

April 2019

WFE IOMA 2018 Derivatives Report



2018 Derivatives Market Survey

1	METHODOLOGY	3
2	2018 IOMA SURVEY HIGHLIGHTS.....	4
3	MARKET OVERVIEW	5
4	The global exchange traded derivatives market.....	7
4.1	Volume activity	7
4.2	Asset breakdown	8
5	Equity derivatives	11
5.1	Single Stock Options	11
5.2	Single Stock Futures	13
5.3	Stock Index Options	15
5.4	Stock Index Futures.....	17
6	ETF Derivatives	19
7	Interest rate derivatives.....	21
7.1	STIR Options and Futures	22
7.2	LTIR Options and Futures	24
8	Currency derivatives	26
9	Commodity derivatives	29
9.1	Granular commodity derivatives data	32
10	Other options & Futures.....	35
11	Annex 1 – Trading Statistics.....	36
12	Annex 2 - List of exchanges that have contributed to the report.....	36
13	Annex 3 – Product level data tables.....	37
14	Annex 4 – Granular commodity derivatives data.....	50

While every effort has been made to ensure that the information in this survey is accurate at the time of printing, the WFE Office accepts no responsibility for errors or omissions.

1 METHODOLOGY

The World Federation of Exchanges (WFE) conducts an annual survey of the derivatives markets operated by its members, affiliates¹ and other exchanges that voluntarily submit data for this survey. Forty-eight exchanges responded to this year's survey (the full list can be found in Appendix 2). The survey report is compiled from questionnaire responses supplied by these exchanges, as well as data collected from exchange websites.

The key derivatives markets statistics that have been collected through the survey and presented in this report are:

- the number of contracts traded (also referred to as volume traded or volumes)
- the notional value traded
- the open interest as at year end

For the second year in a row, in addition to aggregate commodity derivatives trading statistics, more granular data on commodity derivatives by underlying has also been collected. The categories by which contracts have been classified are as follows: Agriculture, Energy, Non-precious metals, Precious metals, Index commodity derivatives and Other.

The volume/number of contracts traded and the open interest are reported in full numbers. The notional value of the contracts traded is reported in millions of US dollars. Where we did not receive data from the exchanges and were not able to supplement the missing data from other sources, this is mentioned under the relevant tables or reflected as 'NA' for 'not available'. Similarly, in instances where we did not have the figures for all exchanges, the totals have been reflected as 'NA'.

Rankings have been presented using volume traded as this is the most widely-available data-point. However, as contract sizes vary dramatically across markets, these figures should always be read with reference to the notional value traded (where available) as the largest markets by volume traded are not always the largest by notional value traded.

¹ Many newer, smaller regulated exchanges choose to become WFE Affiliates. The WFE Office requires that the regulatory authority of the applicant is already a member of IOSCO. However, Affiliate status does not imply fulfilment of WFE membership criteria and, unlike membership, is not subject to peer review or vote by the General Assembly.

2 2018 IOMA SURVEY HIGHLIGHTS

Global financial markets had a turbulent year in 2018. Volatility made a come-back, breaking the spell of stable markets in 2017. The return of volatility was against the backdrop of a global economic slowdown, geopolitical and trade tensions, concerns about tightening monetary policy, currency exchange rate fluctuations and increased scrutiny of the technology sector among other factors. For the stock markets, while the year began on a high note, with domestic market capitalisation scaling record levels in markets across the globe, there were significant declines in market valuations by the end of the year. Meanwhile, overall trading activity was up, with value and volumes of trades in equity markets up 15.4% and 11.5% respectively on 2017.

This report focuses on trends in derivatives against this backdrop and examines how market participants responded to shifts in the underlying market. In this high volatility environment, 2018 saw record high volumes of trading in derivatives. For the first time in the period under review (since 2005), overall volumes exceeded the 30 billion mark with 30.1 billion contracts traded in 2018. This was a 20.9% increase in volumes on 2017.

- The overall increase in volumes was driven by increases in volumes across all three regions. The Americas region was up 23.8%, the Asia-Pacific region up 27.1%, and the EMEA region up 5.5%.
- Nearly all the derivatives product categories - namely equity, ETF, currency, interest rate and commodities - recorded increases in volumes on 2017. The one exception was 'other derivatives', which consists of 'other' options and futures.
- In 2018, equity derivatives volumes exceeded 13.6 billion contracts, the highest in the 14-year period under review. Volumes were up 33.8% on 2017, due to increases across single stock and stock index options and futures.
- Interest rate derivatives volumes were up 14.6% on 2017, with a trading volume of 4.6 billion contracts, a new high for interest rate derivatives.
- Currency derivatives reached a record high of 3.7 billion contracts traded in 2018, a 32.9% increase on 2017.
- Commodity derivatives volumes saw a marginal 0.6% increase on 2017, largely due to declining volumes in the Asia-Pacific region (1.4%), where a major share of global commodity derivatives trading takes place. Agriculture, energy and non-precious metals accounted for the bulk (32%, 31% and 26% respectively) of global commodity derivatives volumes. While volumes of agriculture and energy based derivatives were up 9.9% and 6.2% respectively, non-precious metals volumes fell 12.6% on 2017.

