Balance-Sheet Capacity and Cross-Strategy Treasury Arbitrage: SLR Exclusion Event Study

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Abstract

Regulatory leverage constraints are often described as shaping financial intermediaries' willingness and ability to intermediate U.S. Treasury markets, especially during stress episodes. The empirical focus of this study is the Federal Reserve's temporary supplementary leverage ratio (SLR) exclusion that, beginning on April 1, 2020, excluded U.S. Treasury securities and deposits at Federal Reserve Banks from the SLR denominator for covered bank holding companies, and that expired on March 31, 2021.[1] This event provides a time-dated, plausibly exogenous shock to a specific leverage constraint that is expected to impact Treasury-based arbitrage capacity. Siriwardane et al. [1] discusses several arbitrage strategies and defines a spread as the difference between an implied riskless rate and a benchmark rate for a security. This study focuses on four of these: the TIPS–Treasury, Treasury spot–futures, covered interest parity deviations in FX markets, and the equity spot–futures arbitrage. Using daily event-study regressions around SLR entry and exit dates, I estimate dynamic responses of each arbitrage spread under comparable control structures. I ask the following: What is the impact of regulatory leverage constraints on Treasury-based arbitrage spreads? The analysis is designed as a direct, policy-based complement to Siriwardane et al. [1], who document pervasive segmentation across arbitrage spreads and emphasize that an open question is how persistent segmentation is and which balance sheets are marginal for a given trade. I hypothesize that cross-strategy heterogeneity occurs around the SLR event. Since the SLR exclusion directly removed Treasuries and reserves from the leverage denominator, Treasury-based arbitrages should exhibit stronger compression during the relief period than FX and equity arbitrages. Demonstrating differential responses across otherwise comparable law-of-one-price deviations provides sharper evidence that balance-sheet capacity—rather than general funding conditions—drives segmentation. [2]

Hypothesis

Around this event, I expect the following. With all else equal, I expect spreads to compress around April 1, 2020, reflecting expanded intermediary capacity. In particular, the Treasury spot–futures and TIPS–Treasury spreads should drop more sharply than the CIP or equity spreads, since the relief applies directly to Treasuries. Next, upon expiration, spreads should partially re-widen. Treasury-based spreads are expected to re-widen more, as banks regain leverage costs on Treasuries, whereas CIP and equity spreads (which hinge on different balance sheets or foreign funding) should see a smaller reversal. Additionally, because CIP and equity arbitrages carry high margin requirements and rely on unsecured funding, they should be less sensitive to a Treasury-specific constraint relief. Thus, the SLR exclusion should generate a larger wedge reduction in Treasury-led trades than in CIP or equity trades. Finally, I expect that within each strategy, the compression should be stronger when bank balance-sheet exposure to Treasuries is larger. Intermediaries with more Treasury assets on their books (higher exemptable share of assets) should show greater spread declines under relief.

[1] Press Release: Board of Governers of the Federal Reserve System, April 01, 2020

[2] GitHub repo for this project.

Data

The following daily panels of arbitrage spreads for 2020–21 will be employed as outlined in [1].

TIPS–Treasury Arbitrage. As in Fleckenstein et al. [2] and [1], the spread $W_{t,\tau} = (y^{\text{TIPS}}t, \tau + \pi^{\text{swap}}t, \tau) - y^{\text{nom}}_{t,\tau}$ for $\tau \in 2, 5, 10$ years. Here $y^{TIPS} + \pi^{swap}$ is the synthetic nominal yield.

Treasury Spot–Futures Arbitrage. For each of the 2-, 5-, and 10-year Treasuries, I use the first-deferred futures contract to compute a no-arbitrage implied yield (spot-futures parity) and subtract the matching OIS rate. This follows Fleckenstein et al. [2] and

CIP Arbitrage. Following Du et al. [3], for each major G-10 currency I define the 3-month CIP basis as the difference between the dollar OIS rate and the synthetic forward-implied rate from currency spot and forward quotes. I will aggregate or examine major currencies individually.

