-0.323***
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
$Vola_{i,d}$		0.040*		0.802***		0.045*		0.045*		0.046*
		(0.08)		(0.00)		(0.09)		(0.09)		(0.08)
$OIB_{i,d}$		-0.000		-0.000		-0.000		-0.000		-0.000
		(0.37)		(0.52)		(0.45)		(0.53)		(0.46)
$Trades_{i,d}$		0.011*		-0.023***		0.002		0.002		0.003
		(0.05)		(0.00)		(0.44)		(0.53)		(0.39)
$Quotes_{i,d}$		0.003		-0.023**		-0.002		-0.002		-0.002
		(0.31)		(0.02)		(0.14)		(0.30)		(0.17)
$Trsize_{i,d}$		0.043		0.023		-0.003		-0.008		-0.003
		(0.38)		(0.65)		(0.92)		(0.81)		(0.93)
Ted_d		0.040***		0.016**		0.038***		0.036***		0.038***
		(0.00)		(0.02)		(0.00)		(0.00)		(0.00)
Adj. R^2	0.4202	0.4218	-23.8604	-18.2331	0.3784	0.4097	-2.2113	0.2840	0.2683	0.4114
Obs.	631,248	614,446	730,600	713,432	825,448	803,595	825,448	803,595	825,448	803,595
	Panel C: $\delta PQSPR_{i,d}$									
$\widehat{INARB_{i,d}}$	0.013*	0.007**								
	(0.07)	(0.01)								
$\widehat{avg(\Delta TRD_{i,d})}$			0.001*	0.000***						
			(0.06)	(0.01)						
$\widehat{avg(\Delta QTE_{i,d})}$					0.006*	0.004**				
					(0.09)	(0.03)				
$\widehat{max(\Delta QTE_{i,d})}$							0.006*	0.004**		
							(0.10)	(0.04)		

Table A11 continued

$\widehat{max(\Delta UQTE_{i,d})}$									0.005**	0.003***
									(0.03)	(0.00)
$\delta Vola_{i,d}$		0.166***		0.299***		0.198***		0.146***		0.153***
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
$\delta OIB_{i,d}$		-0.000		0.000		0.000		-0.000		-0.000
		(0.94)		(0.49)		(0.63)		(0.61)		(0.62)
$\delta Trades_{i,d}$		-0.005***		-0.008***		-0.006***		-0.008**		-0.008**
		(0.00)		(0.01)		(0.00)		(0.03)		(0.01)
$\delta Quotes_{i,d}$		-0.001		-0.002		-0.001*		-0.003		-0.002
		(0.12)		(0.19)		(0.08)		(0.22)		(0.20)
$\delta Trsize_{i,d}$		-0.004		-0.006		-0.000		-0.001		-0.001
		(0.57)		(0.70)		(0.94)		(0.79)		(0.82)
$\Delta Trades_{i,d}$		0.017		0.021		0.017		0.012		0.012
		(0.47)		(0.33)		(0.44)		(0.72)		(0.67)
Adj. R^2	0.1248	0.2233	-389.9441	-201.5286	0.0071	0.2523	-34.0832	-20.9546	-23.2081	-14.3178
Obs.	407,024	404,990	498,430	497,916	528,750	525,578	528,750	525,578	528,750	525,578

Figure A1 – Impulse response functions from price deviations and quoted spreads, 2001- 2016

Compared to Figure 1 of the paper I estimate IRFs using price deviations estimated as the average time till price deviations disappear.

This figure shows impulse response functions (IRF) from panel vector autoregression (VAR) estimated as in Panel A of Table 9. For a description of the VAR and these variables I refer to Table 9 and Table 1. All IRF in the first row show responses to a Cholesky one standard-deviation shock to price deviations on day 0 (the contemporaneous effect) to day 15, with the first column showing responses on itself (price deviations), the second on order imbalance, the third on volatility, and the last column on quoted spreads. Each figure shows bootstrapped 95% confidence bands based on 1000 runs (lower, upper). All data underlying the computations are from TRTH.

