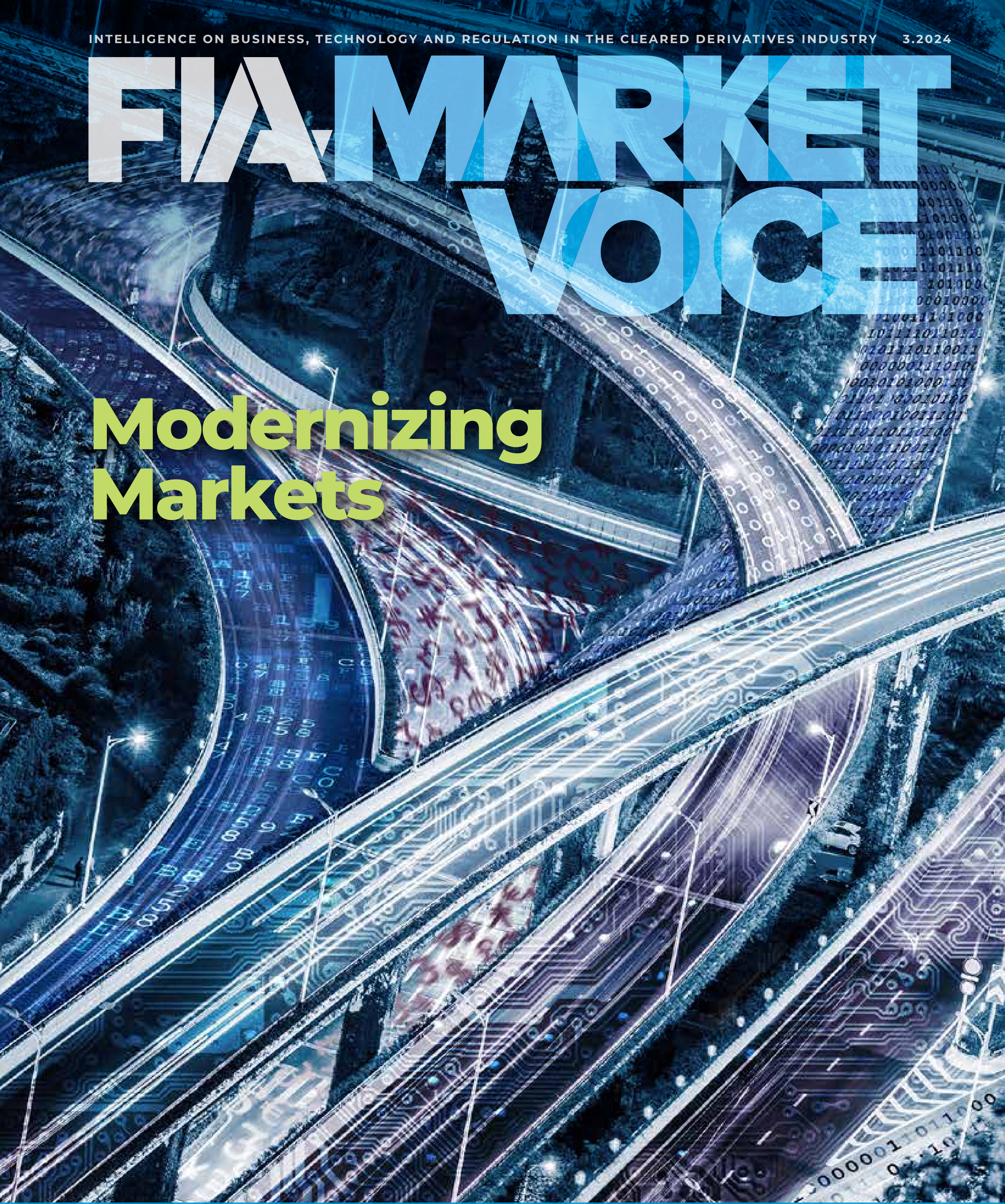
INTELLIGENCE ON BUSINESS, TECHNOLOGY AND REGULATION IN THE CLEARED DERIVATIVES INDUSTRY 3.2024

FIA MARKET VOICE



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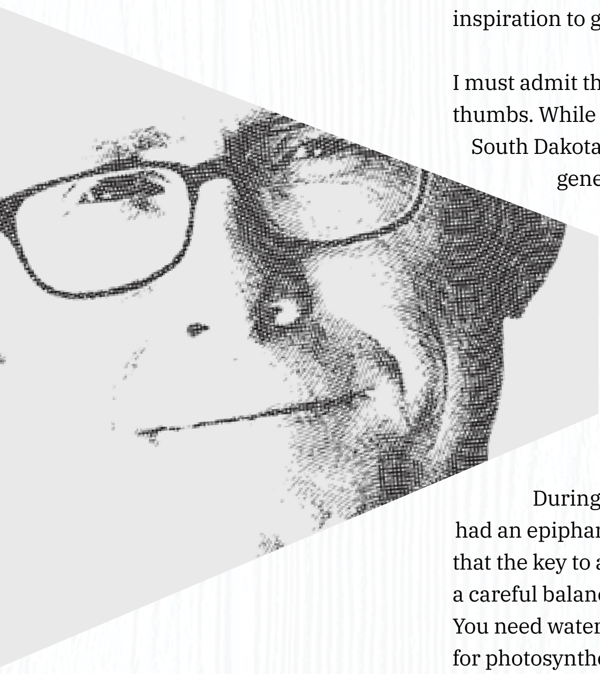
BY WALT LUKKEN, PRESIDENT AND CEO OF FIA

Cultivating a Thriving Ecosystem

Spring is around the corner in the northern hemisphere—the time of year when even the most resolute couch potatoes look out at the sunshine, see the energy of life, and feel a pang of inspiration to get outdoors and till the earth.



I must admit that I don’t have the greenest of thumbs. While my dad grew up on a farm in South Dakota, his agricultural DNA skipped a generation. But that doesn’t stop me from trying, and every year I manage to grow a few pathetic tomatoes in my meager city garden. Even I find joy in getting my hands dirty and nurturing the tiniest of seeds into something delicious and life sustaining.

During these struggles to garden, I’ve had an epiphany that seems obvious to most: that the key to a successful garden is cultivating a careful balance of conditions for life to bloom. You need water, compost, sunlight and nutrients for photosynthesis to begin. But too much of any of these elements will lead to disaster. There must be a careful balance of conditions, or plants will wither and die.

Our industry is no different. There are some fundamental conditions that underpin our industry that have allowed our markets to flourish over the last 200 years. It doesn't just happen by chance. These elements must be in the right proportions for our industry to thrive.

Healthy markets need the rule of law to make markets predictable and orderly. But too many laws will stifle growth. You also need smart regulations that are fit for purpose to thwart bad actors and encourage competition. You need good financial infrastructure as well as well-trained plumbers to keep the markets resilient when systems break.

You want free and open access to markets so competition will flourish. But access to less regulated exchanges that shortcut controls (think FTX) will lead our industry down a slippery slope to disaster. We need an environment that encourages innovation and modernization but not at the expense of eliminating controls or customer protections.

As a global trade association, FIA strongly defends these balanced principles. Like a gardener, FIA aims to nurture an ecosystem that allows our markets to thrive in a safe and resilient way. We strive to ensure that our industry remains viable, relevant, innovative, and competitive for the

We need an environment that encourages innovation and modernization but not at the expense of eliminating controls or customer protections.

future. We avoid picking winners and losers but rather champion an environment that encourages products and competition to blossom and grow. The current exponential pace of technological change in our industry presents many opportunities as well as challenges. Between blockchain, tokenisation, cloud technology, big data, artificial intelligence and quantum computing, the possibilities for our markets are endless. But innovation is only possible if the fundamental pieces are in place to allow that to happen. Like a garden, you cannot build up without foundation-setting and groundwork.

In these pages you will find FIA's Year in Review, where we highlight some of the association's most important work in 2023 and what we are doing to support and promote the cleared derivatives industry of the future. This is our tilling of the garden that allows our members to succeed.

To this end, last year we adopted trade flow standards for allocations and give-ups through our DMIST standards body so the markets can efficiently handle higher-than-normal volumes. We formed a taskforce to learn from recent cyber-attacks and provided industry recommendations on how we better deal with the next crisis. We worked with trading venues to develop best practices for exchange volatility controls for our community so that markets continue to be orderly and discover prices during shocks.

FIA also continued its advocacy efforts to support a regulatory framework that enables competition and the free flow of capital across national borders, and we worked to address the foundational issues of global derivatives markets – namely capital, margin, CCP risk, and recovery and resolution.

FIA remains committed to healthy growth, fair competition and responsible innovation. We do this in part by developing standards for improved efficiency, championing start-ups at our Innovators Pavilion and promoting advances in new and emerging technologies.

As with any healthy ecosystem, every sector of the industry represented by FIA – from clearing firms, exchanges and clearinghouses to trading firms, technology vendors and lawyers – has an important part to play. It's this balance and diversity that makes our markets stronger and poised for growth.

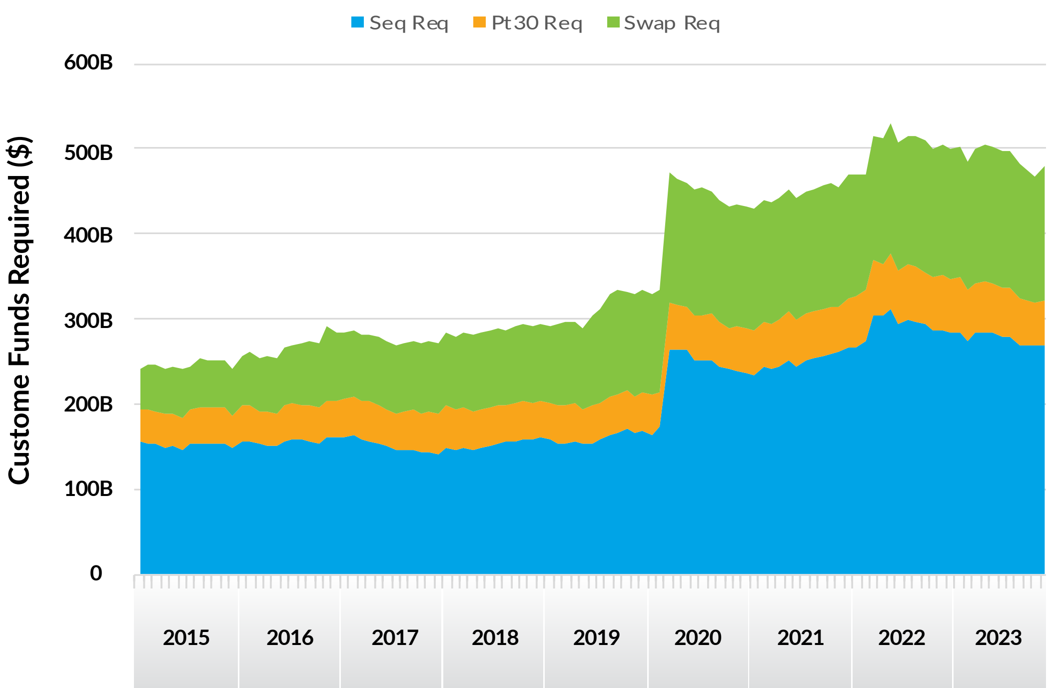
I am pleased to see that the derivatives ecosystem is thriving as we head into the spring and our Boca conference for what promises to be another excellent event. Boca marks a time for the industry to gather, assess where opportunities lie and plant the seeds for the year ahead. It's this optimism in the Florida sunshine that annually rejuvenates my spirit and reminds me why I love this industry. Let a thousand flowers bloom!

Data

Top 20 FCMs Ranked by Customer Funds

RANK	FCM	Seg Required	YoY Change	Share
1	JP MORGAN SECURITIES LLC	$40,964 M	-2%	14.7%
2	GOLDMAN SACHS & CO LLC	$35,699 M	-3%	12.8%
3	MORGAN STANLEY & CO LLC	$27,129 M	-1%	9.8%
4	CITIGROUP GLOBAL MARKETS INC	$17,585 M	2%	6.3%
5	BOFA SECURITIES INC	$28,782 M	9%	10.4%
6	BARCLAYS CAPITAL INC	$17,217 M	16%	6.2%
7	SG AMERICAS SECURITIES LLC	$17,925 M	-4%	6.4%
8	WELLS FARGO SECURITIES LLC	$6,508 M	10%	2.3%
9	MIZUHO SECURITIES USA LLC	$10,064 M	-19%	3.6%
10	UBS SECURITIES LLC	$6,613 M	14%	2.4%
11	BNP PARIBAS SECURITIES CORP	$5,984 M	-20%	2.2%
12	INTERACTIVE BROKERS LLC	$7,191 M	-8%	2.6%
13	ADM INVESTOR SERVICES INC	$7,116 M	-18%	2.6%
14	MAREX CAPITAL MARKETS INC	$6,739 M	76%	2.4%
15	HSBC SECURITIES USA INC	$4,601 M	3%	1.7%
16	STONEX FINANCIAL INC	$5,953 M	8%	2.1%
17	RJ OBRIEN ASSOCIATES LLC	$5,781 M	-8%	2.1%
18	RBC CAPITAL MARKETS LLC	$3,561 M	-23%	1.3%
19	MACQUARIE FUTURES USA LLC	$4,392 M	-4%	1.6%
20	WEDBUSH SECURITIES INC	$3,916 M	-7%	1.4%

Customer Funds at US FCMs 2015 to 2023



Source: FIA FCM Tracker

Pt30 Required	YoY Change	Share	Swap Required	YoY Change	Share	Total Required	YoY Change	Share
$6,920 M	-15%	12.5%	$23,093 M	5%	14.3%	$70,978 M	-1%	14.3%
$10,848 M	-19%	19.5%	$20,318 M	9%	12.5%	$66,864 M	-3%	13.5%
$8,882 M	-8%	16.0%	$28,537 M	10%	17.6%	$64,548 M	3%	13.0%
$4,007 M	-24%	7.2%	$32,337 M	-1%	20.0%	$53,930 M	-2%	10.9%
$5,148 M	-6%	9.3%	$17,325 M	4%	10.7%	$51,255 M	6%	10.3%
$4,036 M	-6%	7.3%	$15,245 M	7%	9.4%	$36,497 M	9%	7.4%
$7,445 M	-5%	13.4%	$1,465 M	-10%	0.9%	$26,836 M	-5%	5.4%
$367 M	-42%	0.7%	$16,226 M	21%	10.0%	$23,100 M	16%	4.7%
$1,727 M	54%	3.1%	$0 M	0%	n/a	$11,791 M	-13%	2.4%
$1,937 M	-2%	3.5%	$1,200 M	-6%	0.7%	$9,751 M	7%	2.0%
$672 M	-46%	1.2%	$2,903 M	13%	1.8%	$9,559 M	-15%	1.9%
$645 M	-16%	1.2%	$0 M	0%	n/a	$7,835 M	-9%	1.6%
$354 M	-36%	0.6%	$0 M	0%	n/a	$7,470 M	-19%	1.5%
$162 M	180%	0.3%	$0 M	0%	n/a	$6,902 M	78%	1.4%
$179 M	-10%	0.3%	$1,663 M	-15%	1.0%	$6,442 M	-2%	1.3%
$231 M	4%	0.4%	$0 M	0%	n/a	$6,184 M	8%	1.2%
$240 M	-10%	0.4%	$0 M	0%	n/a	$6,021 M	-8%	1.2%
$356 M	-29%	0.6%	$1,692 M	-6%	1.0%	$5,609 M	-19%	1.1%
$340 M	108%	0.6%	$0 M	0%	n/a	$4,732 M	0%	1.0%
$37 M	-48%	0.1%	$0 M	0%	n/a	$3,952 M	-8%	0.8%

Source: FIA FCM Tracker

Based on December 2023 data published by the CFTC. YOY Change measures change since December 2022. Market share calculated as a percentage of total customer funds held by all FCMs, excluding residual interest. Seg funds consists of customer funds held for trading on US futures exchanges. Part 30 funds consists of customer funds held for trading on non-US exchanges. Swap funds consists of customers funds held for cleared swaps.