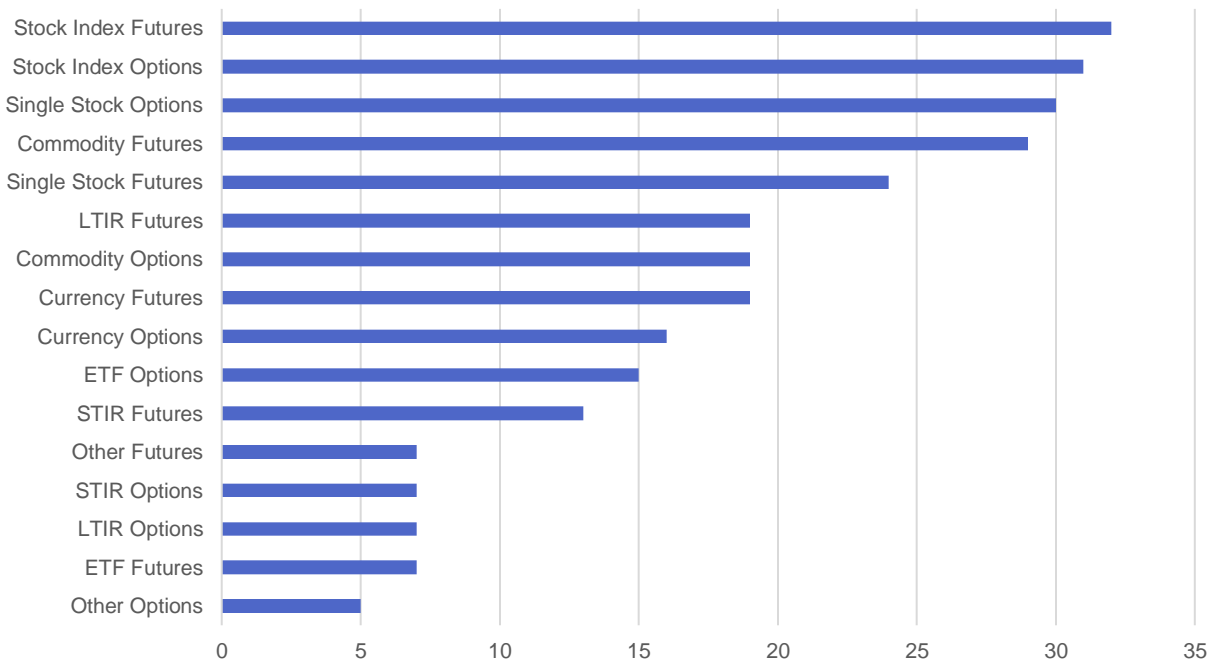
3 MARKET OVERVIEW

This report focuses on derivatives trading activity in 2018 and covers responses from forty-eight exchanges/exchange groups (some of whom represent more than one trading venue). The figures presented in this report cover a full set of indicators (number of contracts traded, notional value of traded contracts and open interest) and are presented across sixteen main product lines:

