Interest Rate Options

Q1 2019

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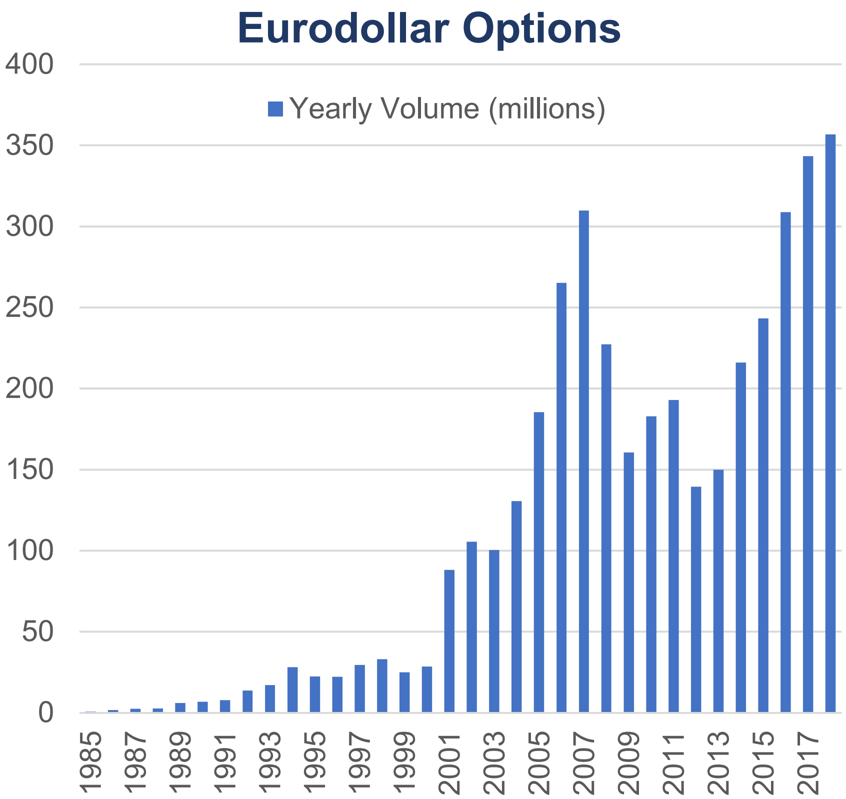
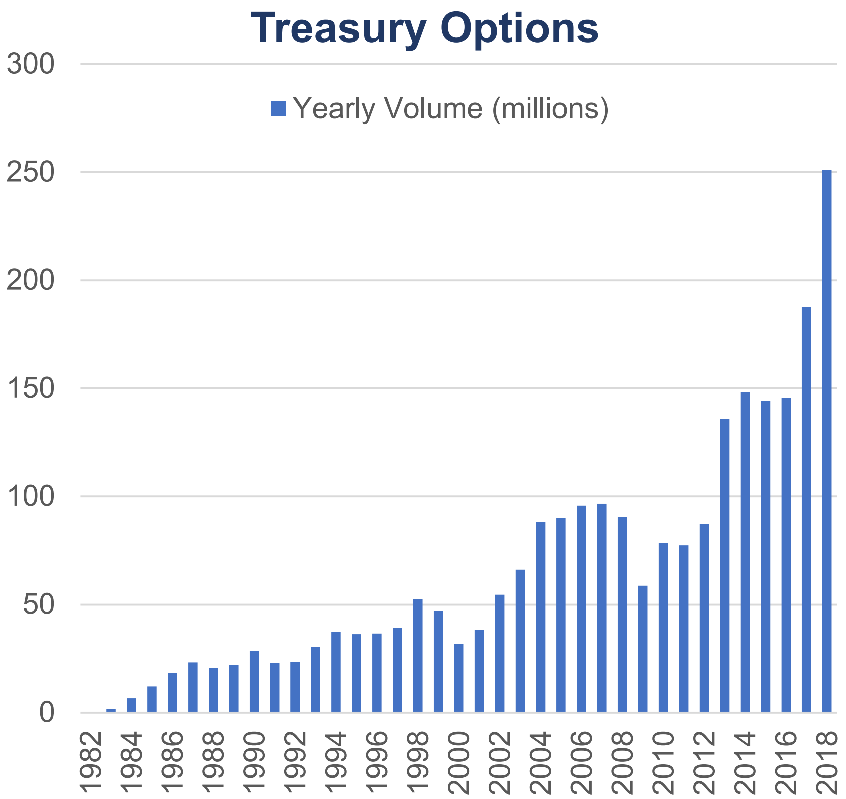
CME Group

Eurodollar and Treasury Options Volumes Since Launch

Record 2.4 million Interest Rate options traded daily in 2018 as Eurodollars and Treasuries reach new historic highs





Eurodollar Options Product Update

2018 Highlights

- Record 1.41M contracts traded daily, +3% YoY
- Record open interest of nearly 60M contracts on March 15
- Record average open interest of 44M contracts, +9% YoY

Expanded Product Offering

- 80 different expirations now available with expirations from 1 week to 4 years listed
- Eurodollar options expiration calendar

ADV by Venue

	2018	% vs. 2017	% vs. 2013
Blocks	102,549	-6%	103%
Globex	472,152	4%	32%
Open Outcry	840,918	5%	16%
Total	**1,415,619**	**3%**	**25%**

Eurodollar Options Listings

Eurodollar Options

- 4 Serial and 16 Quarterly options
- Quarterly options expire at the same time as their underlying future
- Serial options expire each month and result in a futures position in nearest subsequent quarterly future
- Expiration dates ranging from 1 Mo. to almost 4 years until expiration