CUSTOMERS HOLD $480 BILLION IN FUNDS AT US FCMS

The total amount of cash and collateral in customer accounts at US futures commission merchants stood at $496 billion as of December 2023, according to the Commodity Futures Trading Commission. That was down from a record high of $529 billion in April 2022, but remains above the levels seen in previous years. These funds are used to meet margin requirements for cleared derivatives. Of the $496 billion in total funds, $278 billion or 56% was held in "seg accounts," which are used for trading on US futures exchanges. $162 billion or 33% was held in accounts used for the clearing of OTC swaps. And $55 billion was held in "Part 30" accounts, which are used for trading futures on non-US exchanges.

US BANKS HOLD LARGEST SHARE OF CUSTOMER FUNDS AT FCMS

US banks hold the majority of customer funds held for clearing futures and swaps, according to data from the Commodity Futures Trading Commission. Ranked by total customer funds, the five largest futures commission merchants are subsidiaries of US banks. Those five FCMs hold a combined 62% of the $496 billion in customer funds as of December 2023. Four non-US banks are in the top 10, however - Barclays, Societe Generale, Mizuho and UBS.

MORE ONLINE
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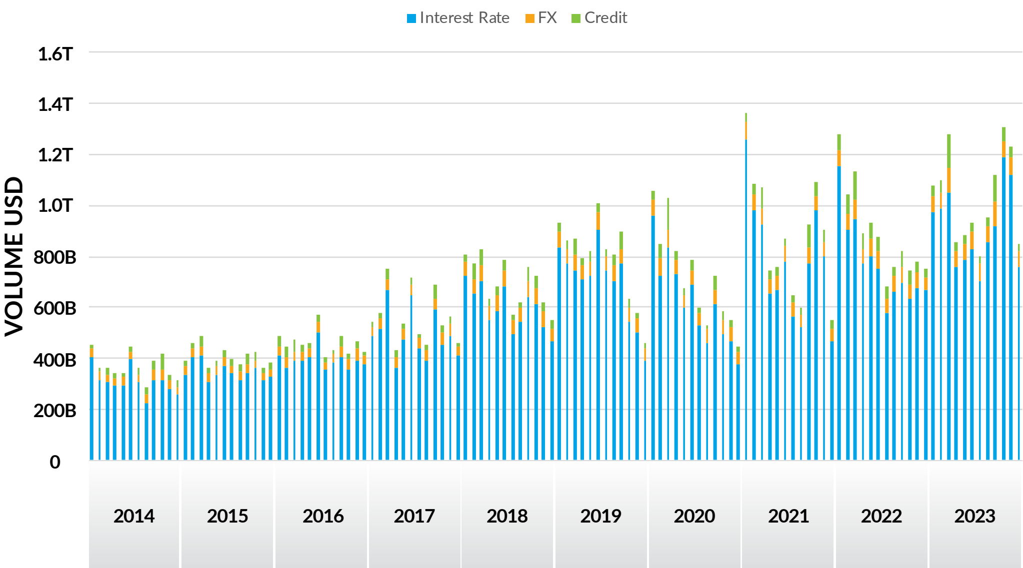
SEF Average Daily Volume



Source: FIA SEF Tracker

SEF TRADING HITS $12.4 TRILLION IN 2023

Trading of swaps, forwards and other derivatives on swap execution facilities in the US had a record year in 2023. The total amount of trading, measured in notional value, rose to $12.4 trillion in 2023, up 16% from the previous year. Of that amount, $10.9 trillion or 88% came from the trading of interest rate swaps, forward rate agreements and other OTC interest rate derivatives. $839 billion came from the trading of foreign exchange derivatives, and $625 billion came from the trading of credit default swaps.

Top 10 SEFs Ranked by Average Daily Trading

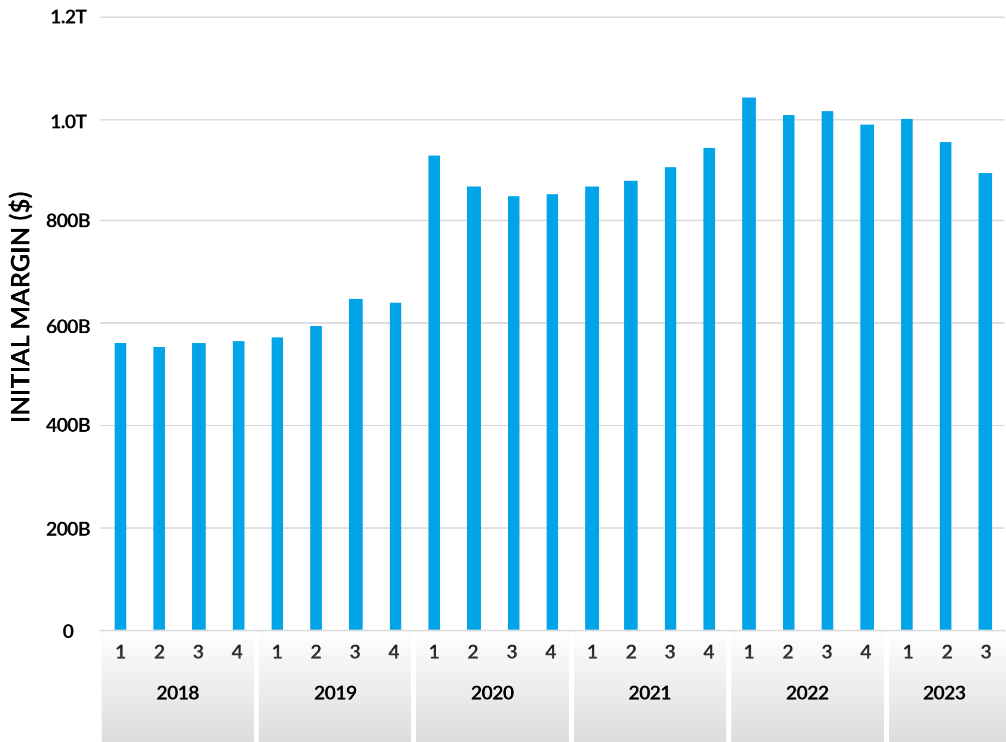
RANK	SEF	Parent	Credit	YoY Change	Foreign Exchange	YoY Change	Interest Rates	YoY Change	Total	YoY Change
1	TW SEF	Tradeweb	*$10B*	*-18.9%*			*$396B*	*72.6%*	*$406B*	*67.8%*
2	NEX SEF	CME Group			*$5B*	*32.8%*	*$158B*	*-30.4%*	*$164B*	*-29.2%*
3	tpSEF	TP ICAP Group	*$3B*	*-34.5%*	*$18B*	*-2.9%*	*$131B*	*-6.6%*	*$153B*	*-6.9%*
4	Bloomberg SEF	Bloomberg	*$4B*	*-7.7%*	*$3B*	*8.4%*	*$73B*	*64.8%*	*$114B*	*29.3%*
5	Tradition SEF	Tradition	*$144M*	*-42.0%*	*$12B*	*-0.1%*	*$72B*	*48.0%*	*$84B*	*38.0%*
6	BGC Derivatives Markets	BGC Group	*$691M*	*27.8%*	*$19B*	*47.0%*	*$52B*	*44.0%*	*$72B*	*44.6%*
7	IGDL	TP ICAP Group					*$19B*	*10.0%*	*$19B*	*10.0%*
8	GFI Swaps Exchange	GFI Group	*$650M*	*-21.4%*	*$8B*	*19.9%*	*$3B*	*20.6%*	*$11B*	*16.4%*
9	DW SEF	Tradeweb					*$7B*	*-70.6%*	*$7B*	*-70.6%*
10	Refinitiv US SEF	LSEG			*$2B*	*14.7%*			*$2B*	*14.7%*

Source: FIA SEF Tracker

TRADEWEB TAKES LEADING ROLE IN SEF TRADING

Tradeweb ranks as the leading swap execution facility measured by the volume of trading, according to data collected by FIA. The trading platform has leveraged its position as a venue for dealer-to-customer trading to become the top SEF for interest rate derivatives. In 2023, the average daily volume on Tradeweb reached $395 billion in notional value, more than twice the amount traded on the second largest SEF in that segment of the OTC markets. Tradeweb is also the second ranked SEF in the trading of credit derivatives, though it is far behind Bloomberg, the long-time leader in that segment of the markets.

Initial Margin at 15 Leading CCPs



Source: FIA CCP Tracker. IM data includes the following CCPs: ASX, CME, Eurex, HKEX, ICE Clear Credit, ICE Clear Europe, ICE Clear US, JSCC, LME, LCH LTD, LCH SA, Nasdaq, OCC, SGX, and TMX

INITIAL MARGIN TRENDING LOWER AT MAJOR CCPS

Data collected from 15 leading derivatives clearinghouses in Europe, North America and Asia-Pacific shows that the overall level of initial margin dropped to $895 billion in the third quarter, according to the most recent data available. That was the lowest level in more than two years, but remained well above pre-pandemic levels.

Default Fund Resources

CCP	Combined	Skin-in-the-Game	Member Contribution	Ratio of SITG to Member Contribution	Initial Margin
OCC	*$16,217,673,286*	*$139,623,000*	*$16,078,050,286*	*0.9%*	*$80,500,123,217*
LCH LTD	*$9,459,292,020*	*$96,175,057*	*$9,363,116,963*	*1.0%*	*$226,878,587,562*
CME	*$8,552,832,715*	*$250,000,000*	*$8,302,832,715*	*3.0%*	*$228,548,289,367*
LCH SA	*$7,635,198,147*	*$46,856,450*	*$7,588,341,697*	*0.6%*	*$48,740,225,147*
Eurex	*$5,737,612,702*	*$151,352,680*	*$5,586,260,022*	*2.7%*	*$71,824,191,177*
JSCC	*$5,325,031,968*	*$184,922,410*	*$5,140,109,558*	*3.6%*	*$43,868,883,451*
ICE Clear Europe	*$4,686,998,975*	*$246,953,292*	*$4,440,045,683*	*5.6%*	*$78,794,337,001*
ICE Clear Credit	*$3,375,685,384*	*$50,000,000*	*$3,325,685,384*	*1.5%*	*$52,422,057,220*
TMX	*$2,544,870,896*	*$3,693,669*	*$2,541,177,227*	*0.1%*	*$13,040,135,776*
HKEX	*$1,270,285,829*	*$146,107,848*	*$1,124,177,981*	*13.0%*	*$8,558,811,868*
LME	*$1,062,449,048*	*$27,500,000*	*$1,034,949,048*	*2.7%*	*$9,601,114,534*
Nasdaq	*$944,034,712*	*$38,677,028*	*$905,357,683*	*4.3%*	*$6,809,662,139*
ICE Clear US	*$885,423,207*	*$74,500,000*	*$810,923,207*	*9.2%*	*$13,601,832,262*
SGX	*$361,911,377*	*$60,415,030*	*$301,496,347*	*20.0%*	*$7,625,267,294*
ASX	*$367,613,697*	*$238,626,435*	*$128,987,262*	*185.0%*	*$4,258,339,100*
Total	*$68,426,913,964*	*$1,755,402,900*	*$66,671,511,064*	*2.6%*	*$895,071,857,114*

Source: FIA CCP Tracker

OCC'S $16.2 BILLION DEFAULT FUND HIGHEST AMONG CCPS

Third quarter data collected by FIA shows that the OCC, the equity derivatives clearinghouse based in Chicago, had the largest amount of money in its default fund compared to other leading CCPs. OCC's default fund had $16.2 billion, nearly all of which was contributed by the members of the clearinghouse. CME ranked as the largest clearinghouse in terms of initial margin, with $228.5 billion at the end of the third quarter.

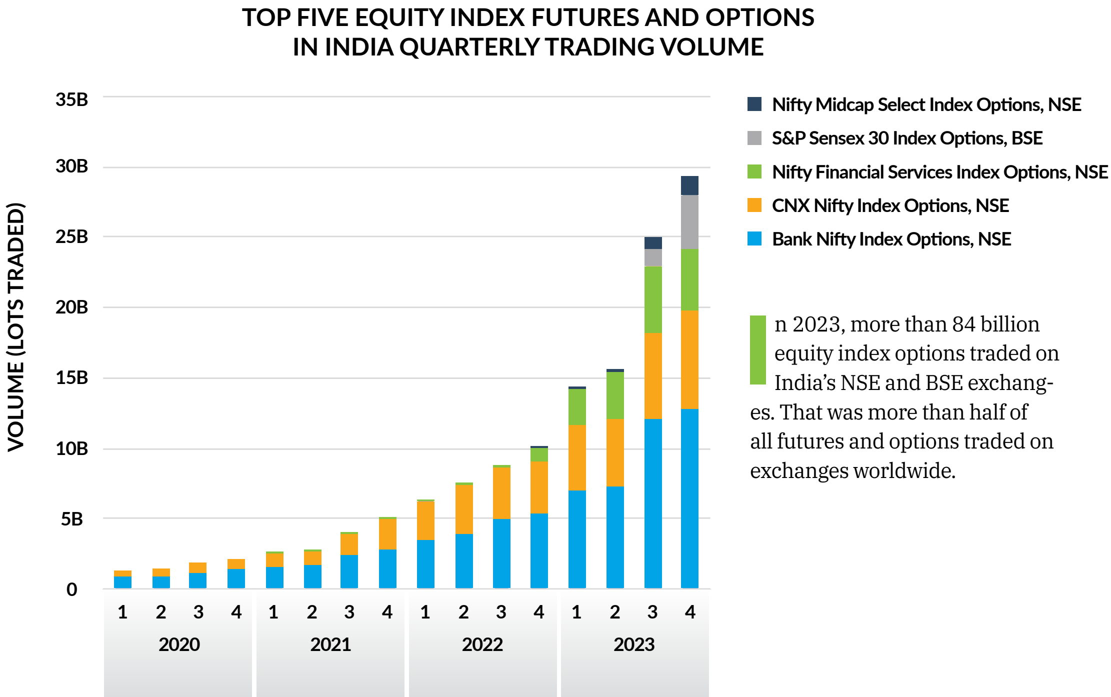
Top 30 Equity Index Futures and Options by Trading Volume