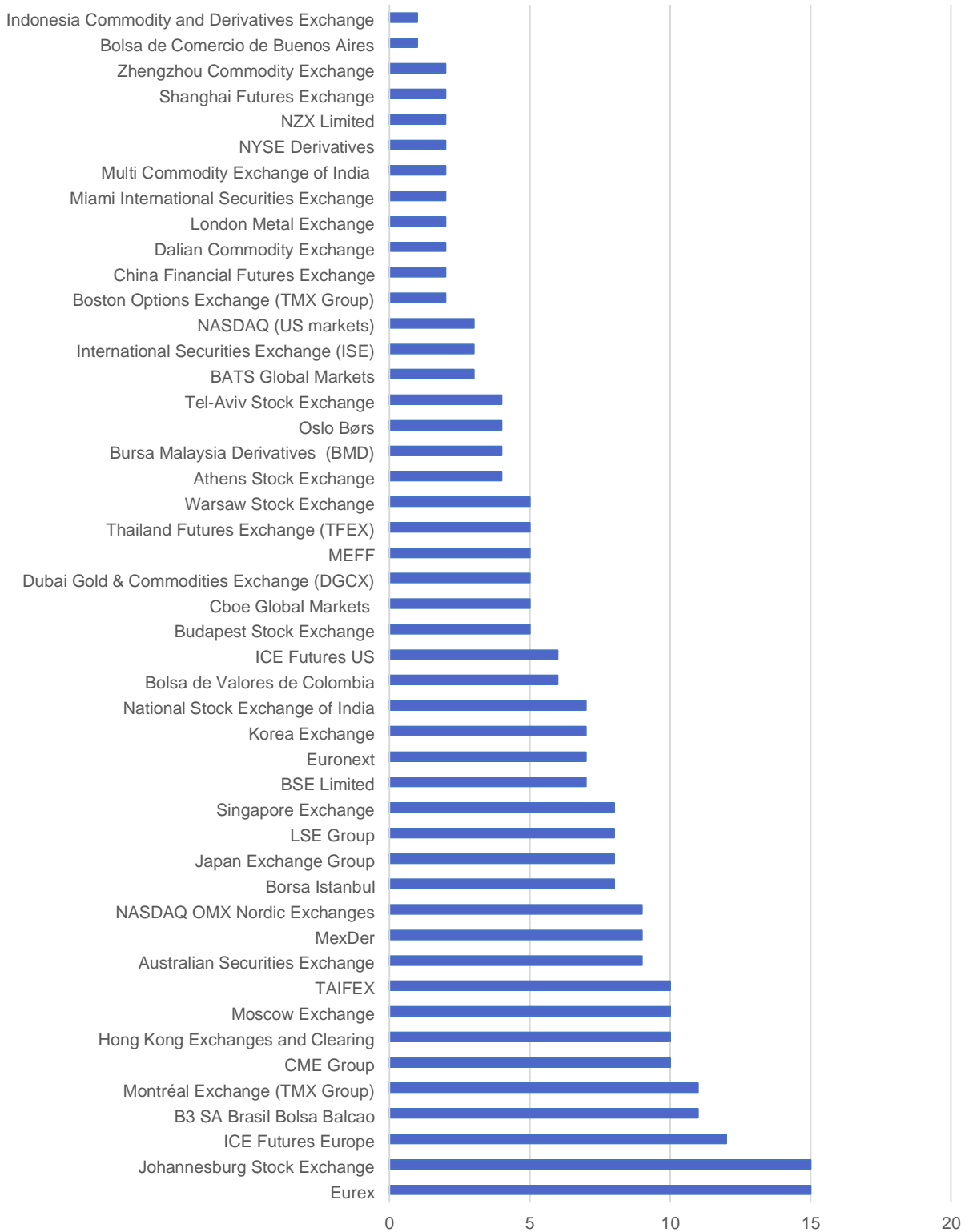
- Single Stock Options and Futures
- Stock Index Options and Futures
- Exchange Traded Funds Options and Futures
- Short-Term Interest Rate (STIR) Options and Futures
- Long-Term Interest Rate (LTIR) Options and Futures
- Currency Options and Futures
- Commodity Options and Futures (including granular commodity data)
- Other Options and Futures

Some exchanges taking part in this survey provide a wide range of derivatives contracts, while others specialise in a single area of the market. The mean and median numbers of product lines offered by responding exchanges are both six. Eurex and the Johannesburg Stock Exchange, which offer 15 product types each, have the largest number of product lines. There are two exchanges with only one product line.