Equity Spot–Futures Spread. For three equity indexes (SPY, INDU, NDX) I calculate the rate implied by equity index futures (accounting for dividends) and subtract the short-term Treasury yield. This spread is based on the violation of stock spot–futures parity

All series are measured in basis points. Controls (merged by date) include: secured funding rates and wedges (SOFR, TGCR–SOFR, EFFR–SOFR), broad risk indicators (VIX, HY OAS, Baa–10y), and Treasury issuance volumes by tenor. I also construct mechanism proxies: (1) a bank exemption-eligible share (total reserves + U.S. Treasuries as share of assets, from call reports/Y-9C) and (2) a dealer utilization index (from primary dealer repo/reverse-repo activity), both lagged.

Econometric Design

Layer 1: Identification. Using daily data and the known SLR dates (entry April 1, 2020; exit; Mar 31, 2021), I estimate the response of each arbitrage spread around these dates. I run event-window regressions of the form

$$W_{i,t} = \alpha_i + \sum_{k=-W}^{W} \beta_k, 1t - t_0 = k + \Gamma' X_t + \varepsilon_{i,t},$$

where (i) indexes trade/tenor (e.g. 2y TIPS, 5y futures, 3mo EUR/USD CIP, equity), and X_t are the common controls (funding, risk, issuance). The coefficients β_k trace the dynamic spread path. I compare the β-paths across trades: a larger negative shift (spread compression) at (k=0) for Treasury trades would support my hypothesis. I will do both pooled regressions with trade fixed effects and separate regressions by trade type. I also report simple "jump" estimates (average post-event minus pre-event) for each series. As a robustness check, I include a "DIRECT" specification that adds secured and unsecured funding basis controls (SOFR, TGCR–SOFR, EFFR–SOFR) to isolate the balance-sheet channel.

Layer 2: Mechanism. To test the balance-sheet channel, I run weekly regressions with interactions of the SLR-relief indicator with my capacity proxies. Specifically, regress changes in spreads on: $Relief_t$, $Relief_t \times z(\text{bank exposure}t)$, and $Relief_t \times z(\text{dealer utilization}t - 1)$, controlling for the same factors. I expect coefficients: $b_1 < 0$ for (Relief) (spread compression), $b_2 < 0$ if higher exempt-able exposure amplifies relief, and $b_3 < 0$ if more active dealer funding use amplifies relief. Crucially, I will compare these effects across arbitrages: for example, the interaction $Relief \times z(\text{bank exposure})$ should be significant for Treasury trades (which bind the SLR) but smaller or zero for CIP/equity trades.

All inference will use robust standard errors accounting for serial correlation (e.g. Newey–West). In sum, this event-study framework will quantify the immediate impact of the SLR relief on each arbitrage spread, while the mechanism layer will test whether the relief was more effective when balance-sheet constraints were more binding, especially for Treasury-based trades.

Empirical Results

Table (1) summarizes the distribution of the oriented arbitrage spread level $W_{i,t}$ and its absolute magnitude $|W_{i,t}|$ for each strategy–tenor group. Each row corresponds to a (`strategy`, `tenor`, `regime`) grouping, where `strategy` identifies the arbitrage class (e.g., TIPS–Treasury, Treasury spot–futures, CIP, equity spot–futures) and `tenor` identifies the maturity bucket (e.g., $2, 5, 10$ years for Treasury-based series, `3m` for CIP, or `index` for equity). The `regime` label partitions the sample into `pre` (2019-01-01 to 2020-03-31), `relief` (2020-04-01 to 2021-03-31), and `post` (2021-04-01 to 2021-12-31). The column `N_days` reports the number of stacked (i, t) observations used after dropping missing values. The columns `mean_W`, `median_W`, `p5_W`, and `p95_W` report the mean, median, 5th percentile, and 95th percentile of the oriented level $W_{i,t}$ within the row's group. The column `mean_absW` reports the mean of $|W_{i,t}|$. The columns `share_absW_le_5` and `share_absW_le_10` report the fraction of observations in the group for which $|W_{i,t}| \leq 5$ bps and $|W_{i,t}| \leq 10$ bps, respectively. Table 4 repeats the near-zero summaries but is restricted to the `relief` regime and reports `median_absW` in addition to `mean_absW`.