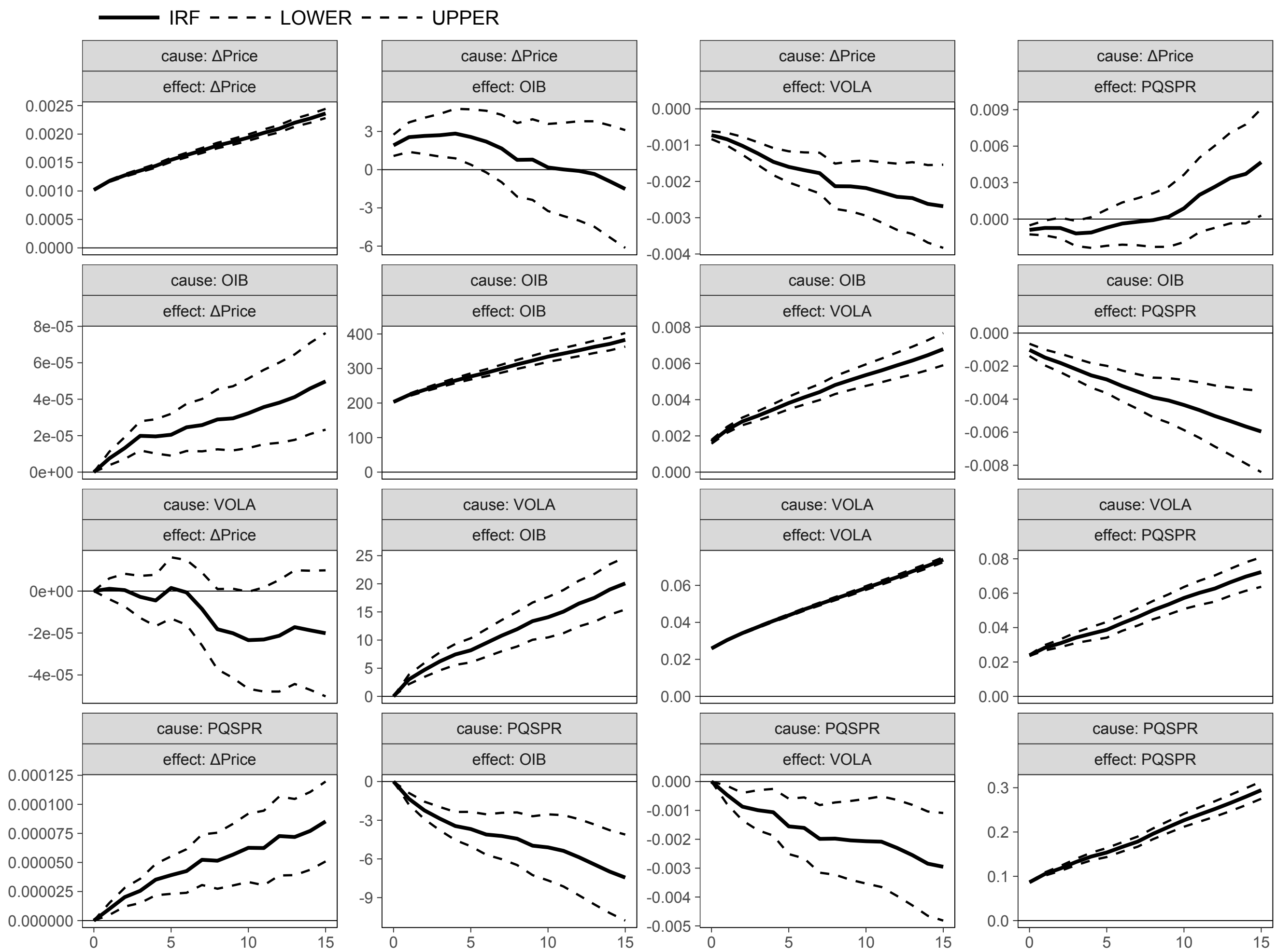

Figure A2 – Impulse response functions from price deviations and quoted spreads, 2001- 2016

Compared to Figure 1 of the paper I estimate IRFs using price deviations estimated as the average of the absolute difference in trade prices.

This figure shows impulse response functions (IRF) from panel vector autoregression (VAR) estimated as in Panel A of Table 9. For a description of the VAR and these variables I refer to Table 9 and Table 1. All IRF in the first row show responses to a Cholesky one standard-deviation shock to price deviations on day 0 (the contemporaneous effect) to day 15, with the first column showing responses on itself (price deviations), the second on order imbalance, the third on volatility, and the last column on quoted spreads. Each figure shows bootstrapped 95% confidence bands based on 1000 runs (lower, upper). All data underlying the computations are from TRTH.

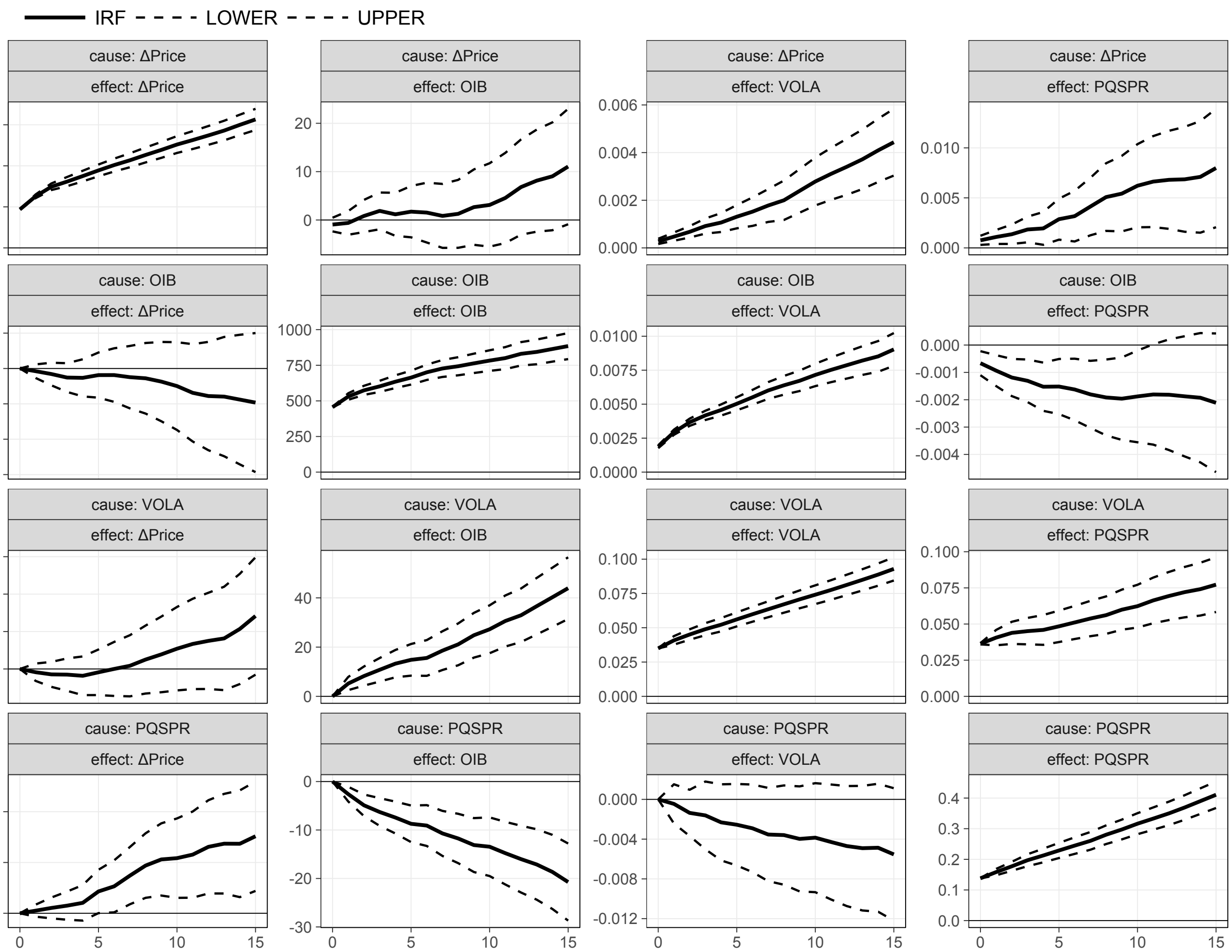

Figure A3 – Impulse response functions from price deviations and quoted spreads, 2001- 2016

Compared to Figure 1 of the paper I estimate IRFs using price deviations estimated as the average of the absolute difference in quote prices.