Listing Samples

- October 2018 option with Dec 18 underlying future
- March 2019 options with March 19 underlying future
- December 19 expiration options with December 19 underlying future
- June 2020 option with June 20 underlying future
- September 2021 option with September 2021 underlying future

Mid-Curve Options (1-, 2-, 3-, 4-, 5-Year Mid-Curve)

- *2 Weekly, 4 Serial and 5 Quarterly options*
- *Shorter dated options with underlying future from 1 to 5 years out*
- *Expiration dates range from 1 week to 15 Months*

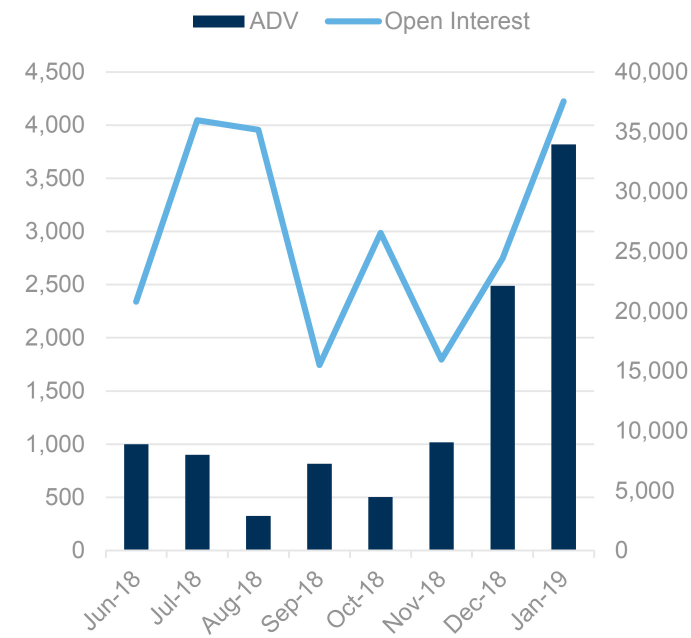
Listing Samples

- October 2018 option with Dec 19 underlying future
- March 2019 option with March 20 Underlying future
- May 2018 expiration option with June 20 underlying future
- June 2018 option with June 21 Underlying future
- September 2018 Option with September 2020 underlying future

Eurodollar Term Mid Curve Options

Benefits

- 3 consecutive expirations
- 3-, 6-, and 9-Month Mid Curves offer short-dated options on the deferred white quarterly futures
- **Learn more at cmegroup.com/term**



Jan-19 data as of 1/15/19

Listings as of Dec 17, 2018 (Following Dec Expiration)

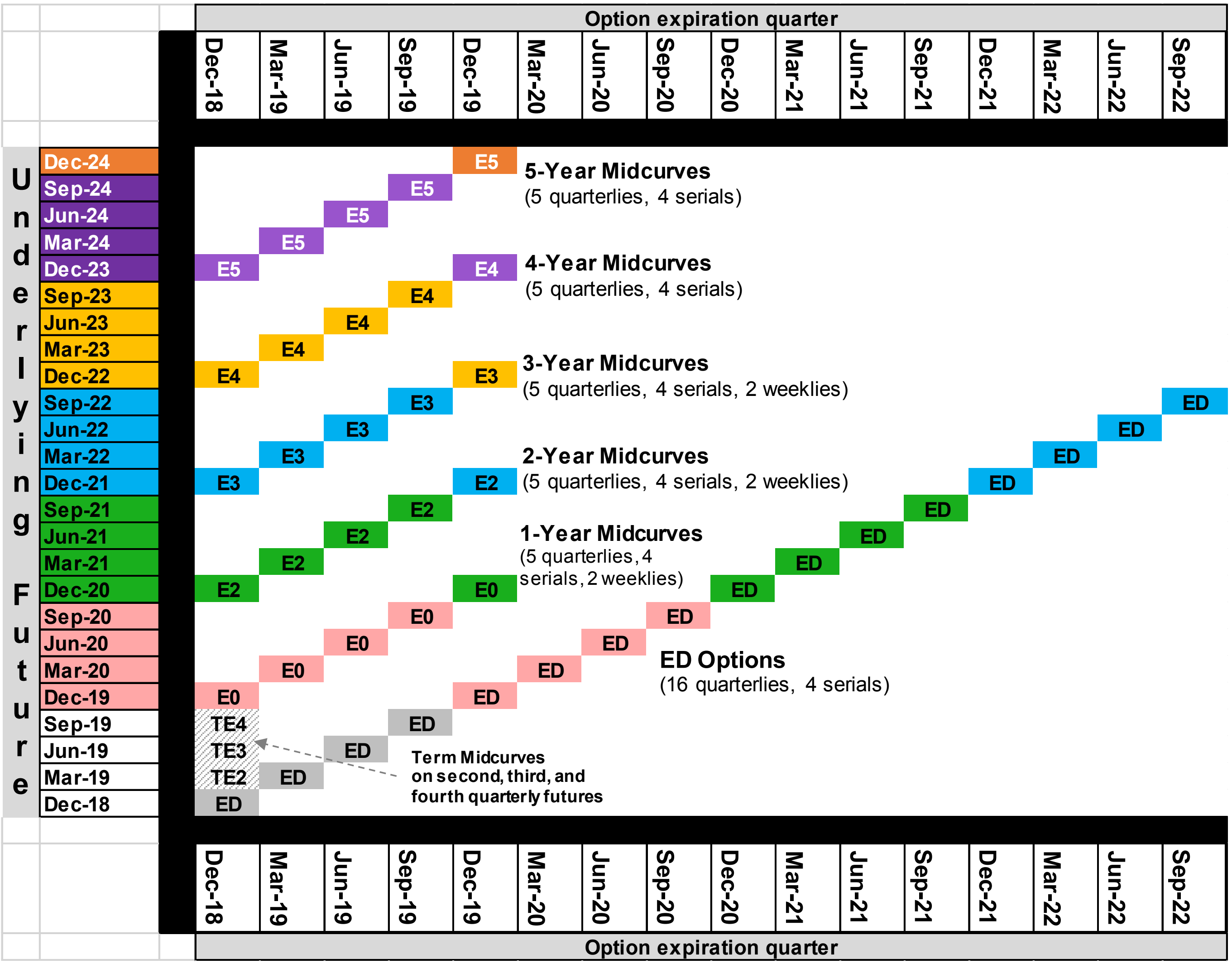
Options Contract Month	Underlying Future				
	Mar-19	Jun-19	Sep-19	Dec-19	Mar-20
January-19	EDF9	TE2F9	TE3F9	TE4F9	E0F9
February-19	EDG9	TE2G9	TE3G9	TE4G9	E0G9
March-19	EDH9	TE2H9	TE3H9	TE4H9	EOH9
June-19		EDM9			
September-19			EDU9		
December-19				EDZ9	
March-20					EDH0