Rank	Contract	Jurisdiction	Ja n-Dec 2023 Vol	YoY % Change	2023 Dec OI	YoY % Change
1	Bank Nifty Index Options, NSE India	India	39,031,865,343	*119.5%*	4,918,343	*75.2%*
2	CNX Nifty Index Options, NSE India	India	22,749,767,588	*66.4%*	5,049,083	*16.7%*
3	Nifty Financial Services Index Options, NSE India	India	14,837,992,075	*1226.6%*	953,785	*127.9%*
4	S&P Sensex 30 Index Options, BSE [1]	India	5,165,192,588	*n/a*	27,304	*n/a*
5	Mini Ibovespa Index (WIN) Futures, B3	Brazil	3,833,531,615	*-6.4%*	940,779	*-5.1%*
6	Nifty Midcap Select Index Options, NSE India	India	2,219,675,683	*5675078.2%*	762,906	*n/a*
7	SPDR S&P 500 ETF Options *	United States	2,134,567,143	*15.2%*	25,081,342	*22.0%*
8	Powershares QQQ ETF Options *	United States	841,434,421	*25.3%*	11,965,054	*8.7%*
9	S&P 500 Index (SPX) Options, Cboe Options Exchange	United States	729,346,246	*30.6%*	20,821,531	*17.5%*
10	E-mini S&P 500 Futures, CME	United States	452,701,954	*-10.2%*	2,210,568	*9.7%*
11	Kospi 200 Options, Korea Exchange	South Korea	448,080,320	*-14.3%*	1,859,995	*-15.5%*
12	iShares Russell 2000 ETF Options *	United States	281,990,854	*34.0%*	12,972,005	*72.2%*
13	S&P Bankex Index Options, BSE [1]	India	276,359,216	*n/a*	129,743	*n/a*
14	Micro E-mini Nasdaq 100 Index Futures, CME	United States	273,085,353	*-25.2%*	84,325	*26.7%*
15	Euro Stoxx 50 Index (OESX) Options, Eurex	Germany	252,670,167	*2.4%*	27,685,588	*-5.1%*
16	Nikkei 225 Mini Futures, Osaka Exchange	Japan	250,485,863	*-9.1%*	389,315	*-8.0%*
17	Micro E-mini S&P 500 Index Futures, CME	United States	248,272,150	*-27.8%*	126,922	*9.1%*
18	Euro Stoxx 50 Index (FESX) Futures, Eurex	Germany	245,759,267	*-13.9%*	2,557,226	*-33.3%*
19	Kospi 200 Weekly Options, Korea Exchange	South Korea	240,757,040	*-3.2%*	31,243	*-59.5%*
20	E-mini S&P 500 Options, CME	United States	216,714,442	*46.3%*	2,254,688	*30.1%*
21	Taiex (TXO) Options, Taiwan Futures Exchange	Taiwan	176,273,126	*-12.2%*	426,590	*17.2%*
22	E-mini Nasdaq 100 Futures, CME	United States	166,975,397	*-5.6%*	284,624	*17.8%*
23	FTSE China A50 Index Futures, Singapore Exchange	Singapore	88,569,512	*-14.0%*	933,790	*16.2%*
24	iShares MSCI Emerging Markets ETF Options *	United States	74,676,183	*43.9%*	7,846,815	*19.7%*
25	Euro Stoxx Banks Futures, Eurex	Germany	71,140,765	*-13.9%*	872,925	*-27.2%*
26	Kospi 200 Monday Weekly Options, Korea Exchange [1]	South Korea	65,071,298	*n/a*	85,906	*n/a*
27	Kospi 200 Futures, Korea Exchange	South Korea	63,693,515	*-14.3%*	343,922	*-6.0%*
28	SET50 Futures, Thailand Futures Exchange	Thailand	62,142,760	*13.5%*	549,607	*-2.4%*
29	BIST 30 Index Futures, Borsa Istanbul	Turkey	60,389,786	*-32.0%*	245,474	*-23.9%*
30	Mini Taiex (MTX) Futures, Taiwan Futures Exchange	Taiwan	59,148,669	*-26.2%*	58,407	*9.8%*

* Traded on multiple U.S. options exchanges
[1] Began trading in 2023

Disclaimer: The data in this report were collected from exchanges, clearinghouses and swap execution facilities. The data are subject to revision and may contain errors or omissions. Volume for exchange-traded futures and options is measured by the number of contracts traded on a round-trip basis to avoid double-counting. Open interest for exchange-traded futures and options is measured by the number of contracts outstanding at the end of the month.

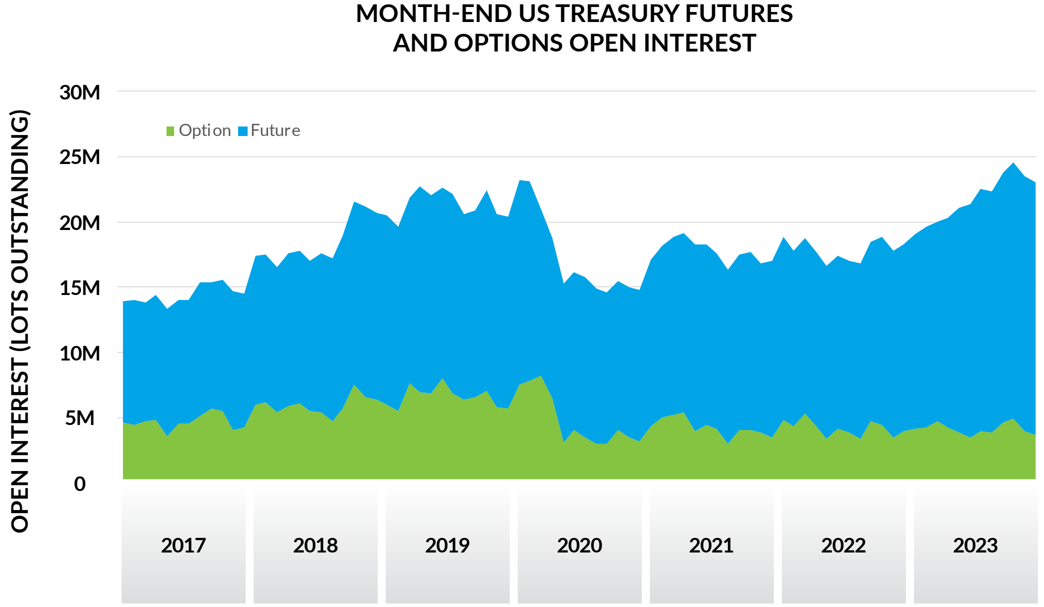
Equity Index Options Volume Surges in India

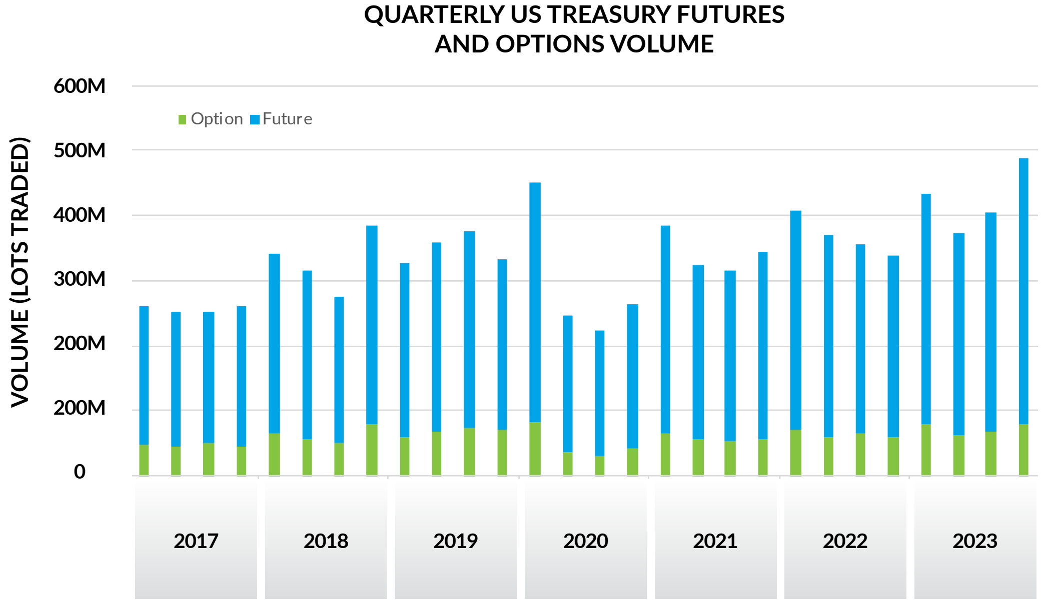


In 2023, more than 84 billion equity index options traded on India's NSE and BSE exchanges. That was more than half of all futures and options traded on exchanges worldwide.

Treasury Futures Volume and Open Interest Climb to Record Highs in 2023

Total volume in Treasury futures reached 1.4 billion contracts in 2023, up 16% from 2022 and 42% from 2020. Open interest hit a record 21.4 million futures in November and ended the year at 19.3 million, up 35% from 2022.





Top 20 Bond Futures and Options by Trading Volume

RANK	CONTRACT	Jurisdiction	Jan-Dec 2023 Vol	YoY % Change	2023 Dec OI	YoY % Change
1	10 Year Treasury Note Futures, Chicago Board of Trade	United States	498,258,217	7.7%	4,610,253	20.2%
2	5 Year Treasury Note Futures, Chicago Board of Trade	United States	389,403,706	19.2%	5,808,699	37.6%
3	Euro-Bund (FGBL) Futures, Eurex	Germany	221,867,540	2.6%	1,088,347	-11.0%
4	2 Year Treasury Note Futures, Chicago Board of Trade	United States	203,664,150	19.9%	3,770,486	68.9%
5	Euro-Bobl (FGBM) Futures, Eurex	Germany	178,320,158	12.6%	1,226,202	-20.6%
6	10 Year Treasury Note Options, Chicago Board of Trade	United States	177,085,547	7.6%	2,189,100	-16.9%
7	Euro-Schatz (FGBS) Futures, Eurex	Germany	157,732,186	10.8%	1,600,663	-5.7%
8	Ultra 10 Year Treasury Note Futures, Chicago Board of Trade	United States	125,569,436	31.3%	2,065,913	45.9%
9	30 Year Treasury Bond Futures, Chicago Board of Trade	United States	111,513,523	14.5%	1,411,655	18.1%
10	Ultra Treasury Bond Futures, Chicago Board of Trade	United States	77,859,288	29.9%	1,652,314	16.9%
11	5 Year Treasury Note Options, Chicago Board of Trade	United States	68,983,941	14.0%	835,202	-5.3%
12	Long Gilt Futures, ICE Futures Europe	United Kingdom	55,441,947	-12.3%	517,491	32.8%
13	Euro-OAT Futures, Eurex	Germany	50,966,458	-4.8%	376,941	-19.9%
14	Euro-BTP Futures, Eurex	Germany	49,707,832	17.1%	316,356	-29.2%
15	10 Year Treasury Bond Futures, ASX 24	Australia	49,625,785	3.6%	1,046,655	12.0%
16	3 Year Treasury Bond Futures, ASX 24	Australia	47,365,051	13.4%	693,733	2.8%
17	3 Year Treasury Bond Futures, Korea Exchange	South Korea	39,338,741	3.1%	367,124	20.4%
18	30 Year Treasury Bond Options, Chicago Board of Trade	United States	35,331,858	22.3%	536,896	39.7%
19	10 Year Government of Canada Bond Futures, Montreal Exchange	Canada	34,718,133	-2.8%	440,560	-12.5%
20	Short Term Euro-BTP Futures, Eurex	Germany	33,427,298	22.1%	199,284	-26.2%

Top 20 Short Term Interest Rate Futures and Options by Trading Volume

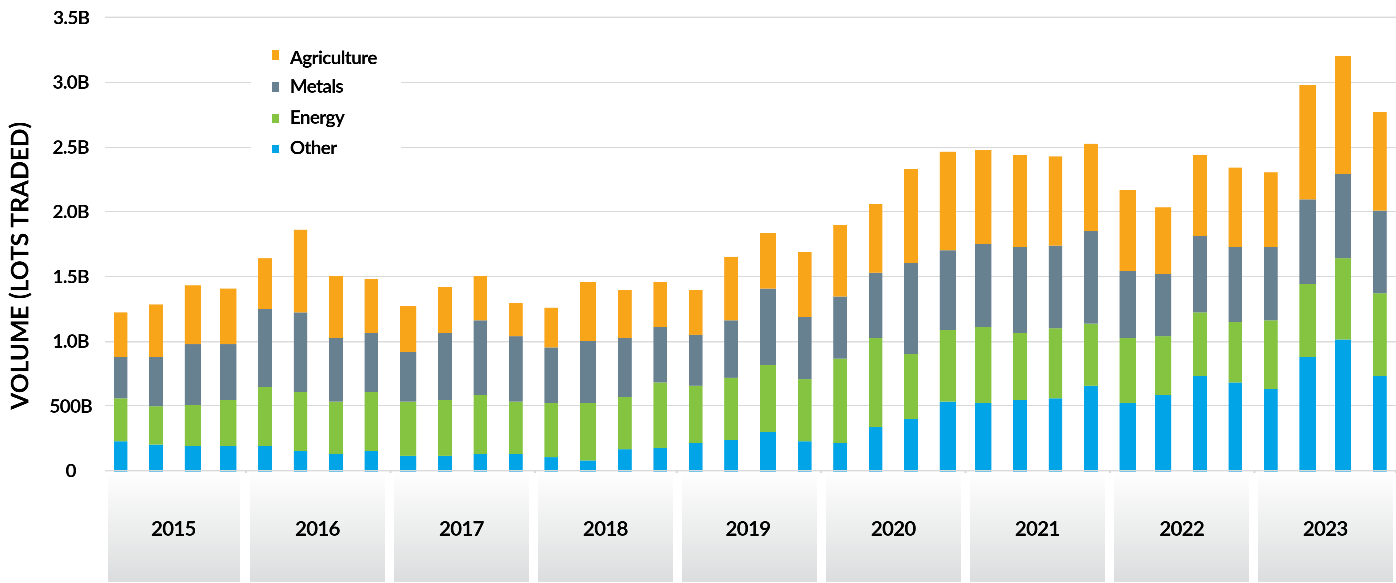
RANK	CONTRACT	Jurisdiction	Notional Size	Jan-Dec 2023 Vol	YoY % Change	2023 Dec OI	YoY % Change
1	One-Day Interbank Deposit (DI1) Futures, B3	Brazil	BRL 100K	866,528,849	32.0%	35,916,813	30.0%
2	3 Month SOFR Futures, Chicago Mercantile Exchange	USA	USD 1M	809,156,568	93.2%	9,813,996	21.0%
3	3 Month SOFR Options, Chicago Mercantile Exchange	USA	USD 1M	431,589,091	291.0%	34,425,020	68.1%
4	3 Month Euribor Futures, ICE Futures Europe	UK	EUR 1M	297,154,269	5.1%	4,580,198	19.4%
5	One-Day Interbank Deposit (IDI) Options, B3	Brazil	BRL 1M	292,208,871	221.9%	68,349,795	255.9%
6	Federal Funds Futures, Chicago Board of Trade	USA	USD 5M	110,495,840	31.8%	1,639,549	4.9%
7	3 Month SONIA Futures, ICE Futures Europe	UK	GBP 1M	97,904,566	37.0%	1,677,286	30.8%
8	3 Month Euribor Options, ICE Futures Europe	UK	EUR 1M	52,259,994	-16.4%	8,215,846	-8.1%
9	1 Month SOFR Futures, Chicago Mercantile Exchange	USA	USD 1M	39,716,486	71.6%	1,059,050	40.3%
10	90 Day Bank Bill Futures, ASX 24	Australia	AUD 1M	34,668,533	41.1%	1,156,465	30.8%
11	3 Month BAX Futures, Montreal Exchange	Canada	CAD 1M	18,242,053	6.1%	401,466	-36.0%
12	3 Month SONIA Options, ICE Futures Europe	UK	GBP 1M	16,035,669	-0.3%	2,034,363	170.3%
13	3 Month Euribor 1 Year Mid Curve Options, ICE Futures Europe	UK	EUR 1M	9,585,050	-34.1%	835,693	21.8%
14	3 Month CORRA (CRA) Futures, Montreal Exchange	Canada	CAD 1M	8,351,833	1996.5%	577,382	1381.0%
15	3 Month SARON Futures, ICE Futures Europe	UK	CHF 1M	5,929,015	96.7%	205,570	18.4%
16	3 Month Euribor 2 Year Mid Curve Options, ICE Futures Europe	UK	EUR 1M	3,245,728	-23.8%	370,550	120.7%
17	3 Month Euribor Futures, Eurex	Germany	EUR 1M	3,034,793	44132.5%	10,180	834.8%
18	New Zealand 90 Day Bank Bill Futures, ASX 24	Australia	NZD 1M	2,568,244	30.8%	152,915	-7.3%
19	30 Day Interbank Cash Rate Futures, ASX 24	Australia	AUD 3M	2,401,154	89.7%	149,397	55.1%
20	Euro Short-Term Rate Futures, Chicago Mercantile Exchange [1]	USA	EUR 1M	1,583,894	12300.3%	27,838	3804.3%