This figure shows impulse response functions (IRF) from panel vector autoregression (VAR) estimated as in Panel A of Table 9. For a description of the VAR and these variables I refer to Table 9 and Table 1. All IRF in the first row show responses to a Cholesky one standard-deviation shock to price deviations on day 0 (the contemporaneous effect) to day 15, with the first column showing responses on itself (price deviations), the second on order imbalance, the third on volatility, and the last column on quoted spreads. Each figure shows bootstrapped 95% confidence bands based on 1000 runs (lower, upper). All data underlying the computations are from TRTH.

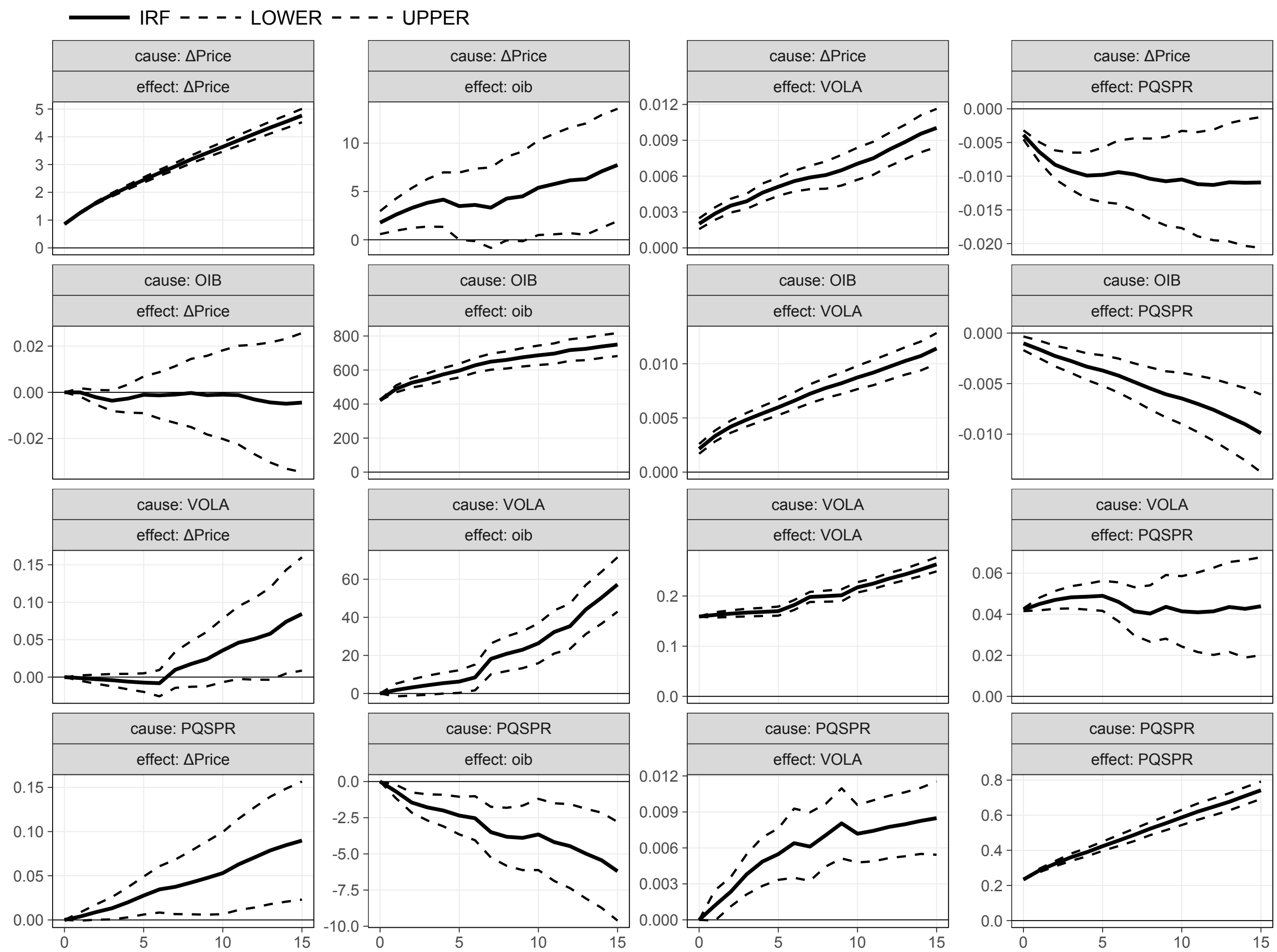

Figure A4 – Impulse response functions from price deviations and quoted spreads, 2001- 2016

Compared to Figure 1 of the paper I estimate IRFs using price deviations estimated as the absolute difference in the logarithm of home and ADR mid-quote prices.

This figure shows impulse response functions (IRF) from panel vector autoregression (VAR) estimated as in Panel A of Table 9. For a description of the VAR and these variables I refer to Table 9 and Table 1. All IRF in the first row show responses to a Cholesky one standard-deviation shock to price deviations on day 0 (the contemporaneous effect) to day 15, with the first column showing responses on itself (price deviations), the second on order imbalance, the third on volatility, and the last column on quoted spreads. Each figure shows bootstrapped 95% confidence bands based on 1000 runs (lower, upper). All data underlying the computations are from TRTH.