Table 1: Summary Statistics

strategy	tenor	regime	N	$\overline{W_{i,t}}$	median_W	$Q_{0.05}(W)$	$Q_{0.95}(W)$	$\overline{\lvert W_{i,t}\rvert}$	$\overline{\mathbf{1}_{\lvert W_{i,t}\rvert \leq 5}}$	$\overline{\mathbf{1}_{\lvert W_{i,t}\rvert \leq 10}}$
tips_treas	10	post	190	10.17	11.43	-0.56	19.19	10.36	0.27	0.40
tips_treas	10	pre	312	24.08	23.49	18.77	29.21	24.08	0.00	0.00
tips_treas	10	relief	250	22.71	26.31	0.05	31.38	22.85	0.11	0.13
tips_treas	2	post	190	11.70	13.40	-11.10	27.82	14.83	0.15	0.38
tips_treas	2	pre	312	16.61	19.46	-9.69	36.84	19.44	0.19	0.32
tips_treas	2	relief	250	16.82	22.28	-16.74	33.69	21.41	0.06	0.15
tips_treas	5	post	190	8.75	9.02	-0.38	16.86	8.97	0.22	0.57
tips_treas	5	pre	312	16.31	16.79	6.44	24.27	16.31	0.01	0.22
tips_treas	5	relief	250	13.65	16.15	-2.08	22.28	14.10	0.17	0.25
ust_spot_fut	10	post	192	1005.87	891.99	278.49	2010.62	1016.77	0.00	0.00
ust_spot_fut	10	pre	314	-2153.67	-2337.09	-4401.12	694.35	2470.17	0.00	0.00
ust_spot_fut	10	relief	251	-539.04	-609.70	-1603.92	767.69	817.46	0.00	0.00
ust_spot_fut	2	post	192	998.71	804.50	-318.18	2739.09	1256.46	0.01	0.01
ust_spot_fut	2	pre	314	-2540.44	-2426.80	-4301.14	-958.38	2563.33	0.00	0.00
ust_spot_fut	2	relief	251	-578.77	-599.62	-1611.05	944.90	755.62	0.00	0.00
ust_spot_fut	5	post	192	549.96	527.26	-36.63	1276.40	578.95	0.00	0.00
ust_spot_fut	5	pre	314	-2629.63	-2626.94	-4377.47	-664.46	2636.80	0.00	0.00
ust_spot_fut	5	relief	251	-625.34	-650.49	-1779.33	593.30	767.84	0.00	0.01
cip	3m	post	1573	1717.06	1546.56	354.20	3889.31	1717.24	0.00	0.00
cip	3m	pre	2608	2587.61	2654.87	-1863.94	7101.73	3106.88	0.00	0.00
cip	3m	relief	2088	2547.87	2464.11	827.38	4813.16	2593.97	0.00	0.00
eq_spot_fut	index	post	567	50.90	46.88	27.51	80.47	50.90	0.00	0.00
eq_spot_fut	index	pre	929	32.40	26.63	5.91	69.27	32.81	0.03	0.09
eq_spot_fut	index	relief	744	45.81	40.50	16.57	96.56	45.81	0.01	0.01

Table (1) shows substantial heterogeneity in the level and magnitude of arbitrage spreads across strategies and across the pre, relief, and post regimes. For CIP (3m), average dislocation magnitudes remain very large in all periods (mean $|W| \approx 3107$ bps pre, ≈ 2594 bps in relief, and ≈ 1717 bps post) and the near-zero shares are essentially zero throughout, indicating that CIP deviations do not approach the ± 5 or ± 10 bps neighborhoods even during the exclusion window. For equity spot–futures (index), the typical magnitudes are much smaller than CIP but rise from pre to relief and post (mean $|W| \approx 33$ bps pre, ≈ 46 bps relief, ≈ 51 bps post), with near-zero frequency declining from pre (about 9% of observations within ± 10 bps) to nearly zero in relief and post. For TIPS–Treasury, magnitudes are an order of magnitude smaller than equity and far smaller than CIP; the relief regime shows modest compression at 5y and 10y (mean $|W|$ falls from ≈ 16 to ≈ 14 at 5y and from ≈ 24 to ≈ 23 at 10y) but not uniformly at 2y (mean $|W|$ rises from ≈ 19