[1] Began trading in November 2022

Top 30 Commodity Futures and Options By Trading Volume

Rank	Contract	Jurisdiction	Jan-Dec 2023 Vol	YoY % Change	2023 Dec OI	YoY % Change
1	Soda Ash Futures, Zhengzhou Commodity Exchange	China	556,206,354	68.2%	641,323	-39.9%
2	Purified Terephthalic Acid Futures, Zhengzhou Commodity Exchange	China	520,811,647	-2.8%	2,245,550	-27.9%
3	Steel Rebar Futures, Shanghai Futures Exchange	China	502,039,529	-4.4%	2,475,870	-10.3%
4	Methanol Futures, Zhengzhou Commodity Exchange	China	399,309,189	1.0%	1,463,622	-23.2%
5	Flat Glass Futures, Zhengzhou Commodity Exchange	China	362,031,143	61.3%	1,215,575	10.7%
6	Soybean Meal Futures, Dalian Commodity Exchange	China	354,530,779	9.1%	2,612,235	29.5%
7	Polyvinyl Chloride (PVC) Futures, Dalian Commodity Exchange	China	268,918,838	-5.2%	1,160,896	-14.1%
8	Brent Crude Oil Futures, ICE Futures Europe	UK	267,727,695	13.7%	2,035,248	9.7%
9	Fuel Oil Futures, Shanghai Futures Exchange	China	252,884,063	20.2%	554,403	26.1%
10	Silver Futures, Shanghai Futures Exchange	China	239,277,772	26.8%	898,535	-6.7%
11	Rapeseed Meal Futures, Zhengzhou Commodity Exchange	China	230,593,113	59.2%	1,111,050	53.2%
12	Crude Oil Options, Multi Commodity Exchange of India	India	218,147,350	218.4%	100,341	222.7%
13	RBD Palm Olein Futures, Dalian Commodity Exchange	China	214,926,469	-11.0%	545,180	-20.7%
14	WTI Light Sweet Crude Oil Futures, New York Mercantile Exchange	USA	204,473,362	-0.7%	1,581,928	9.8%
15	Soybean Oil Futures, Dalian Commodity Exchange	China	203,940,313	11.1%	862,680	35.7%
16	Iron Ore Futures, Dalian Commodity Exchange	China	198,957,516	-10.0%	927,074	-29.4%
17	White Sugar (SR) Futures, Zhengzhou Commodity Exchange	China	188,624,633	106.5%	758,103	-15.3%
18	PTA Options, Zhengzhou Commodity Exchange	China	188,188,427	173.1%	435,656	13.4%
19	Rapeseed Oil (OI) Futures, Zhengzhou Commodity Exchange	China	185,663,459	96.6%	528,155	64.2%
20	Cotton No. 1 (CF) Futures, Zhengzhou Commodity Exchange	China	165,411,304	28.9%	1,068,714	-7.2%
21	Corn Futures, Dalian Commodity Exchange	China	162,627,023	21.0%	1,440,650	-5.1%
22	Hot Rolled Coil Futures, Shanghai Futures Exchange	China	151,521,192	6.7%	1,254,818	17.9%
23	Urea (UR) Futures, Zhengzhou Commodity Exchange	China	137,877,259	408.5%	267,079	5.8%
24	Polypropylene Futures, Dalian Commodity Exchange	China	134,313,341	-21.5%	696,170	-12.1%
25	Woodpulp Futures, Shanghai Futures Exchange	China	125,804,767	55.0%	312,446	36.3%
26	Ethenylbenzene Futures, Dalian Commodity Exchange	China	122,153,348	53.8%	593,073	114.8%
27	Methanol (MA) Options, Zhengzhou Commodity Exchange	China	118,989,018	195.7%	235,083	38.3%
28	Bitumen Futures, Shanghai Futures Exchange	China	106,990,118	-34.2%	555,929	-24.1%
29	Linear Low Density Polyethylene Futures, Dalian Commodity Exchange	China	102,360,310	-25.0%	561,783	-16.5%
30	Henry Hub Natural Gas (NG) Futures, New York Mercantile Exchange	USA	102,109,201	18.9%	1,389,177	36.7%

Commodity Futures and Options Trading Volume - 2015 to 2023



FEATURE

2023—A Year in Review

KEY WORK FROM FIA ON BEHALF OF OUR MEMBERS LAST YEAR SPANNED A WIDE VARIETY OF WORKSTREAMS AND GEOGRAPHIES

After another busy year across multiple issues and work areas, one fact stands out when it comes to activities in exchange-traded and cleared derivatives markets. Simply put: Resilience matters.

That's true whether we're talking about the impacts of geopolitical unrest, volatility in commodity markets, cybersecurity preparedness, or the transformative powers of artificial intelligence technologies.

FIA is working hard to ensure this resilience shown by our markets in 2023 will continue for many years to come. We are confident that our markets will rise to both the challenges and opportunities ahead, because this industry knows how to work together as a community. That allows us to support one another in times of stress, and to modernize the way we work to future-proof our markets.

This is a mission FIA is passionate about, and we are thankful to all our members for working towards these goals with us.

We are committed to building strong foundations so that our industry can weather any potential storms on the horizon, and that will allow us to build new and better markets for the next generation of industry leaders.

Thank you for all your support, and for another productive year!

Walt Lukken, FIA President and CEO

Alicia Crighton, Chair, FIA Board of Directors, Managing Director and Partner, Goldman Sachs & Co. LLC

OPERATIONS AND TECHNOLOGY

Operations issues were front-and-center in 2023, starting with a January cyber disruption in our markets that demanded an urgent response. FIA quickly set up a crisis communications hub for the industry, coordinating information through regular calls. FIA President and CEO Walt Lukken also offered remarks before a CFTC advisory committee highlighting the resilience of our markets, and announced an FIA-led taskforce to assess the industry response and provide recommendations for future incidents. In September, FIA's taskforce offered six recommendations in this area.

Also noteworthy was the continued work of the Derivatives Market Institute for Standards (DMIST), an independent standards body established by FIA. DMIST published its first standard in June on the timeliness of give-up trades and allocations, and this fall closed its second consultation on average pricing with the goal of publishing a second standard early in 2024.

FIA's operations work has also focused on modernizing risk management amid recent volatility and heightened scrutiny by global policymakers in this area. In October, FIA published a report that defines common exchange volatility controls and best practices for their use in derivative markets. This publication was a team effort, incorporating feedback from exchanges as well as the needs of the derivatives trading community.

Among other work, FIA worked closely with several exchanges and clearinghouses in relation to important changes to their operating systems and technology platforms.

All of this was on top of continued engagement with public policy efforts as they relate to operations, from the Digital Operational Resilience Act (DORA) in the EU to the work of the Financial Stability Oversight Council in the US to industry and public policy efforts across Asia-Pacific.

CROSS-BORDER

Derivatives markets are global and interconnected, and FIA continued its advocacy efforts to support a holistic regulatory framework that enables competition and the free flow of capital across national borders.

A major example of this approach in action was our engagement with EU policymakers about the potential negative consequences of a forced migration of euro denominated clearing and ongoing advocacy about EMIR 3.0 legislative proposals including the active account requirement. Efforts included public statements but also private dialogue with regulators, including via an exclusive March event in Brussels sponsored by FIA to bring together the industry and policymakers.

Additionally, FIA continues to engage with policymakers in the UK and is mindful of the potential of regulatory divergence in discussions – including our support for the EU-UK Memorandum of Understanding on regulatory cooperation in financial services.

In Asia, FIA continued its outreach and education around the recently enacted China Futures and Derivatives Law. This included the publication of new industry standard netting and collateral legal opinions for the People's Republic of China in light of recent policy developments.

In the US, we engaged with stakeholders at the Commodity Futures Trading Commission and Securities and Exchange Commission on topics of global interest including swaps-related issues and recent US Treasury market reforms.

CLEARING AND TRADING

As in years past, FIA's core advocacy work continues to center on the foundational issues of global derivatives markets – capital, margin, CCP risk, and recovery and resolution issues. And in truth, much of the previously mentioned work regarding exchange volatility controls or EMIR 3.0 advocacy is fundamentally about clearing and trading as much as operations or cross-border concerns.

But beyond that work, FIA has most recently been engaged in vocal opposition to recent US bank capital proposals that would disincentivize clearing and cause shrinking capacity for clearing and increased costs for end-users.

Jackie Mesa, FIA's chief operating officer and senior vice president of global policy, spoke about the potential negative impact of proposed capital requirements in a public advisory committee meeting held by the CFTC. FIA has also met with key US bank regulators and Congressional offices to highlight the impact these capital proposals will have on the cleared derivatives markets and our advocacy related to these proposals has continued

MORE ONLINE

For more detail on FIA's work across 2023, including links to consultation responses and resources, visit fia.org/fia/2023-year-review this year. We have also continued our engagement with the CFTC on key market structure issues including our recent comments regarding exchange conflicts of interest and the related self-regulatory process.

FIA has also engaged extensively with US, European and Asian regulators on the topic of margin transparency and adequacy. Ahead of the BCBS-CPMI-IOSCO margin policy stakeholder outreach in June, members had the opportunity to meet with key public sector stakeholders to discuss the issue of margin transparency and adequacy, specifically highlighting the need for consistent disclosures and additional transparency on core initial margin, additional margin and relevant anti-procyclicality measures amongst others.

Across Asia and the Americas, FIA continues to collaborate with our members to prioritize exchange and clearing capacity to meet the growing demand for futures, options and derivatives in these regions. Ongoing policy efforts around the capital markets union in the EU and the evolution of post-Brexit rulemaking in the UK continue to be a top priority as well.

Globally, FIA continues to work closely with standard-setting bodies including CPMI-IOSCO and the Financial Stability Board, on issues around central counterparty practices and CCP recovery and resolution issues. CCP recovery and resolution has been another hot topic this year as the SEC, the CFTC, the Bank of England and the Financial Stability Board released consultation reports covering CCP recovery and wind down plans and the CCP resolution toolbox approach. Notably, FIA is part of the UK Treasury advisory CCP resolution panel advising on proposals on resolution statutory instruments and CCP code of practice. FIA participated in the FSB resolution toolbox approach panel in November emphasizing the need for transparency and certainty. The topic of recovery and resolution is still progressing but remains highly debated amongst the industry.

In the US, FIA Law & Compliance has continued to engage with the CFTC on a practical regulatory framework for margining separate accounts of the same beneficial owner and filed several comment letters with the US Securities and Exchange Commission stressing the importance of the compatibility of US securities regulations with CFTC regulations governing derivatives market participants.

Beyond public comments and filings, FIA staff are also actively engaged behind the scenes. This includes exclusive FIA-sponsored Exchange Briefing webinars that allow individual trading venues to preview their roadmap in a transparent way to key industry stakeholders.

COMMODITIES

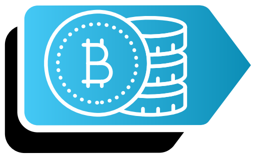
The risk management functions of global derivatives markets were again on display in 2023 amid commodity market volatility. But with increased public attention comes increased scrutiny by regulators, which has made the advocacy work of FIA all the more important over the last year.

Throughout 2023, FIA reiterated a strong belief in the power of commodity markets to provide price transparency and risk management for end-users. This included advocacy to highlight the detrimental effects of price caps and retroactive market interventions in areas ranging from EU gas markets to Texas power markets and elsewhere. FIA Board Chair Alicia Crighton of Goldman Sachs also testified on the industry's behalf before a US Congressional hearing on commodity market volatility.

FIA also continued its work around position limits in commodity markets. This includes the evolution of China's derivatives laws to include new rules empowering futures exchanges to impose position limits and reporting requirements on market participants, and Large Trader Reporting Requirements at the US Commodity Futures Trading Commission.

Whether it's our work in the EU around the Regulation of Wholesale Energy Market Integrity and Transparency (REMIT) or in commodity futures markets as we continue to see rapid growth in both volume and open interest, FIA has continued to prioritize our work in this key area.

That includes formal advocacy filings as well as continued collaboration via our in-person commodity-focused events in Houston, Leipzig, and elsewhere.



DIGITAL ASSETS

As in prior years, crypto derivatives were a hot topic in 2023 as policymakers in the US continued their debate about the oversight of these markets. FIA President and CEO Walt Lukken was invited to appear before the US House Committee on Agriculture, which has oversight over the CFTC, to discuss the evolving landscape and FIA's views on the best way to provide regulatory certainty in these markets.

FIA also continued to consult with public sector officials in the EU on its Markets in Crypto-Assets Regulation (MiCA), and with global policymakers via submissions including IOSCO’s consultation on crypto-asset regulation.

SUSTAINABILITY

With 2023 recording the second-hottest summer on record, sustainability concerns were again front and center for derivatives markets and for FIA. That includes the ongoing support for compliance carbon markets in the European Union and UK, as well as collaboration with the CFTC and IOSCO around enhancing the integrity voluntary carbon markets.

GROWTH AND INNOVATION

As global exchange-traded derivatives markets closed 2023 with yet another record year for volumes, FIA remains committed to the continued growth and responsible innovation that drives our industry.

This includes our annual Innovators Pavilion showcase of fintech startups as well as thoughtful FIA-led discussions about artificial intelligence, tokenization of collateral, and other emerging technologies.

We also continue to engage with exchanges and trading firms around the world capitalizing on a megatrend in retail trading growth and options use, ranging from the US to India to China.

COMMUNITY AND EVENTS

Through a range of events, forums and other platforms, FIA facilitates honest and transparent dialogue within the industry on key issues, reinforcing shared values that will ensure our resilience for years to come.

This includes issues like diversity, which remains a top priority for FIA, as well as honoring the future leaders of our industry through our new President's Award that was established in March, and recognizing those who have made a significant contribution to the industry through a lifetime of effort in the Hall of Fame.

In addition to our core conferences such as Boca, IDX, Expo and Asia, we have enhanced our regional forums in Asia and Europe to better connect with our members in person, providing key opportunities for networking and discussions of local issues. These have included forums in Brussels, Frankfurt, Hong Kong, Leipzig, Stockholm, Sydney and Taipei, as well as a commodities forum in Houston and a policy update event in Chicago, among others.

PRODUCTS AND SERVICES

In support of our mission to promote better understanding of and greater transparency into the global derivatives markets, FIA publishes several types of statistics for our members. These include statistics on customer funds held by US futures commission merchants, trading volume and open interest for more than 85 exchanges, risk metrics and default resources for 15 clearinghouses, and trading volume on US swap execution facilities.

In 2023, FIA offered a series of updates to our Exchange Risk Controls Repository. This central repository of exchange-provided risk controls and practices is maintained for the exclusive use of FIA members. In consultation with member firms, we developed a survey that helps provide greater transparency and facilitates risk-control benchmarking for global brokers, clearing firms, trading firms and commercial and institutional traders. This convenient centralized source of information about exchange risk controls makes it easier for firms to expand the range of markets that they use around the world.