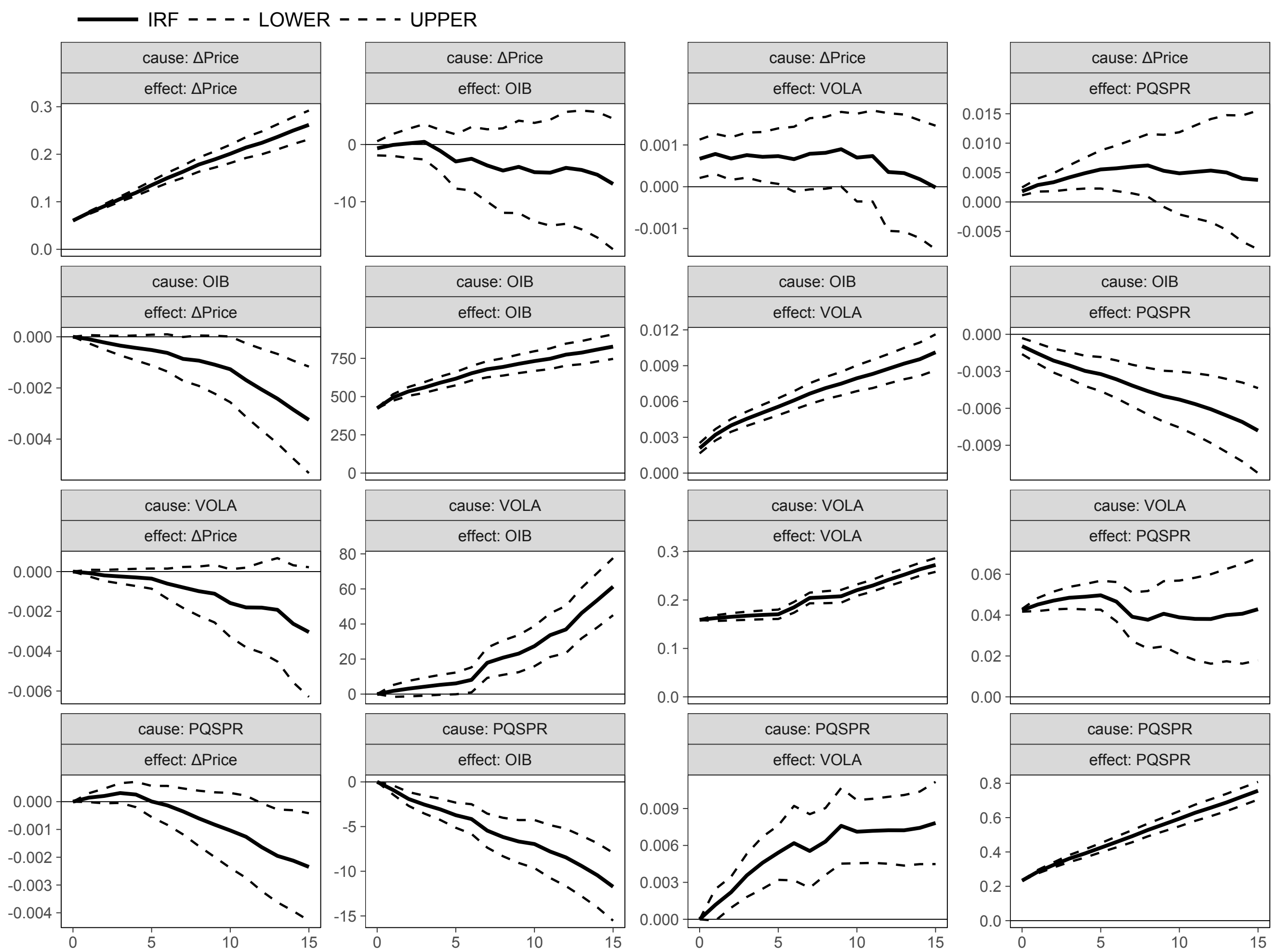

Figure A5 – Impulse response functions from price deviations and quoted spreads, 2001- 2016

Compared to Figure 1 of the paper I estimate IRFs using price deviations in USD.

This figure shows impulse response functions (IRF) from panel vector autoregression (VAR) estimated as in Panel A of Table 9. For a description of the VAR and these variables I refer to Table 9 and Table 1. All IRF in the first row show responses to a Cholesky one standard-deviation shock to price deviations on day 0 (the contemporaneous effect) to day 15, with the first column showing responses on itself (price deviations), the second on order imbalance, the third on volatility, and the last column on quoted spreads. Each figure shows bootstrapped 95% confidence bands based on 1000 runs (lower, upper). All data underlying the computations are from TRTH.