to ≈ 21), while the post regime features noticeably higher near-zero shares, especially at 5y and 10y (e.g., $\overline{\mathbf{1}\{|W| \leq 10\}} \approx 0.57$ at 5y and ≈ 0.40 at 10y). For Treasury spot–futures, mean $|W|$ declines sharply from pre to relief across tenors (e.g., from roughly 2500–2600 bps pre to roughly 750–820 bps in relief), consistent with materially tighter Treasury spot–futures parity during the exclusion window; the post period shows partial reversal at 2y/10y (mean $|W|$ rises relative to relief) but continued tightness at 5y (mean $|W|$ falls further to ≈ 579 bps). Taken together, the regime summaries indicate that Treasury spot–futures exhibits the largest pre-to-relief reduction in dislocation magnitude among the strategies shown, while CIP remains far from zero and equity spot–futures does not tighten in the relief regime.

Event-window regressions.

Tables (2)-(7) report pooled event-window "jump" regressions estimated separately for each event date and control specification. The dependent variable in every column is `y_abs_bps` = $|W_{i,t}|$, the absolute magnitude of the arbitrage spread in basis points. Columns are grouped by event date: columns (1)–(2) correspond to the 2020-04-01 entry of the SLR exclusion, columns (3)–(4) correspond to the 2021-03-19 announcement that the exclusion would end, and columns (5)–(6) correspond to the 2021-03-31 expiration of the exclusion. Within each event-date pair, the first column is the `TOTAL` specification and the second column is the `DIRECT` specification. Each column uses the same event window, reported in the table as `Window = [-60,+60] trading days`, where event time is computed in trading-day units for each series. The row `Post × TreasuryBased` is the interaction between `Post (t ≥ t0)` and a series-level indicator `TreasuryBased` that equals one for Treasury-based arbitrages ((2) and (3)) and equals zero for non-Treasury arbitrages ((4) - (7)). The coefficient on `Post × TreasuryBased` is the incremental post-event change in $|W_{i,t}|$ for Treasury-based series relative to non-Treasury series. Thus, within a given column, the implied post-event change for non-Treasury series is given by the coefficient on `Post (t ≥ t0)`, and the implied post-event change for Treasury-based series is given by the sum of the `Post (t ≥ t0)` coefficient and the `Post × TreasuryBased` coefficient. Rows labeled `VIX`, `HY OAS`, and `Baa-10y` are daily common controls capturing broad risk and credit conditions. Rows labeled `Issuance 7-14y ($bn)`, and `Issuance 14y+ ($bn)` are daily Treasury issuance controls (in billions of dollars) for the stated maturity buckets. In the `DIRECT` columns, additional funding-basis controls are included: `SOFR (bps)` and `TGCR-SOFR (bps)` (and, where available in the underlying panel, `EFFR-SOFR (bps)`). The table footer explicitly indicates whether `Funding basis controls` are included in a given column. All columns include `Series FE`, meaning a full set of series fixed effects α_i is absorbed; this accounts for time-invariant differences in average spread magnitudes across series.

In the ±60 trading-day entry window around 2020-04-01, the DIRECT specifications imply a sharp and statistically precise compression for non-Treasury arbitrage series, while the corresponding evidence for Treasury-based series is weak or statistically indistinguishable from zero. Concretely, the equity spot–futures bases show large negative post coefficients—SPY $\widehat{\beta} = -126.6$ (s.e. (=9.0)), INDU $\widehat{\beta} = -86.1$ (12.7), and NDX $\widehat{\beta} = -68.7$ (15.0)—so the 95% confidence intervals remain well below zero (e.g., SPY roughly ([-144,-109]) bps), which is strong evidence of entry-period compression in $|W|$ after controlling for funding conditions. In contrast, the TIPS–Treasury entry estimate in DIRECT is essentially zero: $\widehat{\beta} = -0.15$ (3.20), with a CI that comfortably spans zero (about ([-6.4,+6.1]) bps), implying no detectable entry compression for that Treasury-based wedge in this design. The Treasury spot–futures entry estimate is negative in DIRECT ($\widehat{\beta} \approx -504$), but the standard error is very large (427.6), yielding a wide CI that includes both meaningful compression and no compression (roughly ([-1340,+330])); statistically, this is inconclusive, not supportive evidence of a strong entry response. CIP (3m) lies between these cases: the DIRECT entry coefficient is $\widehat{\beta} \approx -21.8$ (11.8), which is at best marginal (its CI is roughly ([-45,+1])), indicating at most