Additionally, FIA continues to maintain a comprehensive documentation library, which includes FIA CCP Risk Review, European Documentation Library and US Documentation Library. We regularly update existing documentation, including FIA legal opinions, or add new templates, disclosures or other industry standard documents to reflect the latest regulatory, legal and other developments to ensure that our documentation services remain the go-to, state-of-the-art suite of documents for consumption primarily by clearing firms.

In 2023, FIA transferred its online courses to its nonprofit educational foundation, the Institute for Financial Markets (IFM), which resulted in a convenient, single-source training provider. IFM has supplied education to market participants, regulators, and policy makers for almost 35 years.

The newly branded FIA-IFM Get Smart eLearning offers training specifically designed for the futures industry by the industry. Courses are a cost-effective means for firms and market participants to avoid costly mistakes, trading suspensions and fines. On-going training, as noted by regulators, promotes high standards of market conduct and market integrity, and builds a culture of compliance.

The Get Smart course catalogue offers training on market conduct, exchange fundamentals on major global markets and the associated regulatory requirements as well as courses mandated by the Commodity Futures Trading Commission and National Futures Association for those trading on US markets. MV

TECH TRENDS IN 2024

BY KIRSTEN HYDE

Big Tech partnerships, operational resilience and GenAI experimentation will continue to dominate in 2024

At this time last year, the extraordinary hype around generative artificial intelligence had only just touched the finance industry, Yet, as we head into Boca 2024, it is arguably one of the most exciting topics on the industry agenda when it comes to the evolution of financial technology. Financial firms at every level of the industry are exploring the application of GenAI to drive performance enhancement and efficiency gains.

What was being talked about a year ago was cloud computing, and in particular, how Big Tech companies such as Amazon, Google and Microsoft were expanding their presence in financial markets. Over the last several years, some of the world's largest exchanges have announced partnerships with these firms to migrate key functions to the cloud.

The rush to the cloud is set to continue in 2024 as the exchanges implement key steps in their migration plans and roll out new services. Hand-in-hand with this will be a heightened focus on operational resilience as financial institutions and technology companies globally seek to comply with incoming regulations on critical third parties.

For many firms in our industry, the key theme for 2024 will be one of safe and responsible innovation – moving fast to both modernize markets and remain competitive while maintaining a high bar for security and resiliency.

CLOUD PROJECTS COME TO FRUITION

Last year saw a wave of exchanges announce partnerships with cloud provider companies to migrate data, analytics and other functions to the cloud, demonstrating the growing recognition within the financial industry of the benefits of cloud-based solutions.

Cloud computing technology offers scalability, flexibility, and cost-efficiency by enabling a move away from on-premise data centers that are often expensive and time-consuming to maintain.

By partnering with cloud technology providers and developing purpose-built solutions, exchanges say they can modernize their infrastructure, provide more innovative services to market participants, and scale capacity up or down, at any time.

In fact, many of the large exchanges point to cloud-based platforms as the next generation of how markets will operate. Nasdaq, for instance, completed the migrations of its MRX and GEMX options markets and the Nasdaq Bond Exchange to Amazon Web Services' cloud last year and is set to migrate more functions in 2024.

"As a leading market operator and global provider of critical market infrastructure we are committed to continuing our journey to modernize the global financial ecosystem and unlocking the power of cloud technologies," said Tal Cohen, co-president of Nasdaq.

For AWS, the partnership will likely help it to secure business with thousands of related financial companies given that Nasdaq has many infrastructure customers that rely on it for trading, clearing and settlement, which means they too will be relying on AWS.

Deutsche Börse and CME Group both expanded individual partnerships with Google last year. Deutsche Börse's CEO Theodor Weimer said on a 3Q earnings call: "We already have 40% of our IT state in the cloud, and by 2026 it will be around 70% with Google Cloud as a preferred partner."

CME Group working with Google is also moving its IT infrastructure and markets to the cloud. The exchange says that migrating its data has already enabled it to develop new data and analytics products faster than it would have been able to do with traditional technology.

Speaking about its partnership with Microsoft, the London Stock Exchange Group said in October that it was on track for product delivery in the second half of 2024, adding that its shift to the cloud would "fundamentally" change how customers use some of its services.

OPERATIONAL RESILIENCY

While many believe the industry is poised to experience significant advancements in terms of speed, reliability, and accessibility, cloud adoption brings new challenges, especially when it comes to regulations and compliance.

At the crux of the matter is a concern about operational resiliency and concentration risk resulting from an over-reliance on a handful of cloud providers and the disruption this would cause if a provider serving many clients went down.

"Obviously, there's a limited number of cloud providers. Some people argue that they have so much more money to invest in their systems, that those systems are going to become more resilient and less prone to cyber-attack," Don Wilson, chief executive of DRW Holdings, one of the industry's largest principal trading firms, said at an FIA event last year. "I'm sympathetic to that argument, but the flip side is if everybody puts their matching engines into AWS, for example, and AWS goes down, then the global market infrastructure is going to break. That seems pretty problematic."

Lawmakers are also concerned. In the EU, financial regulators have proposed sweeping new rules to ensure that cloud computing giants and other critical third parties do not endanger the continent's financial system. While the EU's Digital Operational Resilience Act, or DORA, acknowledges the vital role cloud technology plays, it highlights the risk a service outage could have on an entire economy.

SERIOUS WORK

DORA aims to introduce a comprehensive framework on digital operational resilience for European financial institutions. One of the most significant implications of the regulation is that it will bring within the scope of European financial services supervision those third-party service providers that are deemed critical, including cloud technology providers.

This year is expected to be the year when DORA stops being an exploration and the serious work starts for financial institutions and third-party providers to meet the new requirements.

Similarly in the UK, financial regulators have published a consultation proposing new rules where cloud and technology providers would be subject to more robust disclosure requirements, including annual self-assessments and regular scenario testing of their ability to provide services during severe disruptions.

The consultation runs until 15 March with the Bank of England saying any framework should be interoperable with those in the US and EU.

THE RISE OF GENERATIVE AI

Generative AI exploded on the scene in financial markets early last year following the launch of OpenAI's ChatGPT. Although financial services firms are experimenting with AI tools internally and for clients, it is still early days for GenAI, with many firms spoken to by MarketVoice believing that starting small is the optimal road to take.

Use cases of GenAI put forward by financial firms include accelerating research and discovery and generating new insights, rapidly scaling the speed and quality of decision-making, improving risk management and compliance, enhancing fraud detection and prevention by providing a better and faster way to monitor traders' client communications, and delivering more data-led reporting and forecasting.

To be clear, certain types of artificial intelligence such as natural language processing and machine learning have been used by financial firms for years. Algorithmic trading, risk modeling and surveillance programs are obvious examples. But the big appeal of GenAI – and a differentiator from other AI tech – is its ability to generate new content based on the data that it has. Market participants say that GenAI, when combined with other AI technologies, has the potential to be a massive accelerator of productivity.

Speaking at the FIA Expo conference in October, Roger Burkhardt, capital markets chief technology officer at Broadridge, described generative AI as a "breakthrough in the power of AI".

"Similar to how in 1995 the World Wide Web provided us with superpowers in accessing data, generative AI provides superpowers in personal productivity and product development. We have taken the view as a firm that we want to learn by doing, but in a safe environment," Burkhardt said.

Last year Broadridge's subsidiary LTX launched BondGPT, an application powered by OpenAI GPT-4 that answers bond-related questions and helps traders find liquidity in the sparse world of the corporate bond market.

In the financial legal space, Allen & Overy is one of several law firms that has introduced GenAI-based platforms to their global practices to help

Market participants say that GenAI, when combined with other AI technologies, has the potential to be a massive accelerator of productivity.

lawyers generate and access legal content. While the output needs careful review, A&O says the platform helps to generate insights, recommendations and predictions based on large volumes of data, enabling lawyers to deliver faster solutions to clients.

Banks also have dived into GenAI as a way to overhaul working practices and potentially cut costs. Goldman Sachs, for example, is using an AI-based tool to automate the labor-intensive elements of coding, while Citigroup has used GenAI to analyze thousands of pages of new capital rules.

According to McKinsey's Global Institute Report published in December, banks using GenAI tools could potentially boost their earnings by as much as $340 billion annually through increased productivity.

While GenAI holds tremendous potential, it is also constrained by risks and limitations. Concerns have been raised by regulators around data privacy, hallucinations, biases and third-party risk, and the reliance on AI for decision-making raises questions about accountability and transparency in financial practices.

Financial regulators around the world are racing to understand, control, and guarantee the safety of the technology – all while preserving its potential benefits.

Nevertheless, financial participants believe the integration of GenAI technology has the potential to be a transformative, pivotal force. In the derivatives market, the power of AI to improve key functions, such as document review, research and analytics and collateral and risk management could bring enormous efficiencies and savings in the years to come.

FEATURE

THE PROMISE OF TOKENIZATION

OPENING THE DOOR TO FASTER TRANSACTIONS AND RISK MANAGEMENT

BY KATIE RAYMOND

The 2023 total volume of futures and options contracts traded in the global listed derivatives market surpassed 137 billion. That means approximately 34 billion contracts were traded per quarter, 11 billion per month, 2 billion per week, 376 million per day, 16 million per hour, 261,000 per minute and 4,300 per second. Constant trading is the nature of financial markets, but there have been signs that the current structure may be outdated and unable to keep up with the rapidly increasing level of trading volume in these markets. Tokenization may be just the thing to increase trading efficiency and reliability.

Tokenization has become quite the buzz word, especially in derivatives markets and clearinghouses. The tokenization of assets refers to the process of issuing a digital token that represents ownership in a real asset. The token is issued on a distributed ledger and the transfer of ownership is recorded on that ledger, similar to how bitcoin transactions are recorded on the bitcoin blockchain.

Tokenization was introduced back in 2017 as an alternative tool to track ownership and automate the transfer of securities, leading to more liquidity, transparency and accessibility.

For derivatives markets specifically, this could pave the way for greater efficiency, particularly in certain post-trade processes. For example, the industry currently relies on a complex web of interconnected systems to move collateral to meet margin calls from clearinghouses. Tokenization could allow cash and securities to be transferred instantaneously on a 24/7 basis, eliminating the risks that can arise over weekends and holidays.

There are many benefits to incorporating tokenization in global futures and options trading. According to a 2023 McKinsey & Company report, it would make around-the-clock operations, data availability and trading a reality. The top benefits include faster transaction processing and delivery, decreased operational and infrastructure costs, and greater accessibility and transparency on a massive scale. “Industry experts have forecasted up to $5 trillion in tokenized digital-securities trade volume by 2030.”

However, before the industry gets to that point, extensive research must be conducted and tested. Generally, getting tokenization on its feet means deciding how to tokenize each asset, creating a neutral secure storage facility for the physical component of the asset if applicable, setting up a digital wallet and ongoing maintenance. Addressing user dependency on centralized systems, lack of technological infrastructure to support and developing a strong trust with potential users stand to be the largest obstacles.

TOKENIZATION TRAILBLAZERS

So, who were the trailblazers in this technology? In 2019, three leading European exchanges explored potential applications in securities markets exchanges by buying equity stakes in start-ups with expertise in tokenization and digital asset development.

Deutsche Börse Group was the first to jump into tokenization. In August 2018 the German market infrastructure company acquired shares of HQLAx, a company based in London that was founded by Olly Benkert, a former managing director at Goldman Sachs, and Guido Stroemer, a former managing director at UBS. In contrast to the traditional settlement process, banks using the HQLAx platform did not move securities from one custody account to another. Instead, tokens were transferred via the blockchain while the securities remained in place. At the time, HQLAx predicted this would help improve the mobility of collateral across the fragmented securities settlement landscape in Europe. Deutsche Börse Group and HQLAx were just the first to research and test this new way of conducting transactions and collateral management within Europe.

The London Stock Exchange Group focused on securities issuance. In February 2019, LSEG was the lead investor in a $20 million funding round for Nivaura, a company based in London that was founded in 2016. According to Nivaura, its platform will make the process for issuing financial instruments much more efficient and less expensive than the current approach. Nivaura estimated it could reduce the amount of time required to bring financial instruments into the market by up to 80%. For LSEG, the investment offered potential strategic benefits. Reducing the cost of the issuance process made it easier to bring more financial products to market and led to more listings, turnover on LSEG's markets. It also gave LSEG a window into the tokenization process and a head-start on applying this innovation to other asset classes.

Euronext joined the push soon after and announced a €5 million investment in a startup called Tokeny Solutions. The Luxembourg-based company was founded in 2017 as a provider of end-to-end solutions that issue, manage, and transfer tokenized securities. One of the key features of its platform is that it integrates compliance obligations into the tokenization process so that participants can comply with securities laws.

Since 2019, many companies have joined this critical discussion. In May 2022, JP Morgan launched its Tokenized Collateral Network (TCN) using money market funds (MMFs) as collateral, a system that can be used for transactions in derivatives trading. The goal was to increase utility and mobility of financial assets using blockchain technology. The network was launched under Onyx Digital Assets, an asset tokenization platform that enables financial institutions, asset managers and fintechs to unlock untapped utility for their financial assets. Onyx was the first global bank to offer a blockchain-based platform for wholesale payments transactions, researching how to enhance the global movement of information and assets.

Following the launch, JP Morgan's managing director and head of blockchain launch and Onyx division Tyrone Lobban announced that the first asset class available on TCN was MMFs and that the platform was "live and open for business!" JP Morgan also confirmed that the first transaction using tokenized MMFs as collateral had successfully taken place.

FAST FORWARD

Fast forward to December 2023, Lobban and his team published a brief on "How Tokenization Can Fuel a $400 Billion Opportunity in Distributing Alternatives Investments to Individuals." The brief highlighted how tokenization can "streamline, automate, and simplify most stages of alternative investments and enhance liquidity and collateralization." This would expand the types of portfolios used in the alternatives industry, increasing investments and opportunity for additional revenue. This is just one example of how tokenization is making trading in different industries more accessible and how this tool has the power to enhance underutilized resources.

Leading institutions and high-profile industry leaders are voicing their intentions to invest in tokenization. BlackRock's CEO Larry Fink has even announced his plans to incorporate tokenized collateral. During a January CNBC interview after the launch of bitcoin ETFs in the US, Fink said, "We believe this is just the beginning. ETFs are step one in the technological revolution in the financial markets...Step two is going to be the tokenization of every financial asset."

EXPERTS SEE PROMISE FOR TOKENIZATION OF COLLATERAL

At FIA's Expo conference in Chicago in October, a diverse panel of experts discussed the technology outlook and the path to widespread adoption of tokenized collateral. Although the industry is a long way from a widespread embrace of this technology, panelists agreed market participants are still making steady progress and strategic investments in the future of this technology.

There are still many hurdles to adoption of tokenized collateral, especially in the US. Commissioner Caroline Pham of the Commodity Futures Trading Commission said she was "not so optimistic" about the pace of adoption in the US – not necessarily because of the promise of tokenization, but rather the "lack of legal certainty" in the space. "If we're leading with an enforcement-first approach over operational and technical issues, it's not a good regulatory environment" to foster innovation and investment, Pham said.

Helen Gordon, global head of clearing product development and strategy at JP Morgan, noted that her organization is working on proof of concepts including its work with Onyx. But she acknowledged that "proving you can move a low value tokenized asset in the real world is one thing, industrializing it is completely different."

Despite the challenges, tokenization holds a lot of promise for derivatives industry and markets. FIA Expo panelists made it clear that tokenization of collateral is seen by experts as a real solution to some of the inefficiencies in settlement processes and margining in derivatives markets.