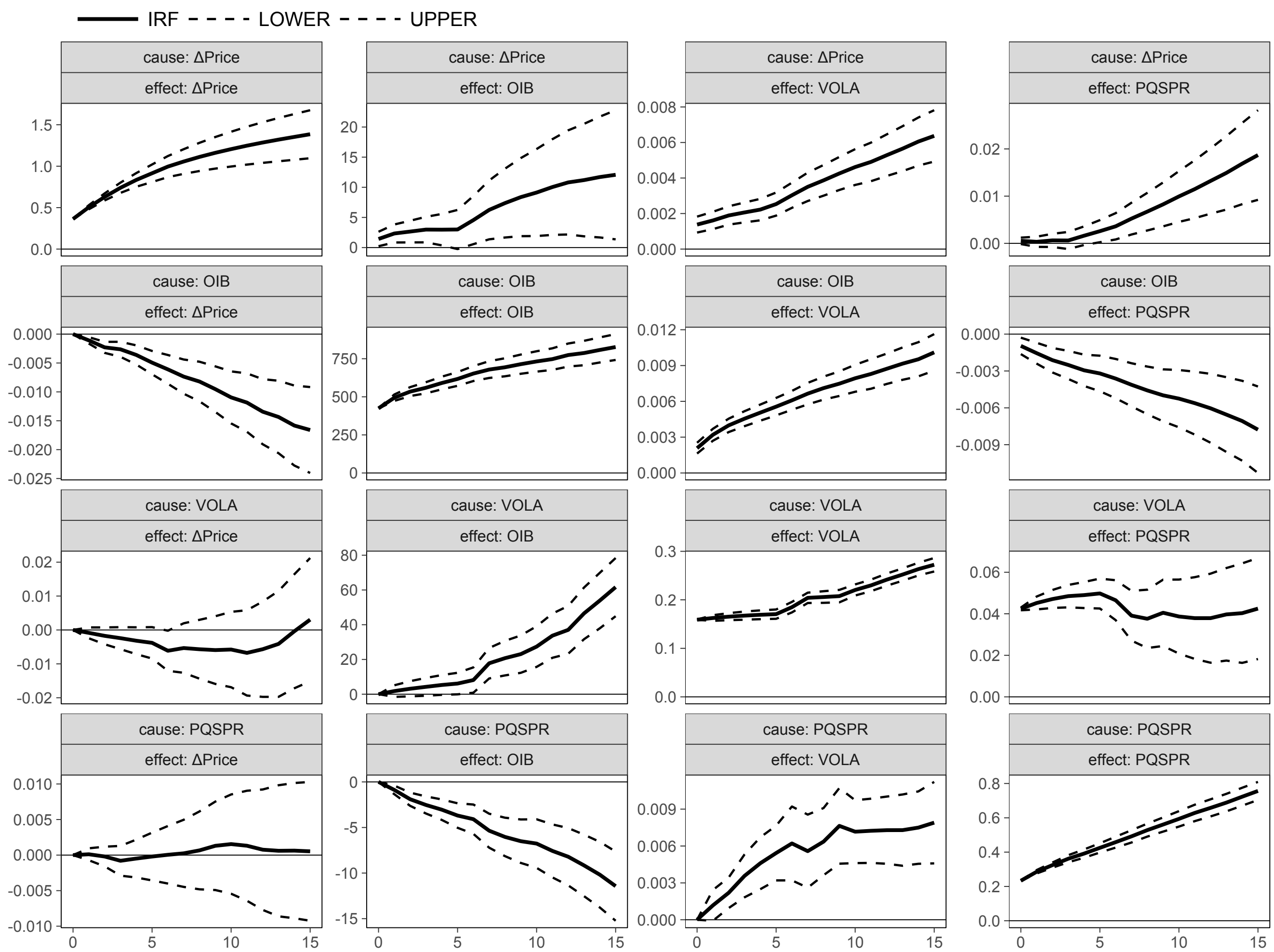

Figure A6 – Impulse response functions from price deviations and quoted spreads, 2001- 2016

Compared to Figure 1 of the paper I estimate IRFs based on the reverse order.

This figure shows impulse response functions (IRF) from panel vector autoregression (VAR) estimated as in Panel A of Table 9. For a description of the VAR and these variables I refer to Table 9 and Table 1. All IRF in the first row show responses to a Cholesky one standard-deviation shock to price deviations on day 0 (the contemporaneous effect) to day 15, with the first column showing responses on itself (price deviations), the second on order imbalance, the third on volatility, and the last column on quoted spreads. Each figure shows bootstrapped 95% confidence bands based on 1000 runs (lower, upper). All data underlying the computations are from TRTH.

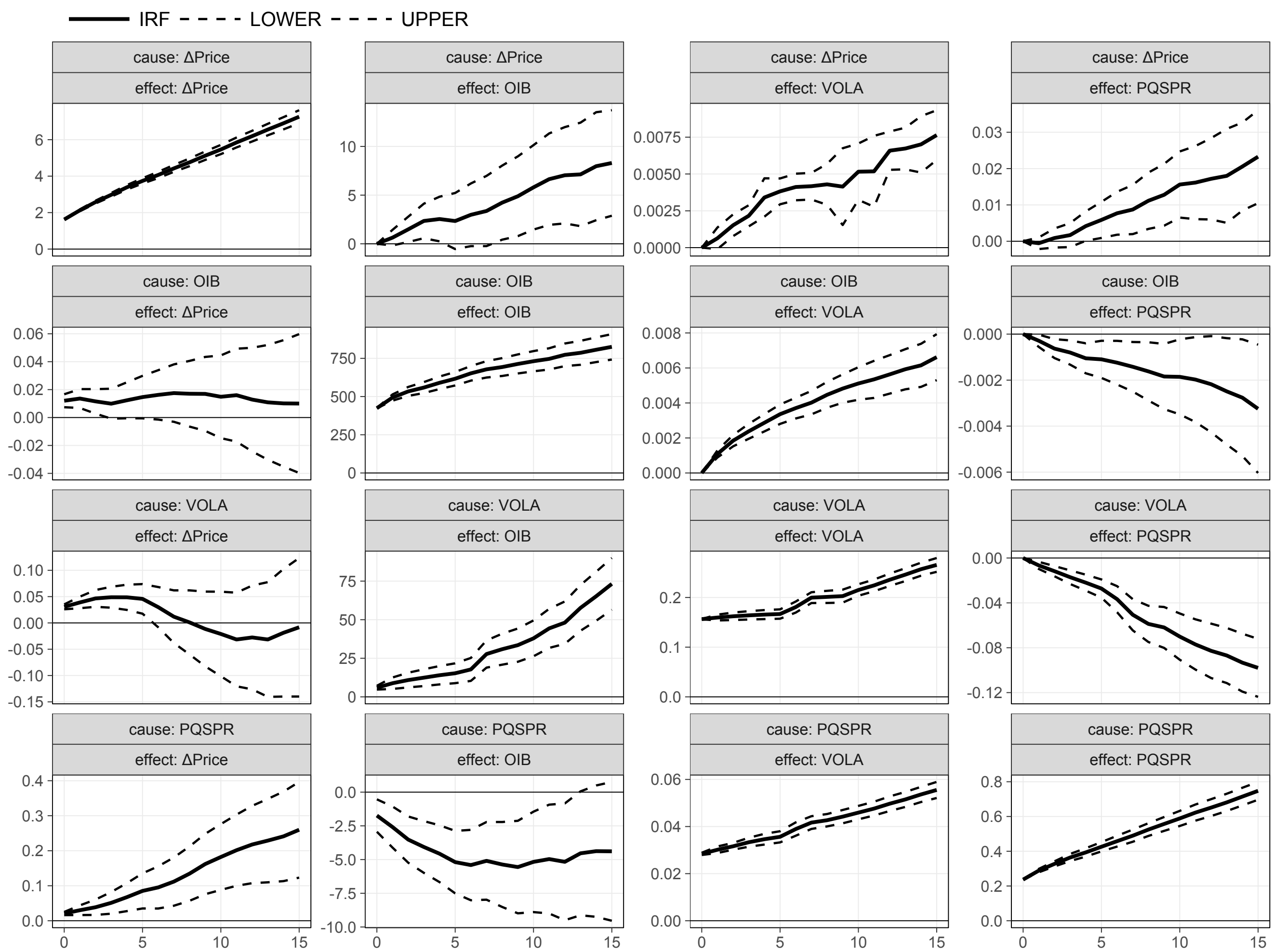

Figure A7 – Impulse response functions from price deviations and quoted spreads, 2001- 2016

Compared to Figure 1 of the paper I estimate IRFs using home-market stocks only.