weak compression once funding controls are included. Taken together, the conditional (DIRECT) entry-window evidence points to stronger, more precisely identified compression for non-Treasury equity bases than for Treasury-based series, which runs opposite to the "Treasury compresses more at entry" prediction for this specific local-jump estimand; the Treasury-based entry response is either statistically null (TIPS–Treasury) or too imprecise (spot–futures) to establish tighter compression than non-Treasury after conditioning on controls.

Appendix

Table 2: Event-window jump regressions: TIPS-Treasury Arbitrage

	Dependent variable: y_abs_bps					
	2020-04-01 Entry		2021-03-19 Ann.		2021-03-31 Exp.	
	(1)	(2)	(3)	(4)	(5)	(6)
Post (t $\geq$ t0)	2.842*	-0.147	-3.164**	-3.522*	-1.857	-0.855
	(1.483)	(3.198)	(1.465)	(2.038)	(1.782)	(1.038)
Post × TreasuryBased	2.842*	-0.147	-3.164**	-3.522*	-1.857	-0.855
	(1.483)	(3.198)	(1.465)	(2.038)	(1.782)	(1.038)
VIX	0.310**	0.225	-0.639***	-0.471	0.059	0.114
	(0.141)	(0.165)	(0.205)	(0.335)	(0.320)	(0.343)
HY OAS	-12.800***	-12.344***	22.141	12.864	-1.393	-6.014
	(2.478)	(3.774)	(14.254)	(17.408)	(18.044)	(15.878)
Baa–10y	35.927***	31.902**	-26.067	-20.139	-1.137	10.259
	(6.136)	(12.972)	(27.031)	(26.560)	(32.087)	(33.275)
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Issuance 7–14y ($bn)	0.047	0.012	0.002	0.020	0.031	0.031
	(0.103)	(0.074)	(0.095)	(0.078)	(0.094)	(0.085)
Issuance 14y+ ($bn)	-0.211*	-0.125	-0.014	-0.068	-0.100	-0.124
	(0.108)	(0.084)	(0.147)	(0.152)	(0.151)	(0.155)
SOFR (bps)		-0.071		0.926		-1.554
		(0.068)		(1.285)		(2.473)
TGCR–SOFR (bps)		-0.011		0.024		-0.047
		(0.014)		(0.024)		(0.048)
Spec	TOTAL	DIRECT	TOTAL	DIRECT	TOTAL	DIRECT
Series FE	Yes	Yes	Yes	Yes	Yes	Yes
Funding basis controls	No	Yes	No	Yes	No	Yes
HAC lags (daily)	5	5	5	5	5	5
Obs.	42	42	45	45	42	42
Observations	42	42	45	45	42	42
R^2	0.707	0.731	0.455	0.465	0.281	0.307
Adjusted R^2	0.636	0.644	0.334	0.307	0.106	0.083
Residual Std. Error	5.978	5.913	5.662	5.775	5.658	5.731
F Statistic	24.361***	14.880***	5.877***	10.651***	1.657	1.806

Note: *p<0.1; **p<0.05; ***p<0.01

Table 3: Event-window jump regressions: Treasury Spot–Futures Arbitrage.