> "Proving you can move a low value tokenized asset in the real world is one thing, industrializing it is completely different."
>
> HELEN GORDON, JP MORGAN

Kelly Mathieson, chief business development officer at software technology company Digital Asset, kicked off the panel by defining tokens as assets that "incorporate the workflow data or the lifecycle" of the asset as well. That makes tokenized assets not just more liquid, but also more transparent. "You can embed on that definition of that asset the eligibility criteria," Mathieson said. "The asset, digitally, can begin to let you know if it's a suitable or transferable form of collateral."

Mark Wendland, chief operating officer and partner at DRW Holdings, said his firm is exploring ways to use tokenized assets in Treasury repo markets to increase the return on its capital. But the end game for the industry is bigger than generating extra yield in this market, and rather, the "more efficient use of capital" across the board. "Tokenization has potential benefits from efficiency but also to credit risk management, operational risk management, settlement risk management, for the entire industry as a whole," he said.

While tokenization is still in the beginning stages, the introduction of this technology years ago sparked an important discussion on building a more valuable, accessible and transparent transaction system for all. Greater global accessibility could drive enhanced risk management or reduce the risk of time lost between transactions in derivatives markets. Proof that companies are preparing for the possibility of tokenization becoming a critical part of the industry lies in the significant expansions of digital assets teams that continue to be seen across the globe. MV

European Clearing: Big Shifts Ahead

BY BENNETT VOYLES

Market watchers expect dramatic changes in the European clearinghouse landscape over the next few years, including more competition for the clearing of interest rate swaps, a big operational migration at Euronext, and consolidation in energy derivatives clearing.

Perhaps the most dramatic change on the horizon is an anticipated mandate by European policymakers that will require market participants to shift some of their euro-denominated interest rate swaps to clearinghouses on the continent.

LCH Ltd, the London-based clearinghouse that is part of the London Stock Exchange Group, has been the leader in the clearing of interest rate swaps for more than two decades. Currently it has 95% of the Euro-denominated interest rate swaps market, according to Clarus Financial Technology, a data provider that tracks developments in swaps trading and clearing.

European Union policymakers have long argued that the European financial system faces a systemic risk by having such a high percentage cleared outside the euro zone. The key question is how to shift the balance – through a regulatory mandate or by relying on the forces of market competition.

European policymakers have opted for the former. They are close to finalizing a revised version of EMIR, the EU law that governs derivatives clearing. The new law includes a requirement that market participants keep a percentage of their interest rate swaps and futures in "active accounts" with a European central counterparty.

Several EU clearinghouses are eager to take advantage of this emerging opportunity, particularly Germany's Eurex, Sweden's Nasdaq Clearing and Spain's BME, a subsidiary of Switzerland's SIX.

Of these contenders, Eurex seems to be the best positioned to capture channel-hopping clients. Although it currently has only 5% of the euro swaps market, the Frankfurt clearinghouse is far ahead of the other continental CCPs in building out an offering and attracting inflows from clients, according to Clarus statistics.

It also has a potential advantage due to its strengths in other interest rate markets. Eurex is the dominant player in the European bond futures markets and touts its ability to offer more efficient margin requirements for portfolios that combine bond futures and interest rate swaps.

The exchange also has set its sights on the Euribor market, the most important short-term interest rate in the eurozone. That market is currently dominated by ICE Futures Europe, the London-based arm of Intercontinental Exchange, but Eurex is hoping to attract some of that business. In November it relaunched its Euribor futures in partnership with liquidity providers and clearing firms. If it can attract a significant share of that market, it will be able to offer a single clearing solution for a full set of derivatives based on European interest rates.

To strengthen its position, Eurex has brought in Robbert Booij as the next chief executive officer of its exchange. Booij,

who will join in July, comes from ABN AMRO, the Dutch bank, where he was the regional head of its derivatives trading and clearing business. Thomas Book, the executive at Deutsche Börse, the parent organization of Eurex, who oversees its trading and clearing businesses, commented that Booij's familiarity with clients makes him the "perfect candidate" to lead the exchange's efforts to grow its trading business.

Further north, Nasdaq Clearing is also making moves to attract more clients for its swaps clearing service by focusing on the needs of clients in the Nordic market. The Stockholm-headquartered clearinghouse has an existing business in clearing interest rate derivatives denominated in the Swedish kronor, and it is about to expand to include three other currencies: the euro, the Danish kronor, and the Norwegian kronor.

Further south, BME/SIX is also trying to expand its role. BME currently provides clearing for futures and options traded on its affiliate exchange MEFF as well as cash equities, repos, Swiss bonds and energy derivatives. The clearinghouse also offers clearing for interest rate swaps, forward rate agreements and overnight indexed swaps, and touts its service as an "attractive alternative" for complying with the active account requirements.

Customers are wary of a mandated solution, however, especially if it forces them to move a fixed percentage of their portfolios to a European clearinghouse. Pension funds in particular will be impacted. They tend to hold very large positions in swaps, and until recently they were exempt from clearing requirements.

Speaking at a recent conference on clearing organized by ECMI/CEPS, the Brussels think tank, Bas Zebregs, senior legal counsel at APG Asset Management, the Dutch pension fund, cautioned that working out the right percentage of trades to be moved may be difficult.

“How high is that percentage? That’s of course the key question. We can start with a very low number and hope that people will follow, but in the end, if we end up with a significant percentage, that's worrying to pension funds and other market participants,” Zebregs said.

Clearing firms take a similar perspective. As the intermediaries between the clearinghouses and clients, they warn that an active account requirement would make it more expensive for customers by fragmenting liquidity. LCH's SwapClear business in London offers clearing for swaps in 27 currencies, making it far more efficient for customers operating at a global level. Moving just the euro-denominated portion of a swaps portfolio to a different clearinghouse in Europe would divide the market and reduce the potential for margin offsets across currencies.

It would also create an additional burden for European clients and the clearing firms that need to maintain accounts at more than one clearinghouse. Firms based in the US or the UK will not be subject to the active account requirement. In contrast, European clients may be forced to move part of their swaps portfolio to an EU clearinghouse, while continuing to clear the bulk of their portfolio at LCH.

Gilbert Sintès, head of European ETD and OTC clearing at Spain's Grupo Santander, welcomes having more choices for swaps clearing on the continent, especially for small and medium-sized firms. He cautions, however, that the mandated approach, with its minimum threshold of trades that must be cleared in the EU, could put European firms at a "serious competitive disadvantage."

> As a market structure, [Euronext Clearing] helps make credible competition. The challenge is the ambitious timeline versus the nimbleness of the industry.
>
> **PER HAGA, BARCLAYS**

WHAT'S NEXT FOR EURONEXT

Another important change ahead for European clearinghouses is the change in strategy at Euronext. The Paris-based exchange operator has long relied on a third party, LCH SA, the French clearinghouse owned by LSEG, to provide central clearing for the trades executed on its exchanges. That changed when Euronext bought Borsa Italiana, which owned its own clearinghouse, Cassa di Compensazione e Garanzia. Euronext's chief executive, Stephane Boujnah, saw the opportunity to bring clearing inhouse by withdrawing from LCH SA and transforming CC&G into Euronext Clearing.

Clearing firms agree that it's a good move for Euronext in terms of its business strategy but worry about the timetable for the transition. The exchange plans to move its futures and options contracts this summer, and a lot of work will be required to ensure that operations move smoothly from day one.

"From a high level, it makes sense," says Per Haga, global head of product for prime derivatives services at Barclays. "As a market structure, it helps make credible competition. The challenge is the ambitious timeline versus the nimbleness of the industry to move alongside that."

Euronext also has embarked on a closely related project – a change in its margin risk calculation process from SPAN (Standard Portfolio Analysis of Risk) to VaR (Value at Risk). The VaR methodology is more sophisticated in how it measures risks, and several other major clearinghouses are making similar transitions. It does require clearing firms and clients to change the way they calculate margin, however.

According to Haga, the key thing to watch is the testing of the new CCP before its projected launch this summer. Typically this process involves connecting all member firms and going through all phases of the clearing cycle, including options expirations and physical deliveries. Although CC&G has plenty of experience with the derivatives traded in the Italian market, the new contracts that are being added – including several commodity futures – have certain features that are new to CC&G. "Testing is extremely important," he says.

CONSOLIDATION IN COMMODITIES

Another key event this year in European derivatives will be the integration of Nasdaq's power derivatives trading and clearing business into the European Energy Exchange, a Deutsche Börse unit based in Leipzig. EEX's acquisition of Nasdaq Power will leave European energy trading dominated by two clearinghouses – the ICE-owned Endex in the Netherlands for gas and EEX in Leipzig for electricity.

The transaction has not been approved yet, however, pending review by the EU's competition authorities. Four countries have raised concerns about potential anti-competitive effects and have asked the European Commission to review the deal, according to a European Commission press release.

For EEX, the move will give it greater reach in the European power markets. Once the transaction is approved, Nasdaq will transfer open positions in its Nordic, French, and German power futures as well as European carbon emission allowance futures to EEX's clearinghouse, European Commodity Clearing. And in the meantime, EEX has introduced "zonal futures" to the Nordic market. These futures correspond to smaller coverage areas within the Nordic power system, rather than as differentials to a system-wide price. EEX says this approach is in place in many other European power markets and will give market participants better hedging and trading opportunities. MV

FEATURE

A Lasting Legacy

Meet the 2024 class of the FIA Hall of Fame

MORE ONLINE
For more on the **2024 inductees** or to view the full list of FIA Hall of Fame members, **visit FIA.org/hall-of-fame**

The newest members of the FIA Hall of Fame helped shape and improve the global derivatives markets

The FIA Hall of Fame celebrates individuals in the listed and cleared derivatives industry who have made key contributions to our markets during their careers. FIA established the Hall of Fame in 2005 to commemorate the association's 50th anniversary and to celebrate the men and women who have contributed their time, talent, and passion to building and developing our industry.

Inductees come from both the private and public sectors and are chosen by a distinguished panel comprised of existing FIA Hall of Fame members and global industry executives. This year, FIA has announced the induction of 12 new members to the FIA Hall of Fame.

These individuals join 190 other honorees in the Hall of Fame and were selected based on their lifetime contributions to our industry with a focus on demonstrated leadership, innovative and impactful achievement, break-through accomplishment, industry collaboration, volunteerism and dedication.

Inductees reflect the diverse and inclusive nature of our industry with unique backgrounds and experiences. One thing that unites them all, however, is a passionate determination to build strong, healthy, safe, and competitive markets.

"We established the FIA Hall of Fame to recognize the people who have made exceptional contributions to the growth and development of the futures, options and listed derivatives industry," said President and CEO of FIA Walt Lukken. "This year's inductees represent business leaders, policymakers, and visionaries who have provided the leadership and support necessary to keep our industry growing. We are honored to present them with this recognition."

CHARLES CAREY

Charles Carey is a long-time member of the Chicago Board of Trade and played a central role in the exchange's conversion into a publicly traded company and subsequent merger with the Chicago Mercantile Exchange. He began trading grain futures on the CBOT floor in 1978 and a few years later he met another trader named Terry Duffy on the floor of the Chicago Mercantile Exchange. That led to a friendship that would play an important role in the transformation of the global futures industry. In 2003 Carey was elected chairman of the CBOT, and two years later he led the restructuring that converted it from a member-run exchange into a for-profit company with shares listed on the New York Stock Exchange. That paved the way for the landmark merger of the CBOT and the CME that he negotiated with Duffy in 2007.

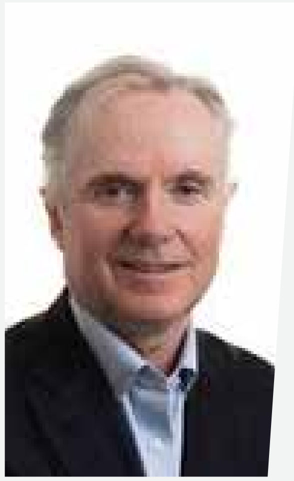
TIMOTHY DOAR

Timothy Doar retired in 2014 after more than three decades working in the industry. He started his career at the clearinghouse division of CME in 1978. From 1982 to 1992, he ran back-office operations for several clearing firms and traded as a local on the CME trading floor. He then moved back to CME and played a key role in developing its financial safeguards and its approach to risk management. Doar was also responsible for the operational projects necessary to establish clearing services for the Chicago Board of Trade, and for the integration of NYMEX and COMEX into CME Clearing's systems and financial safeguards.

DE'ANA DOW

De'Ana Dow has long been recognized for her expertise in policy issues related to the futures industry as well as practical experience in market regulation. Dow began her legal career at the Commodity Futures Trading Commission where she held a number of senior roles over 22 years, including supervisor in the Division of Trading and Markets, counsel to Chairman William Rainer, and special advisor to Chairman James Newsome. She subsequently served as chief legislative counsel for the New York Mercantile Exchange and managing director for government affairs at CME Group. She also spent time at the self-regulatory arm of the National Association of Securities Dealers, now known as FINRA, where she developed its futures market regulatory program. She is currently a partner and general counsel at Capitol Counsel, a government relations firm based in Washington. She is also the founder and chair of Financial Services Professionals, an organization of Black Americans in the financial services industry.

NICK FORGAN



Nick Forgan has spent more than 35 years in the futures and options industry including 32 years at JPMorgan where he held leadership positions in Sydney, Singapore and London. He began his career as a pit trader on the Sydney Futures Exchange in September 1987, a month before the famed "Black Monday" crash. In 1991 he joined JPMorgan, and in 1996, he moved to Singapore for what he thought would be "just a stint". That stint would last 18 years, during which time he was appointed CEO of JPMorgan Securities Singapore with responsibility for futures and options in the region. JPMorgan was one of the first international firms to provide access to the major futures exchanges in China and Forgan was instrumental in building a successful joint venture in the country, now a wholly owned JPMorgan entity. In 2014, Forgan moved to London where he was given responsibility for the European derivatives clearing business.

JAMES HEINZ, JR.

James Heinz, Jr. is one of the two founders of Marquette Partners, one of the first firms to see the potential in electronic markets for futures and options. His journey began in 1978 when he became one of the original Treasury bond permit holders at the Chicago Board of Trade. By 1981, he had become a full CBOT member. He also started experimenting with technology, using Apple IIe computers in 1984 for data analysis. This small step was the beginning of his journey in integrating technology with traditional trading. From 1986 to 1990, Heinz played a crucial role as a market maker during CBOT's night trading session, aligning with the Asian market open. In 1990, Heinz and his college friend Robert Moore co-founded Marquette Partners. Initially a small arbitrage desk in Chicago, it rapidly expanded into a global liquidity provider with offices in major cities including London, Paris, Frankfurt, and Milan.

ROBERT MOORE

With a career in the futures industry that spans more than four decades, Robert Moore has made substantial contributions to the industry, leaving an indelible mark on the Chicago financial landscape. Moore's journey in the futures market began in 1980 when he entered the Chicago Board of Trade bond pit and became a member of CBOT a year later. In a short span, he emerged as a preeminent market maker in US Treasury bond futures. In 1990, Moore founded Marquette Partners with James Heinz. Throughout his career, Moore has actively participated in industry boards and committees, emphasizing integrity and professionalism. This included serving on the CBOT Executive Committee on Competitive Stance and Ethics Committees, and contributing to the CBOT Business Conduct Committee in upholding ethical standards and fair practices. Currently, Moore serves on the Advisory Board of Praxis Opportunity Fund.