This figure shows impulse response functions (IRF) from panel vector autoregression (VAR) estimated as in Panel A of Table 9. For a description of the VAR and these variables I refer to Table 9 and Table 1. All IRF in the first row show responses to a Cholesky one standard-deviation shock to price deviations on day 0 (the contemporaneous effect) to day 15, with the first column showing responses on itself (price deviations), the second on order imbalance, the third on volatility, and the last column on quoted spreads. Each figure shows bootstrapped 95% confidence bands based on 1000 runs (lower, upper). All data underlying the computations are from TRTH.

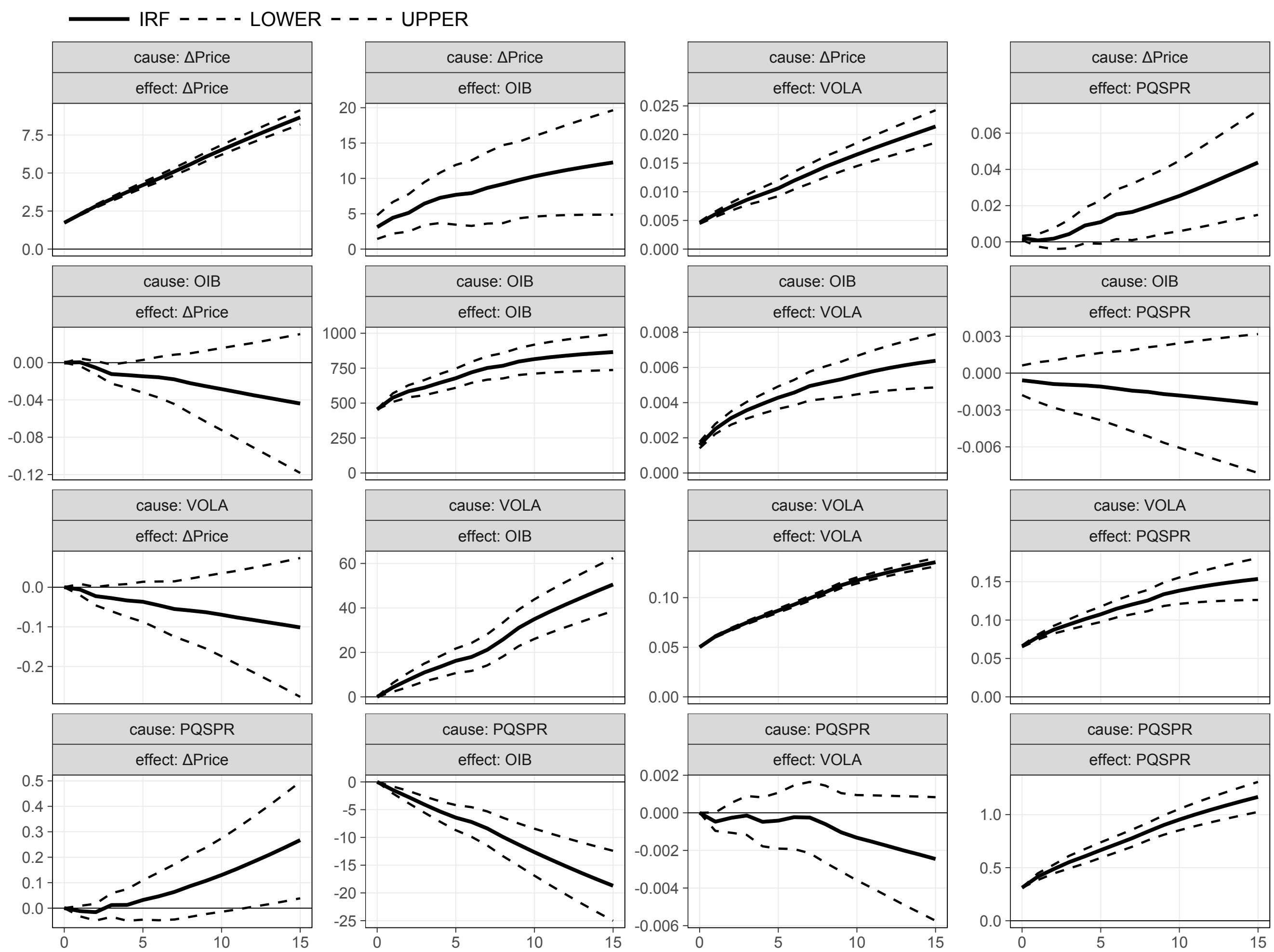

Figure A8 – Impulse response functions from price deviations and quoted spreads, 2001- 2016

Compared to Figure 1 of the paper I estimate IRFs using ADRs only.

This figure shows impulse response functions (IRF) from panel vector autoregression (VAR) estimated as in Panel A of Table 9. For a description of the VAR and these variables I refer to Table 9 and Table 1. All IRF in the first row show responses to a Cholesky one standard-deviation shock to price deviations on day 0 (the contemporaneous effect) to day 15, with the first column showing responses on itself (price deviations), the second on order imbalance, the third on volatility, and the last column on quoted spreads. Each figure shows bootstrapped 95% confidence bands based on 1000 runs (lower, upper). All data underlying the computations are from TRTH.