Vendor Codes

Product Name	CME Globex	Bloomberg	Reuters RICs	TT	CQG	Fidessa	OptionsCity (Vela)	FIS/SunGard	Rival
3-Month Mid-Curve	TE2	TTR	T2E	TE2	TE2	TE2	TE2	TE2	TE2
6-Month Mid-Curve	TE3	TSA	T3E	TE3	TE3	TE3	TE3	TE3	TE3
9-Month Mid-Curve	TE4	TNW	T4E	TE4	TE4	TE4	TE4	TE4	TE4

Eurodollar Options Listings

80 expirations listed at a time with expirations listed from 1 week to 4 years



Treasury Options Product Update

2018 Highlights

- Record ADV of 995K contracts traded daily, +33% YoY
- Record 81% traded on CME Globex
- Record open interest of 10.5M contracts on November 21
- Friday Weekly options averaged a record 164K contracts daily
- Wednesday Weekly options averaged over 28.6K contracts daily

Expanded Product Offering:

- 2 expirations every week on Wed and Fri (104 expirations per year) on each tenor
- Create calendar spreads between weeklies, serials and quarterlies
- Treasury options expiration calendar

ADV by Venue

	2018	% vs. 2017	% vs. 2013
Blocks	16,509	30%	33%
Globex	808,732	37%	177%
Pit	170,607	18%	-27%
Total ADV	**995,847**	**33%**	**85%**

Weekly Treasury Options

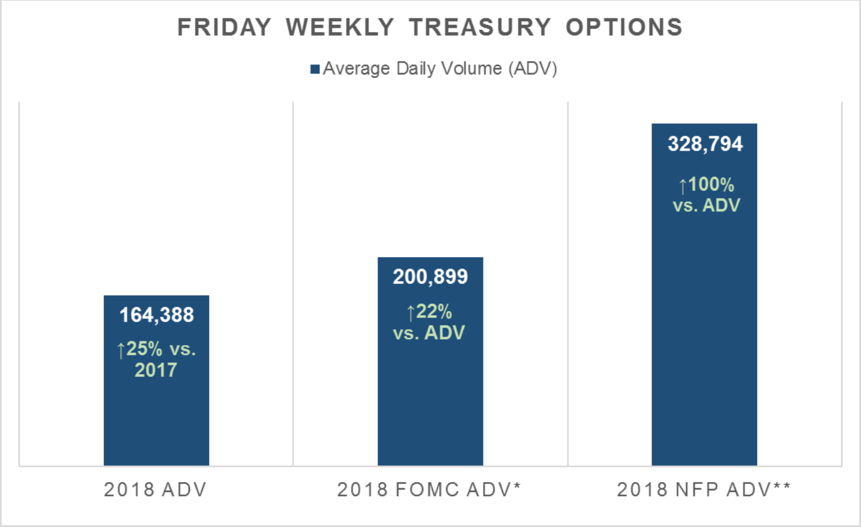
- **Two expirations every week on Wednesday and Friday** offer greater precision for trading events like FOMC and Unemployment
- **Tighter strike increments than longer-dated options** with 1/4 point increments in 5- and 10-year Notes and 1/2 point in T-Bonds
- Exercise into the next quarterly futures expiry

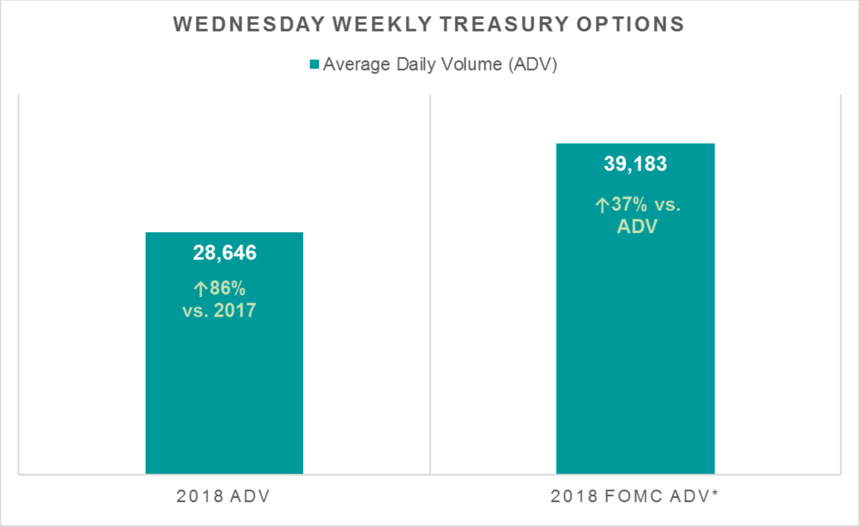
Fridays

- Expire every Friday that is not already a quarterly or serial Treasury option expiration
- Contrary instructions allowed