JOHN LOTHIAN

John Lothian is a Chicago-based journalist and financial media entrepreneur. He is a former futures broker, trader, Commodity Trading Advisor and early adopter of electronic trading. As the founder in 2000 of the John Lothian Newsletter and publisher of John Lothian News, he pioneered blogging in the futures industry, where his newsletter has become a must-read among financial markets industry executives and professionals globally. He is the co-founder of MarketsWiki and MarketsWiki Education, which features videos and markets-related educational material freely available to the public. He also created the JLN MarketsWiki Education World of Opportunity lecture series to ignite a passion for the derivatives and capital markets among a new generation of industry participants and professionals. Lothian started his career during the inception of the global futures industry, gaining a zeal for journalism, free markets and market innovation while working for dynamic leaders in the Chicago futures community.

WILLIAM MALLERS, SR.

Bill Mallers left an enduring mark on the futures industry with his pioneering vision and exceptional leadership. In 1969, he made history by becoming the youngest chair ever elected at the Chicago Board of Trade at just 39 years old. Before founding First American Discount Corporation, one of the earliest discount retail futures brokerage firms, Mallers served as president of Chicago-based brokerage firm, Hennessy & Associates. Mallers' legacy is intertwined with momentous milestones in the futures industry. He played a pivotal role in founding the Chicago Board Options Exchange, which revolutionized options trading. His contributions extended to the establishment of the National Futures Association, transforming regulatory oversight of the futures markets. He also significantly contributed to the expansion of the CBOT Building, enabling the growth of financial futures and options products. Mallers passed away in 2006, at the age of 77, leaving behind a legacy as a visionary leader and pioneer in Chicago's financial markets.

JOHN MUNRO

John Munro has been an active member of FIA, addressing technical issues such as the FIXML standard for futures trade messaging, the conversion methodology for positions in the euro currency conversion, and industry testing for Y2K date logic functionality. Munro's affinity for software development led to the co-founding of Brokerage Systems, Inc, with John Euler in 1980 to build the TRACS clearing and accounting system. This software package gave its users control of their vital trade data and the ability to modify it and integrate it with other applications. Three generations of this system were developed over the years to provide for the growing complexity of the futures industry. After more than 40 years of working in the industry, Munro retired from ION Trading in 2016.

LESLIE SUTPHEN

Leslie Sutphen is president of Financial Markets Consulting, a firm she founded in 1998. She is also co-founder of Women in Listed Derivatives, a networking group that includes more than 1000 women globally. Over the past 25 years, Sutphen has been involved in numerous roles in the futures industry including head of electronic trading at Newedge (now Société Générale) and head of strategy at Chopper Trading (now part of DRW Trading.)

During her career, Sutphen was involved in many industry-wide efforts to draft best practices for the electronic trading of listed derivatives. She also worked with the Commodity Futures Trading Commission and FIA on several projects where her technical expertise proved invaluable, including an effort to streamline Ownership and Control reporting and a survey of the top 20 FCMs on trends in clearing and trade processing.

PAT WHITE

Pat White is an economist whose work has focused on financial market regulatory policy with an emphasis on derivative instruments. Her work with derivatives markets began with the 1987 stock market crash. As the Federal Reserve's representative on the US government's Interagency Working Group on Financial Markets, she helped formulate policies to improve the functioning of trading and clearing systems.

During her 32 years working at the Fed, she conducted policy analysis and research in many areas, including the emergence of new types of derivatives and changes to margin regulations and procedures. White also represented the Fed on international groups that crafted guidance for clearing and settlement arrangements. Following her retirement from the Federal Reserve Board, White served as a public director for FIA until 2016. She currently is a public director for the Options Clearing Corporation.

JACK WIGGLESWORTH

Jack Wigglesworth is well known for his role as a founder and former chairman of the LIFFE exchange. His career in the financial sector began at Phillips & Drew in London, where he served as a bond desk economist and salesman. He then became a partner at W. Greenwell & Company, a leading City stockbroker and specialist in UK government bonds. In addition to his work at LIFFE, Wigglesworth held roles at JP Morgan, ABN AMRO Chicago, and various regulatory and professional bodies. His leadership is marked by a focus on philanthropy and enhancing trade-specific standards and professionalism. His career also includes notable charitable work, such as leading the Hackney Education Action Zone, an inner-city education authority.

US Treasury Futures Lead Resurgent Interest Rate Complex

Open interest climbs to record high amid rate uncertainty

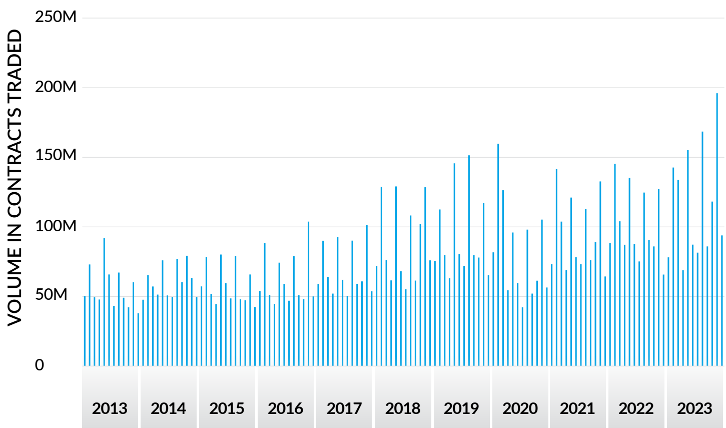
BY JEFF REEVES AND KATIE RAYMOND

A dynamic interest rate environment has revitalized trading activity in interest rate futures and options, most notably in contracts linked to US Treasuries.

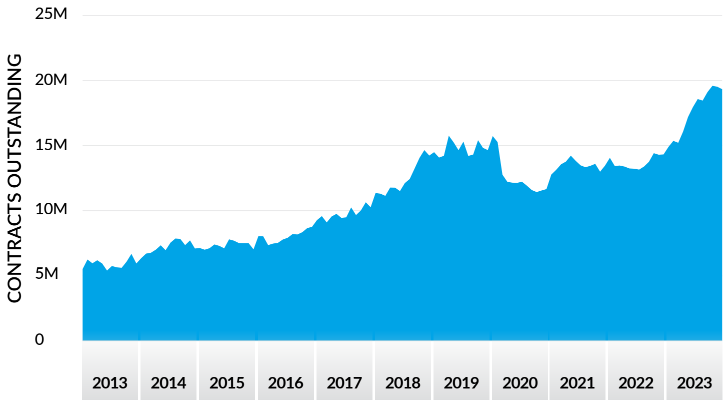
Total volume across all Treasury futures hit a record of 168 million contracts in August 2023, and then set another record of 196 million contracts in November.

Total volume in Treasury futures reached 1.4 billion contracts in 2023, a 16% increase from the previous year and a 42% increase from 2020.

US Treasury Futures - Monthly Volume



US Treasury Futures - End-Of-Month Open Interest



TREASURY FUTURES OPEN INTEREST HITS RECORD 21.4 MILLION CONTRACTS IN NOVEMBER

Trading volume isn't the only metric on the rise, however. Open interest, which measures the number of outstanding contracts, has been rising steadily since the fall of 2022 and has been breaking records since May. As of the end of October, open interest for all Treasury futures listed on CME stood at 19.6 million contracts, the highest month-end level ever.

"Throughout 2023, we have seen record volume and open interest in our US Treasury futures, which offer market participants the most efficient and liquid products to hedge risk across the yield curve," Agha Mirza, CME Group's global head of rates and OTC products, said in a statement issued at the end of November, shortly after the exchange reported an all-time record of 21.4 million Treasury futures in open interest.

All three of the main Treasury futures contracts – specifically, the contracts tied to 2-year, 5-year and 10-year notes – have seen strong growth in open interest this year. However, the 2-year contract is in a class by itself. Open interest as of the end of 2023 was 29% higher than at the end of 2022.

MANAGING UNCERTAINTY

One of the main reasons for the surge in trading activity and position taking was the uncertainty about the long-term outlook for interest rates. In March 2022, the US Federal Reserve made the first of eight interest rate increases to reduce inflation. That prompted regional banks, mortgage lenders, asset managers, hedge funds and many others to load up on Treasury futures, either to limit their exposure to interest rate risk or to adjust their investment portfolios. More recently, the Fed has indicated that the next move will be to start reducing rates, but the timing will depend on economic conditions. In such an environment of uncertainty, interest rate futures are in high demand.

In an October presentation to investors in CME stock, Terry Duffy, the company's chief executive, highlighted the importance of futures as tools for risk management.

"With so much uncertainty in the world we live in, we're continuing to work closely with our clients to help them navigate uncertainty and manage their risks...Regardless of whether rates rise, fall or hold steady, the shape of the yield curve and interest rate views continue to shift, and our customers need to manage that risk," said Duffy. MV

Bitcoin ETFs boost interest in US bitcoin futures

CME continues to be the dominant US trading venue for bitcoin futures, but Coinbase gains in retail sector

BY KATIE RAYMOND AND WILL ACWORTH

Despite the challenges of "crypto winter," bitcoin futures markets in the US are still experiencing growth, according to an FIA data analysis. And recent moves in Washington could pave the way for further growth in 2024.

On 10 January 2024, the Securities and Exchange Commission officially approved several applications to create exchange-traded funds that hold bitcoin. Although the SEC previously had allowed ETFs based on bitcoin futures, the new round of approvals is expected to increase retail access to bitcoin.

VOLUME AND OPEN INTEREST

						Measured by Number of Contracts				Measured by Quantity of the Underlying Asset	
Exchange	**Type**	**Contract**	**Location**	**Asset**	**Size**	Jan-Dec 2023 Volume	YoY Change	Dec 2023 OI	YoY Change	2023 YTD	Dec 2023 OI
CME	Future	Bitcoin	USA	bitcoin	5	2,802,721	4.0%	22,691	43.7%	14,013,605	113,455
FairX	Future	Bitcoin Nano	USA	bitcoin	0.01	27,993,640	138.1%	21,132	145.5%	279,936	211
CME	Future	Micro Bitcoin	USA	bitcoin	0.1	2,574,752	-30.1%	17,437	51.0%	257,475	1,744
ICE Singapore	Future	Bakkt Bitcoin (USD) Monthly	Singapore	bitcoin	1	221,131	-32.2%	6	-96.9%	221,131	6
FairX	Future	Bitcoin	USA	bitcoin	1	146,710	N/A	104	N/A	146,710	104
Eurex	Future	FTSE Bitcoin (USD) Index (FBTU)	Germany	bitcoin	1	66,509	N/A	9	N/A	66,509	9
APEX	Future	Bitcoin	Singapore	bitcoin	0.05	943,008	26.9%	1,064	-61.5%	47,150	53
APEX	Future	Bitcoin Perpetual	Singapore	bitcoin	0.05	606,007	-13.4%	708	-71.4%	30,300	35
Eurex	Future	FTSE Bitcoin (EUR) Index (FBTE)	Germany	bitcoin	1	2,044	N/A	1	N/A	2,044	1
Bitnomial	Future	Bitcoin US Dollar	USA	bitcoin	1	1,169	63.7%	157	3825.0%	1,169	157
FTX	Future	cBitcoin Day Ahead Swap	USA	bitcoin	0.01	93,306	-74.2%	53	-81.9%	933	1
ICE US	Future	Bakkt Bitcoin (USD) Monthly	USA	bitcoin	1	554	-97.0%	-	-100.0%	554	-
MATba ROFEX	Future	Bitcoin	Argentina	bitcoin	0.1	3,798	N/A	188	N/A	380	19
Eurex	Future	Bitcoin ETN (FBTX)	Germany	bitcoin	1	302	-92.3%	-	-100.0%	302	-
Bitnomial	Future	Bitcoin US Dollar Deci	USA	bitcoin	0.1	1,170	154.3%	-	-100.0%	117	-
FTX	Future	cBitcoin	USA	bitcoin	0.1	290	-94.3%	-	-100.0%	29	-
Cboe Digital	Future	Bounded Bitcoin	USA	bitcoin	0.1	-	-100.0%	-	N/A	-	-

Global Volume in Bitcoin Futures Listed on Regulated Futures Exchanges Worldwide. Volume calculated as the number of contracts traded in 2023 multiplied by the underlying size of the contract.

The approvals also signal greater institutional engagement with bitcoin. The new ETFs are sponsored by some of the largest asset managers in the US, including BlackRock and Fidelity. In a January interview with CNBC, BlackRock CEO Larry Fink said, "We believe this is just the beginning. ETFs are step one in the technological revolution in the financial markets."

CME DOMINATES TRADING IN US BITCOIN FUTURES

There are six regulated futures exchanges in the US that offer futures on bitcoin, but making comparisons is challenging due to the huge range in contract sizes. Some exchanges are hoping to appeal to retail investors by offering extremely small contracts. For example, the "nano" futures on FairX are based on 1/100th of a bitcoin. That is 500 times smaller than the institutional-sized futures trading on CME.

FIA's data analysis therefore measures volume based on the amount of bitcoin underlying the trading, rather than the number of contracts traded. On that basis, CME emerges as the dominant trading platform, with more than 90% of the futures volume and 98% of the futures open interest.

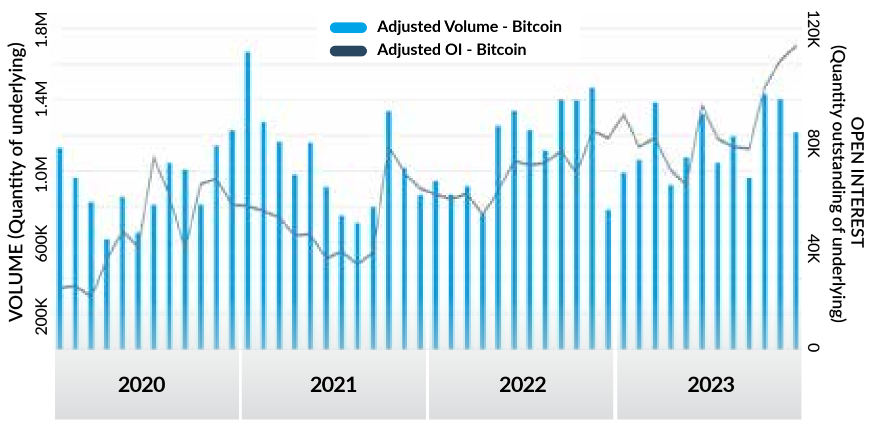
CME Group was among the first to join the crypto game and received regulatory approval to list futures on bitcoin in 2017. Its main futures contract, which is based on five bitcoin, has proven to be popular with financial institutions that use the futures as an efficient and reliable way to manage risks in OTC brokering, market making and proprietary trading in crypto markets worldwide.

COINBASE LEVERAGES FAIRX ACQUISITION

Meanwhile, on the retail side of the market, Coinbase is making an impact. Coinbase is one of the leading trading venues for cryptocurrencies in the US. In January 2022, it bought a small futures exchange called FairX. A few months later it listed its first bitcoin futures, the nano contract based on 1/100th of a bitcoin. Since the launch in June 2022, volume in its nano contract is up 145%, and after adjusting for size, the contract has the same amount of volume as CME's micro bitcoin futures.