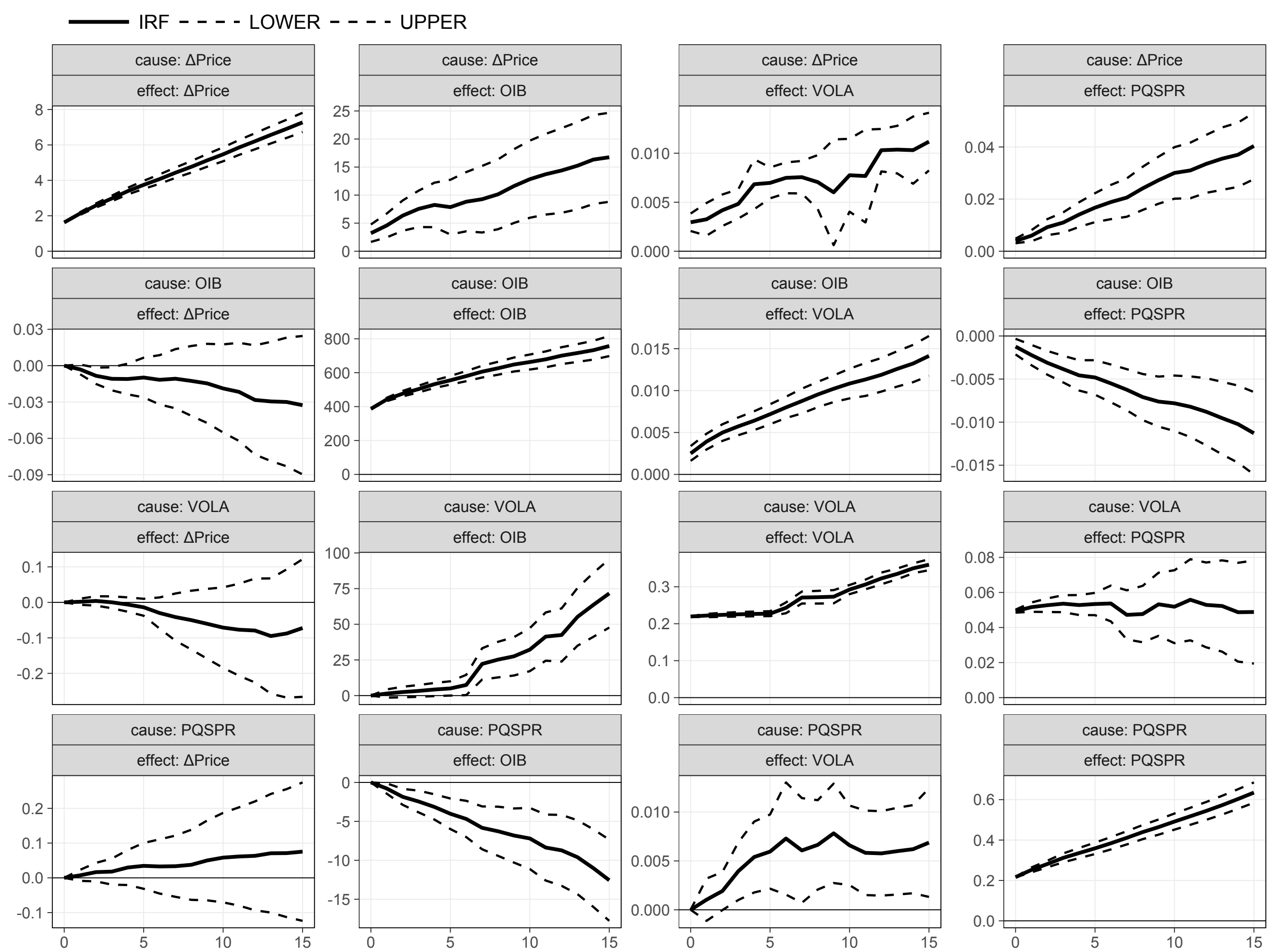

Figure A9 – Impulse response functions from price deviations and quoted spreads, 2001- 2016

Compared to Figure 1 of the paper I estimate IRFs using weekly data.

This figure shows impulse response functions (IRF) from panel vector autoregression (VAR) estimated as in Panel A of Table 9. For a description of the VAR and these variables I refer to Table 9 and Table 1. All IRF in the first row show responses to a Cholesky one standard-deviation shock to price deviations in week 0 (the contemporaneous effect) to week 9, with the first column showing responses on itself (price deviations), the second on order imbalance, the third on volatility, and the last column on quoted spreads. Each figure shows bootstrapped 95% confidence bands based on 1000 runs (lower, upper). All data underlying the computations are from TRTH.