	Dependent variable: y_abs_bps					
	2020-04-01 Entry		2021-03-19 Ann.		2021-03-31 Exp.	
	(1)	(2)	(3)	(4)	(5)	(6)
Post (t ≥ t0)	-290.083	-504.195	16.029	-44.810	187.743	213.235
	(200.243)	(427.637)	(74.250)	(123.256)	(146.401)	(153.944)
Post × TreasuryBased	-290.083	-504.195	16.029	-44.810	187.743	213.235
	(200.243)	(427.637)	(74.250)	(123.256)	(146.401)	(153.944)
VIX	-11.664	-17.696	-48.461	-15.367	10.262	18.822
	(20.964)	(25.203)	(31.322)	(20.474)	(15.153)	(17.203)
HY OAS	1527.636***	1566.583***	1761.699**	-112.661	-804.436	-628.050
	(280.958)	(341.187)	(800.538)	(884.975)	(801.031)	(731.274)
Baa–10y	-3920.564***	-4232.860***	-3987.951**	-2754.264	310.667	772.150
	(1153.674)	(1240.125)	(1481.959)	(1788.810)	(2119.151)	(2075.416)
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Issuance 7–14y ($bn)	-2.983	-5.515	0.124	3.188	8.339**	12.254***
	(6.821)	(7.580)	(4.894)	(5.576)	(3.360)	(3.896)
Issuance 14y+ ($bn)	-8.222	-2.238	2.104	-8.338	-14.085*	-15.755**
	(8.355)	(7.992)	(8.998)	(5.354)	(7.341)	(7.427)
SOFR (bps)		-5.078		184.748		-85.984
		(6.560)		(110.605)		(72.701)
TGCR–SOFR (bps)		-0.725		4.593**		-1.003
		(1.513)		(2.118)		(1.662)
Spec	TOTAL	DIRECT	TOTAL	DIRECT	TOTAL	DIRECT
Series FE	Yes	Yes	Yes	Yes	Yes	Yes
Funding basis controls	No	Yes	No	Yes	No	Yes
HAC lags (daily)	5	5	5	5	5	5
Obs.	42	42	45	45	42	42
Observations	42	42	45	45	42	42
R^2	0.350	0.370	0.394	0.456	0.535	0.559
Adjusted R^2	0.193	0.167	0.259	0.296	0.422	0.417
Residual Std. Error	680.803	691.736	456.686	445.205	315.792	317.057
F Statistic	7.657***	8.307***	16.745***	37.655***	21.190***	17.794***

Note: *p<0.1; **p<0.05; ***p<0.01

Table 4: Event-window jump regressions: Foreign Exchange (CIP) Arbitrage

	Dependent variable: y_abs_bps					
	2020-04-01 Entry		2021-03-19 Ann.		2021-03-31 Exp.	
	(1)	(2)	(3)	(4)	(5)	(6)
Post (t ≥ t0)	-7.495	-21.842*	-1.661	-1.270	-0.272	1.824*
	(5.306)	(11.836)	(1.236)	(1.637)	(1.456)	(1.090)
Post × TreasuryBased	-0.000***	0.000	-0.000***	0.000**	-0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
VIX	1.496***	1.313***	-0.444***	-0.228**	0.282***	0.405***
	(0.395)	(0.368)	(0.085)	(0.099)	(0.106)	(0.119)
HY OAS	-5.836	-5.340	21.835***	6.843	-4.164	-6.324
	(5.059)	(7.127)	(4.271)	(6.079)	(5.110)	(4.436)
Baa–10y	13.379	4.129	9.411	21.409	30.924**	44.401***
	(12.834)	(23.816)	(13.161)	(13.986)	(12.350)	(10.587)
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Issuance 7–14y ($bn)	0.430***	0.367***	0.057*	0.046	0.102***	0.138***
	(0.162)	(0.133)	(0.030)	(0.033)	(0.030)	(0.028)
Issuance 14y+ ($bn)	-0.434***	-0.236	-0.093**	-0.155***	-0.208***	-0.243***
	(0.159)	(0.167)	(0.044)	(0.044)	(0.044)	(0.044)
SOFR (bps)		-0.183		1.343***		-2.047***
		(0.112)		(0.363)		(0.479)
TGCR–SOFR (bps)		-0.030		0.025***		-0.048***
		(0.025)		(0.007)		(0.010)
Spec	TOTAL	DIRECT	TOTAL	DIRECT	TOTAL	DIRECT
Series FE	Yes	Yes	Yes	Yes	Yes	Yes
Funding basis controls	No	Yes	No	Yes	No	Yes
HAC lags (daily)	5	5	5	5	5	5
Obs.	104	104	120	120	112	112
Observations	104	104	120	120	112	112
R^2	0.751	0.762	0.808	0.819	0.861	0.876
Adjusted R^2	0.715	0.721	0.784	0.793	0.843	0.857
Residual Std. Error	21.018	20.784	3.742	3.668	2.710	2.585
F Statistic	10.946***	14.236***	52.325***	47.247***	69.742***	68.856***