Wednesdays

- Expire Wednesday at 2:00 p.m. CT
- No contrary instructions allowed at expiration

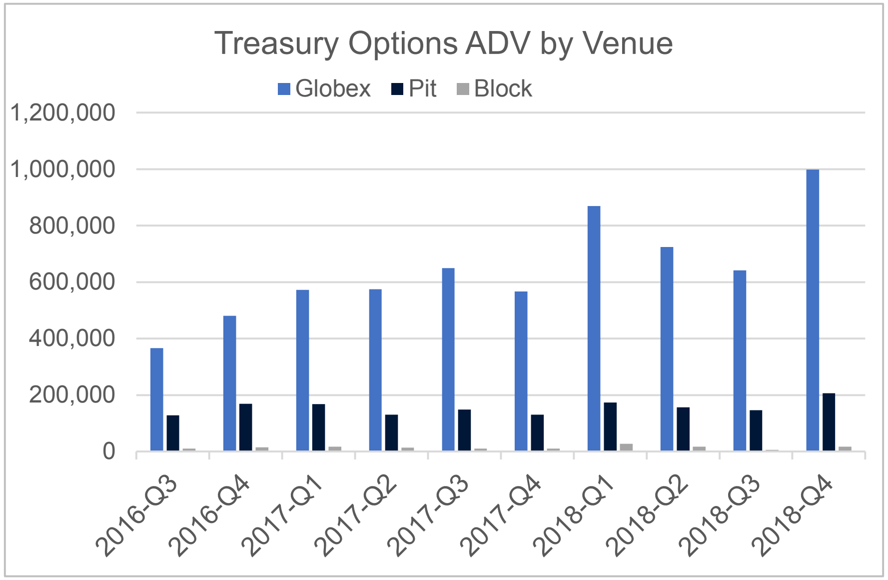




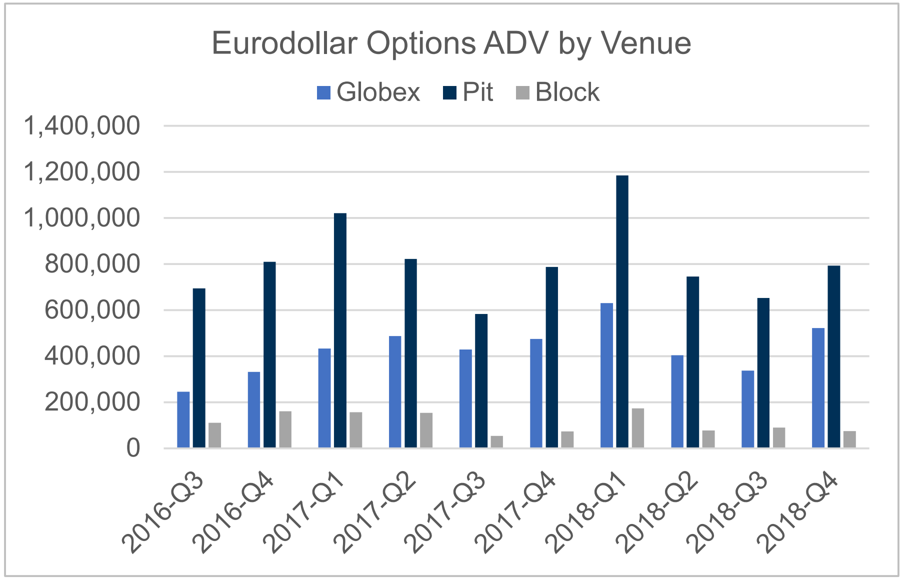
**FOMC data includes volume from the following 2018 dates: 1/31, 3/21, 5/2, 6/13, 8/1, 9/26, 11/8, 12/19*
**Non-Farm Payroll data includes volume from the following 2018 dates: 1/5, 2/2, 3/9, 4/6, 5/4, 6/1, 7/6, 8/3, 9/7, 10/5, 11/2, 12/7*

Interest Rate Options Volume by Venue

Record 809K Treasury options traded daily on Globex in 2018



Record 472K Eurodollar options traded daily on Globex in 2018



Robust Spreading Capabilities on CME Globex

All Common Strategies are recognized such as Trees, straddles and ratio spreads

Create delta-neutral covered strategies

Conditional Curve strategies between Eurodollar and Mid-Curve products

CC	Description	X	Qty	Bid	Ofr	Qty
− Interest Rate Strategies						
GE3	-1 GE0 Mar18 97.750 C, -1 GE0 Mar18 97.750 P, +1 GE3 Jun18 97.500 C, +1 GE3 Jun18 97.500 P	×	1,514	17.0	18.5	250
GE2	Jun18 97.625 STRD	×	1,200	32.5	33.5	1,600
GE	Dec18 98.125/98.250/98.375 CTREE	×	15,505	0.0	0.5	8,398
GE2	Jun18 97.750/98.000 CS 1x2	×	1,000	1.5	2.0	17,760
ZN5	Dec17 Wk5 123.75 Call	×	246,975	0'04	0'06	174,745
OZN	Mar18 125.00/128.00 CS 1x2 vs 10-Year U.S. Treasury Note Future Mar18 123'165 -0.16d	×	68,152	0'09	0'10	9,300
WY4	Dec17 Wk4 123.50/123.00 PS	×	74,739	0'01	0'03	41,967
WY4	Dec17 Wk4 123.75 Call vs 10-Year U.S. Treasury Note Future Mar18 123'155 -0.10d	×			0'01	29,102
WB4	+1 USWED Dec17 Wk4 151.0 C, -1 OZB Dec17 Wk5 151.0 C	×	2,376	-0'14	-0'12	50