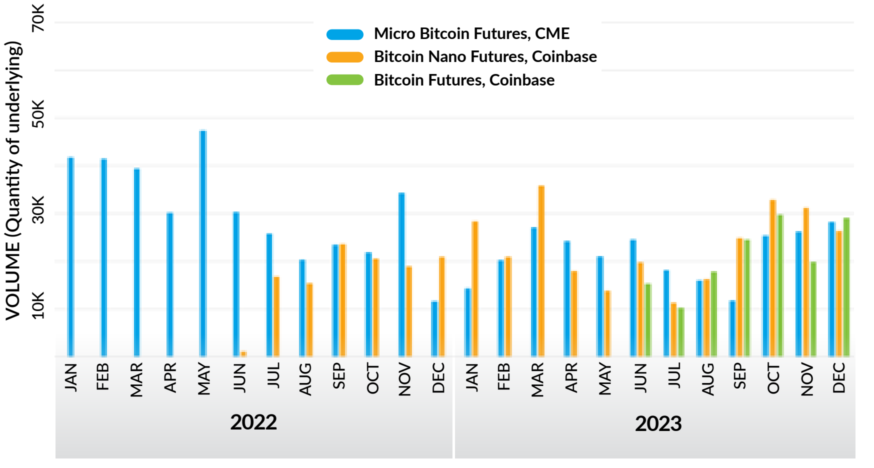
The exchange, now known as the Coinbase Derivatives Exchange, introduced a larger bitcoin futures contract in June 2023, sized at 1 bitcoin, which puts it in between CME's micro (sized at 0.1 bitcoin) and CME's original contract (5 bitcoin). After adjusting for size and measuring only since the two have been listed side by side, the newer FairX contract has roughly the same amount of volume as the CME micro contract. MV

CME Bitcoin Futures - Volume and Open Interest



Competition in Retail

COINBASE'S NANO BITCOIN FUTURES ARE MATCHING CME'S MICRO BITCOIN FUTURES IN TERMS OF TRADING VOLUME



FIA Survey Shows Search for Efficiency Top of Mind for Derivatives Industry

The search for greater capital and operational efficiency is one of the top areas of focus for the derivatives industry, according to a recent survey of industry professionals conducted by FIA and Coalition Greenwich.

That theme was echoed across all segments of the industry, including asset managers, hedge funds and other users of derivatives as well as clearing firms, exchanges and technology vendors. When asked what are the top issues facing the industry, all segments flagged capital requirements as the top issue, and many highlighted improvements in margin calculations and collateral management as key to further growth in the industry.

Following the financial crisis of 2008, banking supervisors worldwide increased the amount of capital that banks must hold for their trading businesses. This has impacted their ability to act as liquidity providers in derivatives markets as well as their ability to offer clearing services to their clients. US banking supervisors are now considering another round of increases in capital requirements, leading to increased concerns among clearing firms and end-users.

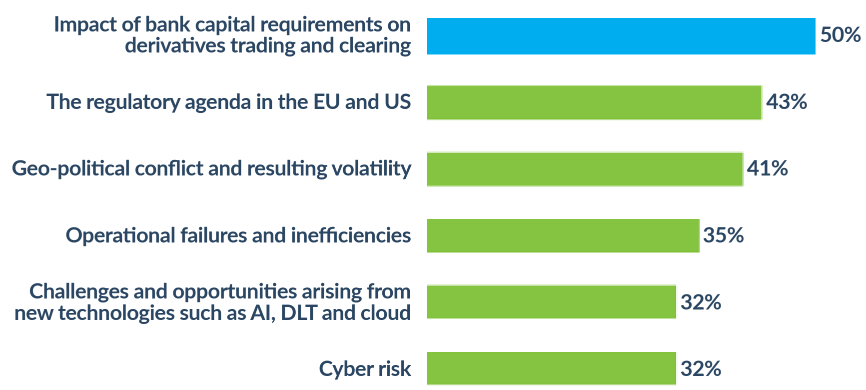
The focus on operational efficiency comes from a different source. When asked which parts of the trading and clearing workflow have the greatest need for modernization, the respondents pointed mainly to back office and middle office functions. Although trade processing is already highly automated, the respondents pointed to certain areas where improvements would lead to greater efficiency. Clearing firms, executing brokers and other intermediaries put allocations and give-ups near the top of their list, while end-users flagged collateral management and sourcing liquidity as areas in high need for modernization.

Looking out on the horizon, the survey asked what new operational or technological advances has the greatest potential to be a "game changer" for the trading and clearing workflow. Although a considerable number pointed to the adoption of GenAI, the next wave of artificial intelligence, the majority pointed to two other directions – the use of tokenization in collateral management and the development and adoption of global operational standards.

Tokenization, which refers to the conversion of cash or securities into digital tokens, has only just begun to be deployed in the financial services industry, but many believe that one of the best use cases will be in collateral management. Since the spike in market volatility in 2020, margin requirements on cleared derivatives have increased dramatically, and if some portion of the collateral can be transformed into tokens and moved more efficiently, the potential savings could be enormous. Among the survey respondents, it was the end-users who said they see tokenization as having the greatest potential to be a game changer.

The development and adoption of global operational standards points again to

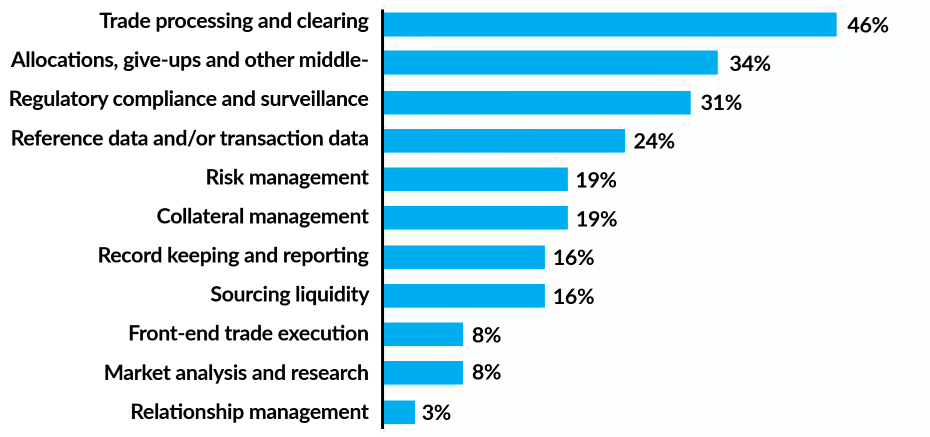
Top issues facing the derivatives industry:



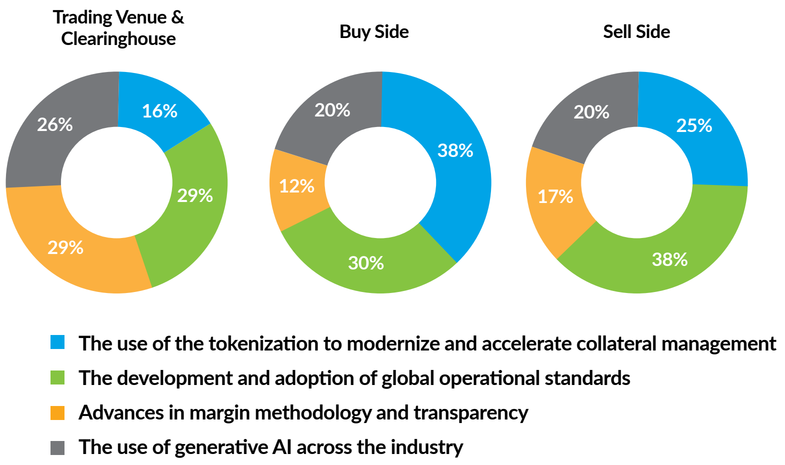
the importance of efficient processing of trades for this industry. In fact, when end-users were asked what is the strongest incentive to use central clearing, efficiency came out as the number one incentive, ahead of risk management, reduced margins, and transparency. The processing of trades involves a complex ecosystem of exchanges, intermediaries and technology vendors, and the process can bog down when firms are using different product codes, operational processes and messaging protocols. Moving towards greater standardization would speed up the process and give the industry more capacity to handle spikes in trading volume. Among the survey respondents, clearing firms and other intermediaries chose operational standardization as having the most potential to be a game changer for their work flow, and many flagged it as a top priority in their relationships with clearinghouses.

Regulatory change and geopolitical conflict are also among the top issues facing the industry, according to the survey. The respondents flagged the regulatory agenda in the US and Europe as the second most important issue facing the industry, and the potential for geopolitical conflict to cause market volatility as the third. Cyber risk also ranked among the top issues, especially among intermediaries and market infrastructure providers that were affected by recent ransomware attacks such as the ones involving the derivatives processing business of ION Group and the US bond trading arm of the Industrial and Commercial Bank of China.

Which part of the trading and clearing lifecycle has the greatest need for modernization and innovation?



Which of the following has the greatest potential to be a "game changer" for the trading and clearing workflow?



Survey Methodology

The survey was conducted by Coalition Greenwich during the month of December. The survey was conducted on a confidential basis, and the names and company affiliations of the respondents were not disclosed. More than 200 people responded, with roughly half in the US and one quarter each in Europe and APAC. Eighty seven respondents work at clearing firms, executing brokers and other intermediaries. Fifty respondents work at asset managers, hedge funds, pension funds, insurance companies and other firms that use derivatives for risk management or investment purposes. Seventy three respondents work in other segments of the industry, primarily infrastructure providers such as exchanges and clearinghouses and service providers such as tech vendors.

DMIST - Addressing Operational Inefficiencies to Reduce Risk

The Derivatives Market Institute for Standards (DMIST), established by FIA in 2022, addresses operational efficiencies that have plagued the exchange-traded derivatives industry for decades. More than 360 representatives from DMIST member firms have provided subject matter expertise to support the publication and adoption of DMIST standards initiatives.

In less than a year of operation, DMIST published its first standard for give ups and allocations and a consultation paper on average pricing; began work to propose a standard for a universal order identifier; and started the process of identifying the next inefficiency that would benefit from an industry standard.

"All these initiatives have significant benefits for market participants, most notably they help reduce risk by making these markets more efficient and resilient," said Samina Anwar, Derivatives Operations Director, Cargill and chair of the DMIST Sponsor Board. "The more operational efficiency we can achieve, the more commercial hedgers and fund managers will be able to rely on these markets to manage risk."

DMIST STANDARD FOR IMPROVING TIMELINESS OF TRADE GIVE-UPS AND ALLOCATIONS

This standard, also known as 30/30/30, was approved in June. It is designed to improve the delivery and processing of give up and allocation instructions by establishing four 30-minute timeframes for completing steps in the allocation process. It defines start and stop points for the 30-minute clock from the time:

- The order is executed until it is confirmed electronically to the client;
- The executing broker confirms the completed order to the client until allocation instructions are sent by the client to both the executing and clearing broker;
- The executing broker receives the allocation instructions from the client until allocation instructions are submitted to the clearinghouse; and
- The allocated trades are visible in the clearinghouse (CCP) system until allocated trades are accepted and booked into the end-client accounts.

A Working Group was established to support adoption of the standard, identify roadblocks, and consider metrics that could be used to measure progress.

CONSULTATION PAPER ON STANDARD FOR AVERAGE PRICING

Lack of consistent average pricing functionality across CCPs globally impacts the timeliness of give-ups and allocations and can require manual intervention and prevent trades from being processed on Trade Day. The Average Pricing Working Group is considering the comments received during the consultation process to present a final standard to the Sponsor Board.

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Learn more about DMIST membership: **dmist-standards.org**

UNIVERSAL ORDER IDENTIFIER

The DMIST Technical Working Group is identifying areas where consistent data and information is required to improve efficiency. A significant pain point is the lack of an order identifier that persists from order entry through settlement. The order ID would give market participants the ability to track the progress of their order through execution and clearing. It would facilitate the timely matching and allocation of orders to the underlying end client account, resulting in a decrease in the number of trades processed on T+1.

DMIST STRATEGIC BLUEPRINT

The DMIST Strategic Blueprint addresses both in-flight and future standards development. DMIST members are working together to identify other inefficiencies at various points in the trade flow and consult with market participants to prioritize future standards that DMIST should address. The Blueprint also calls for further engagement with key external organizations that include stakeholders active in ETD markets.

"Partnerships with external organizations are key to the successful adoption of DMIST standards," said Don Byron, FIA Head of Global Operations and Execution. "We will continue to engage other associations and standards bodies to invite them to join us in achieving greater efficiency in the exchange-traded derivatives markets."

Others topics under discussion include: client onboarding; order entry and execution; allocation and clearing; reporting; matching and reconciliation; margin and collateral; brokerage, commission and fee processing; position management and lifecycle events. MW

FROM SEMICONDUCTORS TO FLEXIBLE CONTRACTS, TAIFEX FURTHERS ITS PRODUCT NICHES

The Taiwan Futures Exchange (TAIFEX) closed out 2023 with a total of 324,644,847 contracts, averaging a daily volume of 1,358,347 contracts, marking the fourth consecutive year of over 300 million contracts traded. Over the years, TAIFEX has expanded its portfolio of futures and options, covering equities, equity indices, commodities and FX. Listings of futures based on tech indices, such as Electronics Sector Futures (TE), Nasdaq-100 Futures (UNF) and Taiwan Semiconductor 30 Futures (SOF) has positioned the exchange as one of the world's premier venues for hedging global electronic supply chains. This is especially true for the semiconductor sector, a dynamic force propelling evolution in technology, communications, energy, healthcare, and more.

In December, TAIFEX further partnered with CME Group and Nasdaq to launch TAIFEX PHLX Semiconductor Sector Futures (SXF), offering investors a sophisticated tool to tap into the expansive semiconductor supply chain. The SXF contract, cash-settled and denominated in New Taiwan Dollars (TWD), enables investors to capitalize on industry price movements and volatility triggered by demand-supply shocks, earnings announcements, mergers and acquisitions, and other events. SXF has received certification from the US Commodity Futures Trading Commission (CFTC), allowing eligible brokers to offer and sell to US participants.

The PHLX Semiconductor Sector™ Index, upon which the SXF contract is based, stands as one of the most renowned and widely tracked indices in the technology sector. The index covers companies along the entire industry spectrum, from leading global semiconductor firms listed in the US, including Nvidia, AMD, Micron, ASML, and Intel, to other crucial players across the globe. The index reflects the industry's innovation, competitiveness, and the challenges and opportunities it faces in the global market.

TAIFEX's clustering of tech and semiconductor trading tools - including TE, UNF, SOF, and single stock futures on globally renowned tech companies such as TSMC and UMC - creates synergy, empowering traders to implement various strategies based on industry trends and investment themes. Notably, the new SXF contract complements TAIFEX's two domestic equity index futures contracts, TE and SOF. TE tracks Taiwan's Electronics Sector Index, covering over 60% of the country's stock market trading value, while SOF is based on the TIP Taiwan Semiconductor Total Market Select 30 Index, comprising the top 30 semiconductor companies listed on the Taiwan Stock Exchange and the Taipei Exchange ranked by market capitalization. Also, single stock futures are available for the majority of SOF's constituent stocks.

TAIFEX has also seen ample liquidity in its night trading session, now accounting for a substantial 30 percent of the exchange's total volume, opening up opportunities for its market participants. Responding to this demand, the exchange recently extended trading hours for both standard and mini-sized TSMC stock futures and incorporated them into its after-hours session on January 22, 2024. This extension addresses the risk management needs for local participants when trading TSMC ADRs listed in the US market.

In 2024, TAIFEX is poised to introduce new innovations to the Taiwan futures market. On the platform designed for trading flexible contracts, the exchange is set to list the first flexible contracts for Mini-TAIEX Futures (MXFFX), one of its core products, and later will expand to flagship options contracts. Flexible contracts enable traders to customize contract specifications such as expiration dates for up to one year, as well as strike prices, accommodating their trading strategies and precisely managing portfolios. MXFFX has also received certification from the US CFTC.

From the launch of PHLX Semiconductor Sector Futures to the extension of trading hours for TSMC stock futures and the introduction of Mini-TAIEX Flexible Futures, TAIFEX signals its dedication to scalability, cross-border collaboration and flexibility, ensuring it remains at the forefront of shaping the future of Taiwan's futures market. TAIFEX continues its commitment to provide a fair, transparent, and efficient marketplace for traders in the ever-evolving landscape of global futures trading.

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