Note: *p<0.1; **p<0.05; ***p<0.01

Table 5: Event-window jump regressions: Equity Spot-Futures Arbitrage (SPY)

	Dependent variable: y_abs_bps					
	2020-04-01 Entry		2021-03-19 Ann.		2021-03-31 Exp.	
	(1)	(2)	(3)	(4)	(5)	(6)
Post (t ≥ t0)	-45.514***	-126.575***	5.141***	1.950	4.438**	3.103**
	(8.884)	(8.996)	(1.365)	(1.433)	(1.393)	(1.309)
Post × TreasuryBased	0.000	0.000***	0.000	0.000	-0.000*	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
VIX	-1.677***	-2.761***	0.409**	0.097	0.118	0.246*
	(0.409)	(0.216)	(0.164)	(0.089)	(0.220)	(0.118)
HY OAS	19.922*	60.454***	-8.097	16.315***	-4.573	-1.273
	(8.433)	(4.553)	(7.010)	(3.881)	(7.699)	(5.071)
Baa–10y	42.627**	-142.379***	30.448*	3.684	35.738**	31.324
	(14.882)	(16.733)	(15.770)	(10.672)	(14.964)	(17.474)
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Issuance 7–14y ($bn)	0.775***	0.394**	0.013	0.066**	0.035	0.106**
	(0.163)	(0.136)	(0.027)	(0.021)	(0.024)	(0.033)
Issuance 14y+ ($bn)	-1.033*	-0.770***	-0.138	-0.074	-0.175	-0.210*
	(0.525)	(0.088)	(0.108)	(0.050)	(0.110)	(0.103)
SOFR (bps)		-0.940***		-2.106***		-0.536
		(0.086)		(0.277)		(0.362)
TGCR–SOFR (bps)		0.139***		-0.024***		0.008
		(0.010)		(0.007)		(0.011)
Spec	TOTAL	DIRECT	TOTAL	DIRECT	TOTAL	DIRECT
Series FE	Yes	Yes	Yes	Yes	Yes	Yes
Funding basis controls	No	Yes	No	Yes	No	Yes
HAC lags (daily)	5	5	5	5	5	5
Obs.	14	14	16	16	16	16
Observations	14	14	16	16	16	16
R^2	0.954	0.991	0.340	0.757	0.326	0.606
Adjusted R^2	0.914	0.976	-0.100	0.480	-0.123	0.156
Residual Std. Error	12.347	6.570	2.893	1.989	2.699	2.340
F Statistic	231.101***	5275.300***	22.428***	123.488***	5.656**	21.781***

Note: *p<0.1; **p<0.05; ***p<0.01

Table 6: Event-window jump regressions: Equity Spot-Futures Arbitrage (INDU)