Calendar spreads between weekly and quarterly options

Create and trade custom unique strategies

- Request for Quote (RFQ) functionality enables users to anonymously get quotes in any market
- Typical Bid/Ask spreads are tightened up following an RFQ
- Strategies often have equal or tighter markets than outright legs
- Market Makers respond to RFQs and stream markets. Typical RFQ response time is under 2 seconds

Liquidity, OI and Trading Tools

Liquidity on Globex: Treasury Options

10-Year Note Options March 2018

Average Bid Ask Quantity	2 AM CST 8 AM GMT	5 AM CST 11 AM GMT	7 AM CST 1 PM GMT	9 AM CST 3 PM GMT	12 PM CST 5 PM GMT	2 PM CST 8 PM GMT	3 PM CST 9 PM GMT
ATM Call	114,327	194,561	187,906	119,439	224,604	191,098	191,029
~44 Delta Strike	107,044	104,452	197,289	206,367	215,492	243,468	203,766
~37 Delta Strike	161,708	185,836	280,853	269,097	307,878	318,222	356,440
~29 Delta Strike	173,488	259,592	318,730	337,825	290,800	385,994	425,182
Average Bid/Ask Spread	**2 AM CST 8 AM GMT**	**5 AM CST 11 AM GMT**	**7 AM CST 1 PM GMT**	**9 AM CST 3 PM GMT**	**12 PM CST 5 PM GMT**	**2 PM CST 8 PM GMT**	**3 PM CST 9 PM GMT**
ATM Call	1.72	2.00	1.50	1.50	1.49	1.52	1.50
~44 Delta Strike	1.35	1.29	1.42	1.28	1.09	1.33	1.09
~37 Delta Strike	1.23	1.31	1.37	1.11	1.45	1.44	1.15
~29 Delta Strike	1.00	1.30	1.15	1.29	1.10	1.00	1.00

- Bid/Ask spreads are typically tighter following a Request for Quote (RFQ)
- Typical RFQ response time is under 2 seconds

Data pulled on 1/26/18 at top of book

Liquidity on Globex: Weekly Treasury Options

10-Year Note Friday Options February Week 1

Average Bid Ask Quantity	2 AM CST 8 AM GMT	5 AM CST 11 AM GMT	7 AM CST 1 PM GMT	9 AM CST 3 PM GMT	12 PM CST 5 PM GMT	2 PM CST 8 PM GMT	3 PM CST 9 PM GMT
ATM Call	5,860	68,815	77,287	22,105	56,859	50,434	54,102
~35 Delta Strike	48,340	121,399	134,096	107,213	93,432	104,932	62,207
~25 Delta Strike	125,236	167,654	182,643	188,779	186,234	143,727	192,396
~16 Delta Strike	162,530	183,704	235,663	226,897	223,881	171,054	251,599

Average Bid/Ask Spread	2 AM CST 8 AM GMT	5 AM CST 11 AM GMT	7 AM CST 1 PM GMT	9 AM CST 3 PM GMT	12 PM CST 5 PM GMT	2 PM CST 8 PM GMT	3 PM CST 9 PM GMT
ATM Call	1.62	1.57	1.54	1.67	1.46	1.41	1.81
~35 Delta Strike	1.31	1.51	1.44	1.29	1.13	1.21	1.12
~25 Delta Strike	1.44	1.46	1.25	1.44	1.36	1.22	1.56
~16 Delta Strike	1.29	1.07	1.17	1.20	1.20	1.18	1.52

10-Year Note Wednesday Options January Week 5

Average Bid Ask Quantity	2 AM CST 8 AM GMT	5 AM CST 11 AM GMT	7 AM CST 1 PM GMT	9 AM CST 3 PM GMT	12 PM CST 5 PM GMT	2 PM CST 8 PM GMT	3 PM CST 9 PM GMT
ATM Call	1,042	12,556	27,213	1,598	24,524	16,049	25,690
~37 Delta Strike	11,898	57,666	90,556	74,600	123,891	47,428	24,168
~24 Delta Strike	40,383	112,630	154,224	131,694	138,744	130,662	41,248
~13 Delta Strike	98,595	147,260	167,896	183,862	171,647	126,069	108,285

Average Bid/Ask Spread	2 AM CST 8 AM GMT	5 AM CST 11 AM GMT	7 AM CST 1 PM GMT	9 AM CST 3 PM GMT	12 PM CST 5 PM GMT	2 PM CST 8 PM GMT	3 PM CST 9 PM GMT
ATM Call	1.99	1.49	1.59	1.92	1.51	1.42	2.07
~37 Delta Strike	1.34	1.47	1.53	1.46	1.72	1.10	1.07
~24 Delta Strike	1.13	1.43	1.43	1.42	1.43	1.46	1.01
~13 Delta Strike	1.31	1.56	1.27	1.43	1.47	1.30	1.23