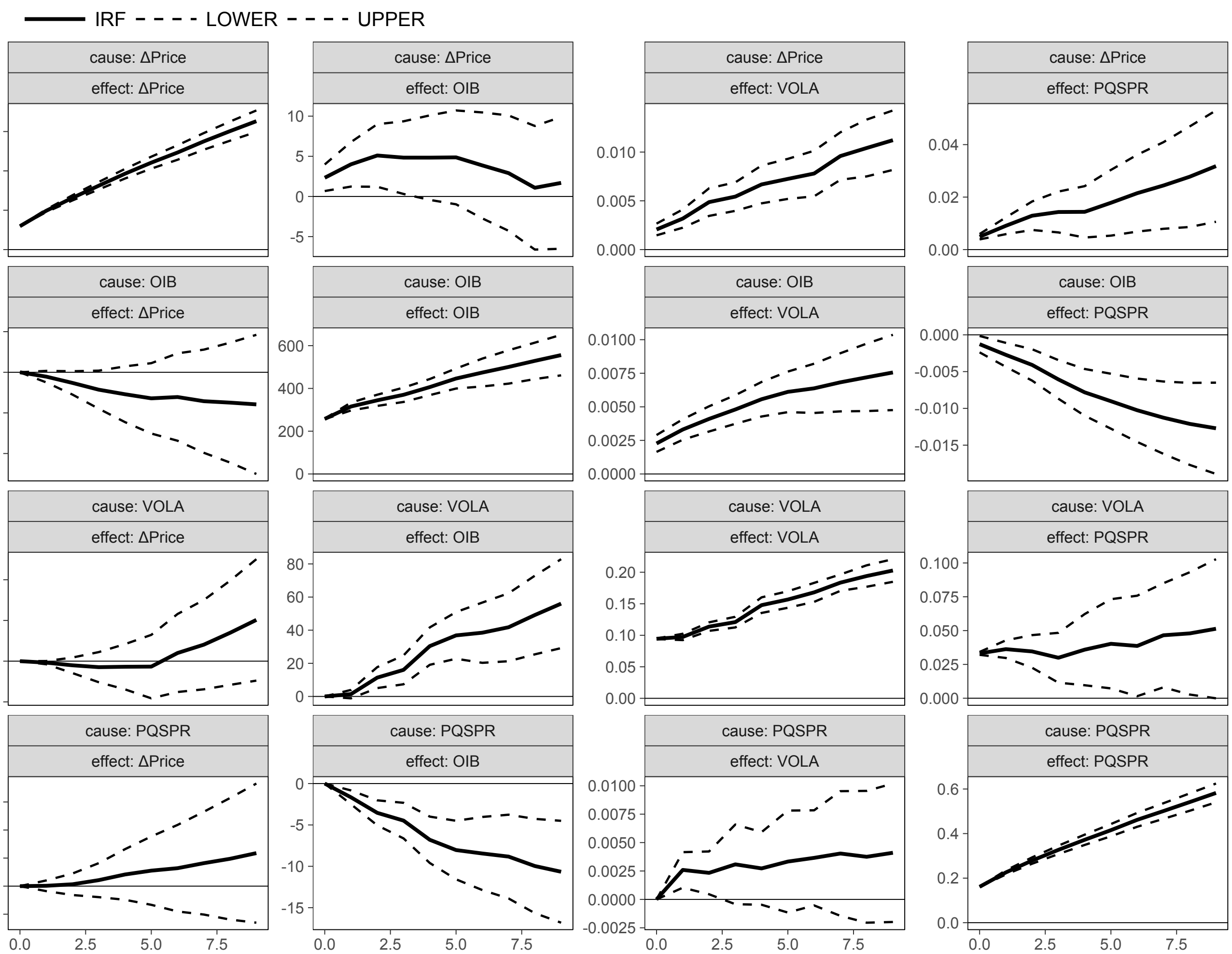

Figure A10 – Impulse response functions from price deviations and effective spreads, 2001- 2016

Compared to Figure 2 of the paper I estimate IRFs using weekly data.

This figure shows impulse response functions (IRF) from panel vector autoregression (VAR) estimated as in Panel B of Table 9. For a description of the VAR and these variables I refer to Table 9 and Table 1. All IRF in the first row show responses to a Cholesky one standard-deviation shock to price deviations in week 0 (the contemporaneous effect) to week 9, with the first column showing responses on itself (price deviations), the second on order imbalance, the third on volatility, and the last column on effective spreads. Each figure shows bootstrapped 95% confidence bands based on 1000 runs (lower, upper). All data underlying the computations are from TRTH.

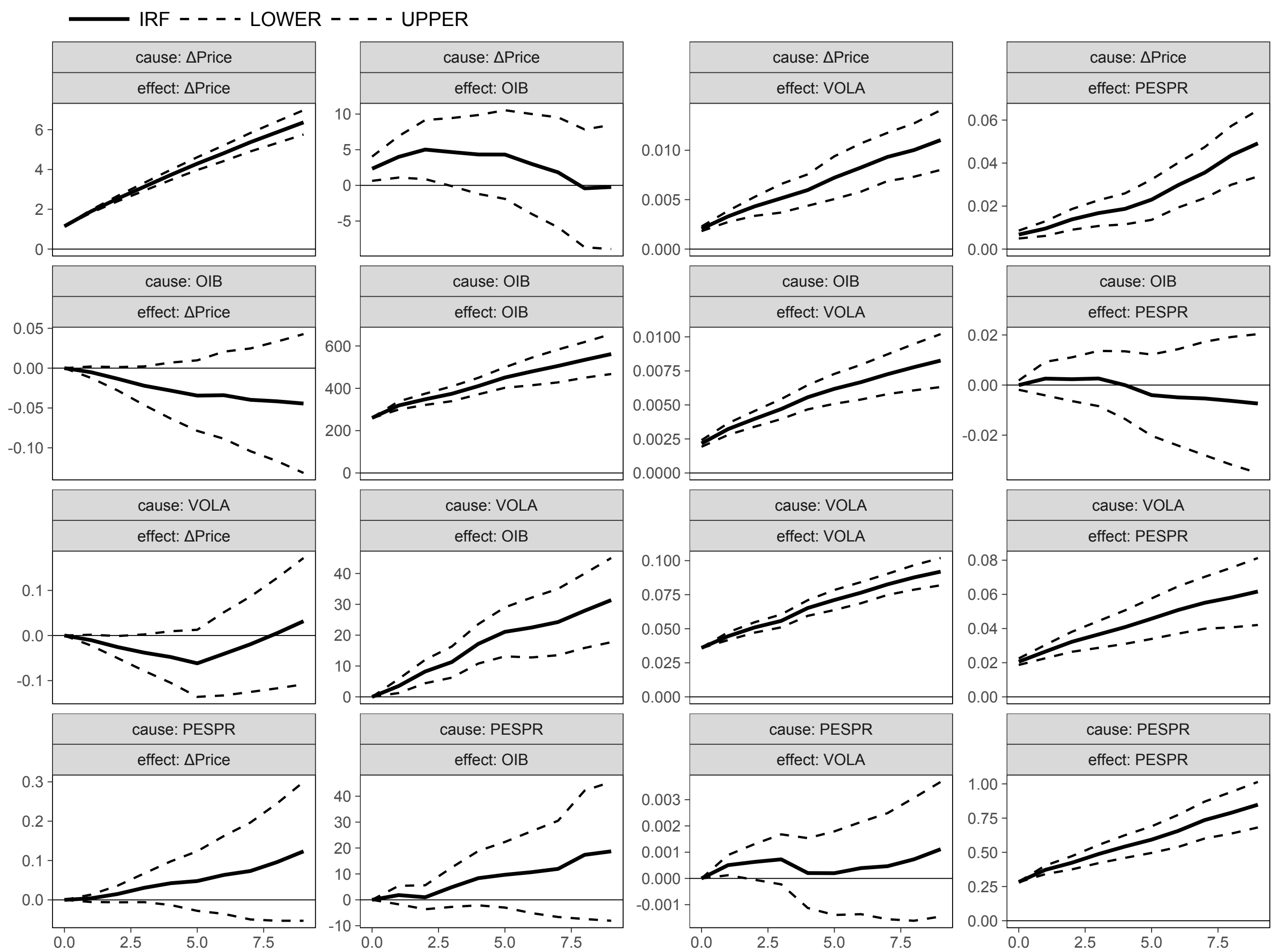

Figure A11 – Impulse response functions from price deviations and differences in quoted spread during and outside overlapping trading times, 2001- 2016

Compared to Figure 3 of the paper I estimate IRFs using weekly data.

This figure shows impulse response functions (IRF) from panel vector autoregression (VAR) estimated as in Panel C of Table 9. For a description of the VAR and these variables I refer to Table 9 and Table 1. All IRF in the first row show responses to a Cholesky one standard-deviation shock to price deviations in week 0 (the contemporaneous effect) to week 5, with the first column showing responses on itself (price deviations), the second, third, and fourth on differences in order imbalance, volatility, and quoted spread during and outside overlapping trading times, respectively. Each figure shows bootstrapped 95% confidence bands based on 1000 runs (lower, upper). All data underlying the computations are from TRTH.