	Dependent variable: y_abs_bps					
	2020-04-01 Entry		2021-03-19 Ann.		2021-03-31 Exp.	
	(1)	(2)	(3)	(4)	(5)	(6)
Post (t ≥ t0)	-62.645***	-86.140***	-0.412	-1.045	1.339	0.447
	(4.113)	(12.662)	(4.835)	(1.760)	(2.075)	(2.577)
Post × TreasuryBased	-0.000*	0.000	-0.000**	0.000***	0.000*	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
VIX	-3.671***	-3.960***	0.628*	-0.246	0.272	0.168
	(0.234)	(0.271)	(0.298)	(0.153)	(0.322)	(0.171)
HY OAS	70.999***	97.376***	-11.115	42.162***	-1.651	2.811
	(12.176)	(11.630)	(16.918)	(7.818)	(16.234)	(9.953)
Baa–10y	-42.431	-151.591**	-37.791	-84.172***	-27.729	-40.777
	(32.771)	(39.341)	(34.182)	(16.543)	(33.384)	(31.863)
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Issuance 7–14y ($bn)	1.035**	0.968***	-0.048	-0.075	-0.053	-0.046
	(0.308)	(0.138)	(0.116)	(0.067)	(0.088)	(0.073)
Issuance 14y+ ($bn)	-1.222	-1.529***	-0.299	-0.061	-0.284	-0.288
	(0.761)	(0.158)	(0.270)	(0.092)	(0.213)	(0.186)
SOFR (bps)		-0.263		-5.107***		-1.259
		(0.138)		(0.738)		(0.845)
TGCR–SOFR (bps)		0.162***		-0.104***		-0.032
		(0.022)		(0.020)		(0.028)
Spec	TOTAL	DIRECT	TOTAL	DIRECT	TOTAL	DIRECT
Series FE	Yes	Yes	Yes	Yes	Yes	Yes
Funding basis controls	No	Yes	No	Yes	No	Yes
HAC lags (daily)	5	5	5	5	5	5
Obs.	14	14	16	16	16	16
Observations	14	14	16	16	16	16
R^2	0.957	0.981	0.576	0.867	0.552	0.635
Adjusted R^2	0.920	0.950	0.293	0.715	0.253	0.219
Residual Std. Error	15.638	12.367	5.690	3.610	4.991	5.106
F Statistic	439.559***	1356.166***	13.091***	292.148***	12.063***	12.872***

Note: *p<0.1; **p<0.05; ***p<0.01

Table 7: Event-window jump regressions: Equity Spot-Futures Arbitrage (NDX)

	Dependent variable: y_abs_bps					
	2020-04-01 Entry		2021-03-19 Ann.		2021-03-31 Exp.	
	(1)	(2)	(3)	(4)	(5)	(6)
Post (t ≥ t0)	-29.567**	-68.697***	8.359**	8.981***	2.863	0.784
	(12.138)	(14.976)	(3.347)	(1.451)	(3.951)	(2.424)
Post × TreasuryBased	0.000*	0.000	-0.000	-0.000**	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
VIX	-0.216	-0.733*	0.363*	-0.119	-0.149	-0.152
	(0.507)	(0.355)	(0.163)	(0.101)	(0.399)	(0.144)
HY OAS	-16.923	6.708	-36.100***	-8.455	-21.575	-14.020**
	(12.931)	(13.175)	(7.397)	(7.794)	(13.794)	(4.848)
Baa–10y	86.718**	-18.020	69.607**	47.347**	42.376*	24.697*
	(34.311)	(49.535)	(23.152)	(14.704)	(19.595)	(12.245)
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Issuance 7–14y ($bn)	0.868**	0.696*	-0.139*	-0.175***	-0.159**	-0.092
	(0.351)	(0.297)	(0.068)	(0.034)	(0.060)	(0.068)
Issuance 14y+ ($bn)	-1.348*	-1.328***	-0.017	0.122*	0.054	0.021
	(0.664)	(0.284)	(0.156)	(0.054)	(0.174)	(0.139)
SOFR (bps)		-0.451*		-2.727***		-1.799***
		(0.179)		(0.565)		(0.366)
TGCR–SOFR (bps)		0.101**		-0.061***		-0.028*
		(0.026)		(0.012)		(0.013)
Spec	TOTAL	DIRECT	TOTAL	DIRECT	TOTAL	DIRECT
Series FE	Yes	Yes	Yes	Yes	Yes	Yes
Funding basis controls	No	Yes	No	Yes	No	Yes
HAC lags (daily)	5	5	5	5	5	5
Obs.	14	14	16	16	16	16
Observations	14	14	16	16	16	16
R^2	0.844	0.866	0.830	0.926	0.617	0.817
Adjusted R^2	0.710	0.651	0.717	0.842	0.361	0.608
Residual Std. Error	16.240	17.806	3.371	2.520	4.369	3.423
F Statistic	154.226***	160.276***	52.918***	269.055***	55.344***	82.715***

Note: *p<0.1; **p<0.05; ***p<0.01

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