Data pulled on 1/26/18 at top of book

Open Interest: 10-Year Note Options

Across all expirations: As highlighted by the Open Interest Heatmap Tool

10 YR OPEN INTEREST
AS OF 10/19/2018

TYZ8
59 DTE
118.0200

STRIKES	WY4V8 2 DTE		TYX8 4 DTE		TY1X8 11 DTE		TY2X8 18 DTE		TYZ8 32 DTE		STRIKES
	CALL	PUT	CALL	PUT	CALL	PUT	CALL	PUT	CALL	PUT	
115.50			78	5,756		99		468	198	18,194	115.50
115.75			57	13,508		164		127			115.75
116.00			158	18,527		1,333		2	839	64,937	116.00
116.25			235	15,966	18	762		2			116.25
116.50			941	51,990	69	1,812	2	905	972	154,981	116.50
116.75			141	28,409	27	312	2	114			116.75
117.00	6		4,872	100,651	3	7,103	4	151	2,513	117,271	117.00
117.25	10	1,681	352	51,427	68	1,115	18	105			117.25
117.50	1,014	4,768	9,750	120,310	114	8,126	26	1,913	15,479	158,140	117.50
117.75	648	1,548	29,126	35,409	521	2,252	131	854			117.75
118.00	**3,662**	**1,401**	**36,753**	**82,430**	**4,283**	**2,949**	**2,143**	**2,141**	**36,919**	**110,388**	118.00
118.25	2,374	872	38,934	22,370	1,384	1,344	691	608			118.25
118.50	3,276	75	83,107	83,512	3,832	282	1,319	36	83,052	51,617	118.50
118.75	4,450	2	39,036	16,907	1,223	101	922	135			118.75
119.00	1,991		113,606	72,666	5,334	104	1,458	2	102,163	43,045	119.00
119.25		6	27,573	511	3,210	30	700				119.25
119.50			84,660	23,456	10,068	8	1,022		69,820	20,638	119.50
119.75	96		29,131	901	466	8	486				119.75
120.00		2	86,588	20,295	817	4	410	4	76,058	35,137	120.00
120.25			22,452	224	418	8	135	2			120.25
120.50			53,584	8,050	1,405	4	139		54,513	19,863	120.50
	CALL	PUT	CALL	PUT	CALL	PUT	CALL	PUT	CALL	PUT	
STRIKES	WY4V8 2 DTE		TYX8 4 DTE		TY1X8 11 DTE		TY2X8 18 DTE		TYZ8 32 DTE		STRIKES

CME Group

Open Interest: Eurodollars & Mid Curves

As highlighted by the Open Interest Heatmap Tool

EURODOLLARS OPEN INTEREST
AS OF 10/19/2018

	EDZ8 56 DTE 97.2550		EDU9 329 DTE 96.8300		EDZ9 420 DTE 96.7450				EDZ0 784 DTE 96.7150				EDZ1 1148 DTE 96.7600		
STRIKES	EDX8 25 DTE		EDU9 329 DTE		0EZ8 53 DTE		EDZ9 420 DTE		2EZ8 53 DTE		EDZ0 784 DTE		EDZ1 1148 DTE		STRIKES
	CALL	PUT	CALL	PUT	CALL	PUT	CALL	PUT	CALL	PUT	CALL	PUT	CALL	PUT	
95.500				3,000				14,452				483,821		2,005	95.500
95.625				125		600		2,341				98,621			95.625
95.750				8,238				9,349		115		74,719		20	95.750
95.875				2,875				40		525		162,275			95.875
96.000				13,160		5,125		156,100		17,123		212,919		7,750	96.000
96.125				44,953		1,263		134,356		114,356		12,002			96.125
96.250				55,906		13,085	2,200	230,129	12,400	25,734		74,357		1,500	96.250
96.375				160,136	10,199	62,031		109,115	6,207	129,649		49,134			96.375
96.500				244,289	7,122	235,645	11,741	332,246	7,324	192,022		38,924		50	96.500
96.625			125	114,001	5,141	407,903	330	103,578	8,748	286,274	100	9,515			96.625
96.750			18,436	140,969	**71,050**	**592,543**	**13,036**	**146,690**	**46,448**	**222,198**	**31,061**	**24,978**			96.750
96.875			**23,929**	**48,013**	120,519	448,907	33,043	84,014	51,999	293,621	14,289	38,526			96.875
97.000		12,525	27,927	52,470	316,619	376,827	75,828	102,749	144,955	252,283	23,582	68,554	550	3,950	97.000
97.125		53,263	43,628	60,309	141,533	111,765	44,591	68,411	69,899	42,633	14,006	9,556	25	25	97.125
97.250	**25,650**	**149,407**	58,285	78,460	190,024	85,510	106,195	73,032	100,175	54,400	10,158	12,300			97.250
97.375	124,466	84,672	138,080	96,958	128,054	51,724	77,601	34,904	98,261	18,921	4,935	450			97.375
97.500	90,756	3,625	35,630	33,250	165,526	37,130	87,011	50,753	53,370	4,607	19,676	1,051		3	97.500
97.625	61,874		34,573	9,864	75,616	7,260	43,240	22,709	68,933	8,244	7,402	150			97.625
97.750	7,866		104,951	48,266	57,059	802	150,338	43,251	47,976		8,750	3,650			97.750
97.875	1,350		68,564	16,295	37,078	970	53,925	20,733	55,669	999	3,500	200			97.875
98.000	1		52,910	24,197	29,779		55,885	25,489	56,983	5,330	15,874		500		98.000
98.125			74,431	6,597	16,052	3,991	71,373	1,305	4,018		600				98.125
98.250			22,826	6,550	54,863		60,491	700	48,500		17,750				98.250
98.375			58,068		23,074		18,241	100	23,382		1,001				98.375
98.500			63,823	2,200	53,036		44,295	1,975	3,850		11,455				98.500

CME Group

Web Tools: Open Interest Heatmap

cmegroup.com/oiheatmap

Track the concentration of put and call positions across strikes for all listed expirations on a specific underlying.

Analyze by open interest, OI change, OI % change, volume and volume change

Choose from all currently listed expirations

See how the market has evolved over the last day, week or month.

10 YR OPEN INTEREST
AS OF 2/1/2018

TYH8
47 DTE
120.2400

STRIKES	TY1G8 0 DTE CALL	TY1G8 0 DTE PUT	WY1G8 5 DTE CALL	WY1G8 5 DTE PUT	TY2G8 7 DTE CALL	TY2G8 7 DTE PUT	WY2G8 12 DTE CALL	WY2G8 12 DTE PUT	TY3G8 14 DTE CALL	TY3G8 14 DTE PUT	TYH8 21 DTE CALL	TYH8 21 DTE PUT	STRIKES
118.25						277				490		3,161	118
118.50		17				815				301	754	10,685	118
118.75						125				1,200		987	118
119.00					2	649				425	1	28,687	119
119.25		403				4,499				3,590	2	9,035	119
119.50		1,497		233	2	703				575	8	39,204	119
119.75		883		737		723				1,060	5	7,283	119
120.00		1,338		2,016		2,553				292	26	77,381	120
120.25	1	2,501		2,307	50	2,627				712	8	14,571	120
120.50	50	2,862		2,781		13,142				1,980	148	133,951	120.50
120.75	1	16,252		2,957	141	3,990				722	54	31,056	120.75
121.00	1,737	13,220	100	562	100	13,090			10	3,425	2,657	103,751	121.00
121.25	1,011	10,110	600	1,191	557	6,970			435	1,648	7,198	13,290	121.25
121.50	6,052	12,153	549	770	2,279	8,160			1,101	1,036	19,949	107,213	121.50
121.75	7,364	6,432	3,348	3,000	3,647	4,305			895	2,852	21,358	37,430	121.75
122.00	15,441	7,602	805	366	7,929	4,647			1,175	1,515	43,544	142,543	122.00
122.25	9,776	5,235	1,056	89	6,406	1,632			1,039	995	15,633	100	122.25
122.50	9,642	3,515	1,122	460	7,812	2,542			2,944	297	56,531	100,838	122.50
122.75	8,458	740	382		3,078	48			707		8,781	1,265	122.75
123.00	9,640	2,167	473		11,072	244			2,166		94,738	80,909	123.00
123.25	9,915	535	363		2,189	14			501		4,020		123.25
STRIKES	CALL TY1G8 0 DTE	PUT	CALL WY1G8 5 DTE	PUT	CALL TY2G8 7 DTE	PUT	CALL WY2G8 12 DTE	PUT	CALL TY3G8 14 DTE	PUT	CALL TYH8 21 DTE	PUT	STRIKES

TYH8
47 DTE
120.2400

Web Tools: Additional QuikStrike Tools

- **Block Trade Alerts:** Receive e-mail alerts when a block trade takes place
- **QuikStrike Essentials**: The base version of QuikStrike's benchmark pricing and analysis platform offers an all-in-one tool for volatility, volume and open interest, delta sheets, pricing analysis, spread analysis, risk graphs and more
- ***Block Trade Browser***: View intra-day and one-week historical block trade data including type, quantity, price and more
- **Volatility Term Structure**: Illustrates the volatility term structures allowing user to view volatilities across expirations, and compare them to one week prior.
- **Most Active Strikes**: See what is hot now by viewing volume, open interest, and open interest change activity on the most active strikes, by calls, puts, and combined calls and puts.
- **Treasury Analytics**: This tool is designed to show analytics for Treasury Products, including a list of securities that make up the deliverable basket, implied yields for the cheapest to deliver, and a conversion between strike prices and implied yields.

Find these and all other QuikStrike tools at cmegroup.com/quikstrike

Appendix:

Trading codes

Historical volume by venue

Trading Codes: Interest Rate Options

Contract	Option Expiry	CME Globex	Bloomberg	Reuters
Treasury Options				
2-Year Note	Serial/Quarterly	**OZT**	TUmyC Comdty	0#TU+
	Wednesdays	**WT1-5**	TUIA Comdty	0#WTW+
	Weeklies	**ZT1-5**	1W-5W	0#TUW+
5-Year Note	Serial/Quarterly	**OZF**	FVmyC Comdty	0#FV+
	Wednesdays	**WF1-5**	FVWA Comdty	0#WFW+
	Weeklies	**ZF1-5**	1I-5I	0#FVW+
10-Year Note	Serial/Quarterly	**OZN**	TYmyC Comdty	0#TY+
	Wednesdays	**WY1-5**	TYYA Comdty	0#WYW+
	Weeklies	**ZN1-5**	1M-5M	0#TYW+
Ultra 10-Year Note	Serial/Quarterly	**OTN**	UXY	0#TN+
	Wednesdays	**WX1-5**	UXTA Comdty	0#WXW+
	Weeklies	**TN1-5**	UWX	0#TNW+
T-Bond	Serial/Quarterly	**OZB**	UsmyC Comdty	0#US+
	Wednesdays	**WB1-5**	USYA Comdty	0#WBW+
	Weeklies	**ZB1-5**	1C-5C	USW+
Ultra T-Bond	Serial/Quarterly	**OUB**	WNmyC Comdty	0#AUL+
	Wednesdays	**WU1-5**	WNYA Comdty	0#WUW+
	Weeklies	**UB1-5**	1J-5J	0#AULW+
Eurodollar Options				
Eurodollar	Serial/Quarterly	**GE**	ED	0#ED+
3-Month Mid-Curve	Serial/Quarterly	**TE2**	TTR	T2E
6-Month Mid-Curve	Serial/Quarterly	**TE3**	TSA	T3E
9-Month Mid-Curve	Serial/Quarterly	**TE4**	TNW	T4E
Eurodollar 1-Year Mid-Curve	Serial/Quarterly	**GE0**	0E	0#EG+
	Weekly	**E01-5**	1K-5K	0#EGW+
Eurodollar 2-Year Mid-Curve	Serial/Quarterly	**GE2**	2E	0#EH+
	Weekly	**E21-E25**	1F-5F	0#EHW+
Eurodollar 3-Year Mid-Curve	Serial/Quarterly	**GE3**	3E	0#EN+
	Weekly	**E31-E35**	1P-5P	0#ENW+
Eurodollar 4-Year Mid-Curve	Serial/Quarterly	**GE4**	4E	0#EO+
Eurodollar 5-Year Mid-Curve	Serial/Quarterly	**GE5**	5E	0#EA+

Interest Rate Options Historical Volume by Venue

Eurodollar Options ADV by Venue *(all numbers in 000's)*

Venue	Q3-2016	Q4-2016	Q1-2017	Q2-2017	Q3-2017	Q4-2017	Q1-2018	Q2-2018	Q3-2018	Jun-2018	Jul-2018	Aug-2018	Sep-2018	2014	2015	2016	2017	2018
PIT	695	810	1,021	822	584	788	1,185	746	653	691	590	637	744	662	707	809	803	857
Globex	246	331	433	488	429	474	631	404	338	439	271	320	433	109	184	294	456	455
Globex RTH	188	232	306	374	328	355	446	291	265	304	229	262	308	71	132	213	341	333
Globex ETH	57	99	127	113	101	120	184	112	73	134	42	58	125	38	52	81	115	123
Blocks	111	161	156	154	54	73	173	77	90	97	57	63	158	88	72	123	109	112
Total	**1,052**	**1,301**	**1,611**	**1,464**	**1,066**	**1,336**	**1,988**	**1,227**	**1,081**	**1,227**	**918**	**1,020**	**1,334**	**860**	**963**	**1,225**	**1,368**	**1,425**

Venue	Q3-2016	Q4-2016	Q1-2017	Q2-2017	Q3-2017	Q4-2017	Q1-2018	Q2-2018	Q3-2018	Jun-2018	Jul-2018	Aug-2018	Sep-2018	2014	2015	2016	2017	2018
PIT	66%	62%	63%	56%	55%	59%	60%	61%	60%	56%	64%	62%	56%	77%	73%	66%	59%	60%
Globex	23%	25%	27%	33%	40%	36%	32%	33%	31%	36%	30%	31%	32%	13%	19%	24%	33%	32%
Globex RTH	18%	18%	19%	26%	31%	27%	22%	24%	24%	25%	25%	26%	23%	8%	14%	17%	25%	23%
Globex ETH	5%	8%	8%	8%	9%	9%	9%	9%	7%	11%	5%	6%	9%	4%	5%	7%	8%	9%
Blocks	11%	12%	10%	11%	5%	5%	9%	6%	8%	8%	6%	6%	12%	10%	7%	10%	8%	8%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

RTH represents 7:00am to 4:00pm, ETH represents the hours outside that window

Treasury Options ADV by Venue *(all numbers in 000's)*

Venue	Q3-2016	Q4-2016	Q1-2017	Q2-2017	Q3-2017	Q4-2017	Q1-2018	Q2-2018	Q3-2018	Jun-2018	Jul-2018	Aug-2018	Sep-2018	2014	2015	2016	2017	2018
PIT	128	169	168	130	149	130	174	156	146	165	115	155	170	212	196	159	144	158
Globex	366	481	572	575	650	567	870	725	642	749	510	691	729	360	364	409	591	744
Globex RTH	298	360	470	461	525	445	671	563	512	591	415	551	573	280	288	319	475	581
Globex ETH	67	121	102	114	125	122	199	162	130	158	95	140	157	81	76	90	116	163
Blocks	10	14	17	13	10	10	27	17	6	14	10	3	4	16	10	10	13	16
Total	**503**	**664**	**757**	**719**	**809**	**706**	**1,071**	**898**	**794**	**929**	**635**	**848**	**903**	**588**	**570**	**577**	**748**	**919**

Venue	Q3-2016	Q4-2016	Q1-2017	Q2-2017	Q3-2017	Q4-2017	Q1-2018	Q2-2018	Q3-2018	Jun-2018	Jul-2018	Aug-2018	Sep-2018	2014	2015	2016	2017	2018
PIT	25%	25%	22%	18%	18%	18%	16%	17%	18%	18%	18%	18%	19%	36%	34%	27%	19%	17%
Globex	73%	72%	76%	80%	80%	80%	81%	81%	81%	81%	80%	81%	81%	61%	64%	71%	79%	81%
Globex RTH	59%	54%	62%	64%	65%	63%	63%	63%	64%	64%	65%	65%	63%	48%	50%	55%	64%	63%
Globex ETH	13%	18%	13%	16%	15%	17%	19%	18%	16%	17%	15%	17%	17%	14%	13%	16%	15%	18%
Blocks	2%	2%	2%	2%	1%	1%	3%	2%	1%	1%	2%	0%	0%	3%	2%	2%	2%	2%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

RTH represents 7:00am to 4:00pm, ETH represents the hours outside that window

2018 figures through September

Disclaimer

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