Number of trading venues by product line in 2018



Number of product lines per exchange in 2018



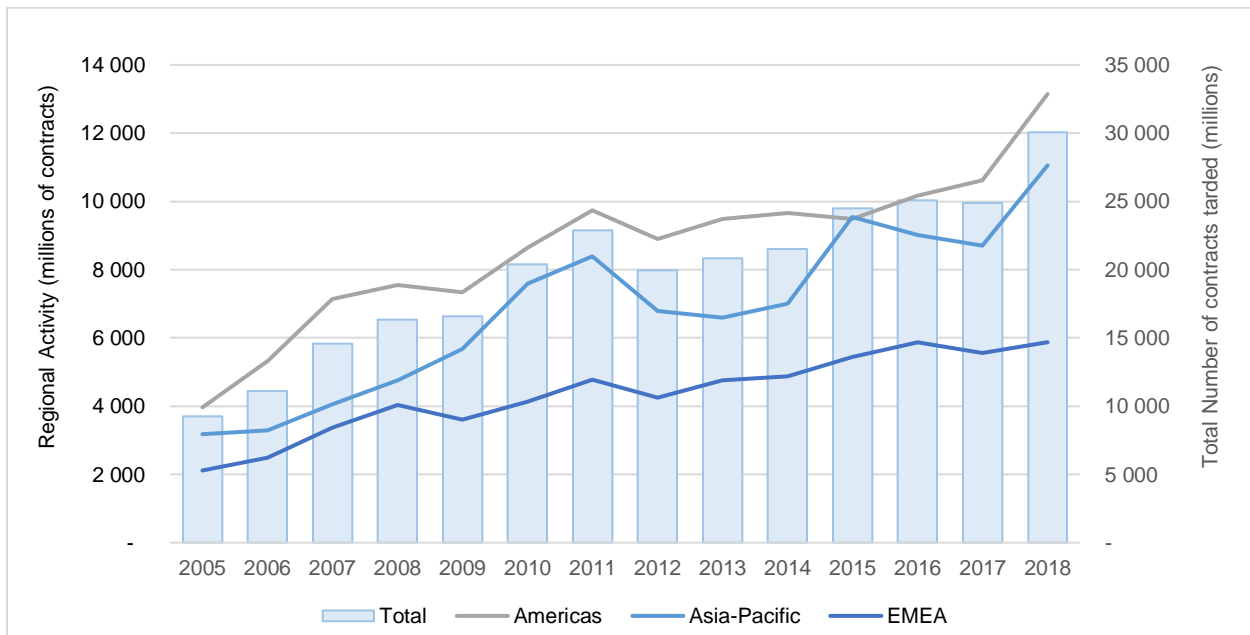
4 THE GLOBAL EXCHANGE TRADED DERIVATIVES MARKET

4.1 Volume activity

Amongst the respondent universe of forty-eight exchanges, there was a 20.9% increase in the volumes traded on 2017, with a total of 30.1 billion derivatives contracts (13.2 billion options and 16.9 billion futures) traded in 2018. For the first time in the period under review, over 30 billion contracts were traded in a year. Total volumes traded as compared to 2005, were up 225%, an average annualised growth rate of 10.1% over the last thirteen years.

Volumes increased across all three regions: the Americas region was up 23.8%, the Asia-Pacific region was up 27.1% and the EMEA region was up 5.5%.

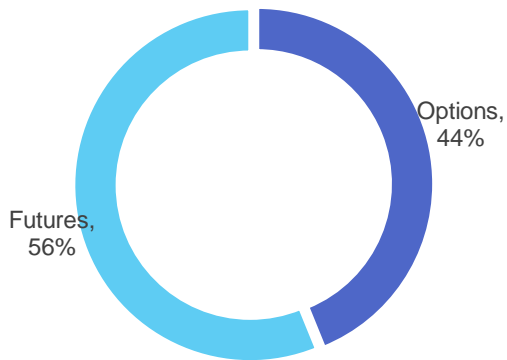
Total volumes of exchange traded derivatives contracts over time



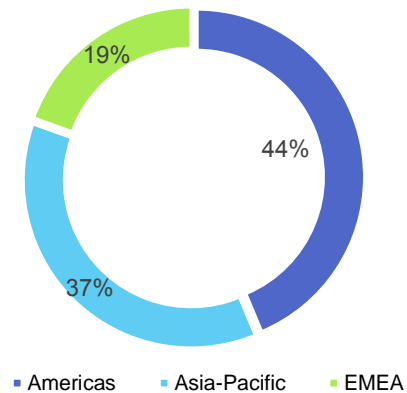
- Volumes traded in the Americas region (which accounts for 43.7% of total volumes traded) were up 23.8% driven by increases in volumes across all product lines except single stock futures and 'other' options.
- Volumes in the Asia-Pacific region (where 36.8% of the total number of contracts were traded) were up 27.1% due to an uptick in volumes traded across all product types except ETF derivatives and commodity futures.
- The EMEA region, which accounted for the remaining 19.5% of total volumes, were up 5.5% due to increases in volumes across all product lines, except currency derivatives and other derivatives.

Options and futures, which account for 43.8% and 56.2% of global derivatives volumes, saw volumes increase by 27.6% and 16.1% respectively on 2017.

Breakdown by products in 2018



Breakdown by regions in 2018



4.2 Asset breakdown

Equity derivatives: Equity derivatives volumes were up 33.8% on 2017 driven by increases in volumes across all product types (single stock options, single stock futures, stock index options and stock index futures) and regions. They accounted for 45.4% of overall derivatives contracts traded in 2018. In the 14-year period under review, 2018 saw the highest number of equity derivatives contracts traded in a year (13.6 billion).

ETF derivatives: For the first time, ETF derivatives have been classified as a distinct derivatives product category consisting of ETF options and futures. In the past, these products were captured under equity derivatives. In 2018, 1.9 billion ETF derivatives contracts were traded. Volumes were up 17.2% on 2017 due to a 17.3% increase in the Americas region where most of the trading takes places. As at end 2018, ETF derivatives were the fastest growing derivatives product category by volume with a compound annual growth rate (CAGR) of 27.9% since 2005.

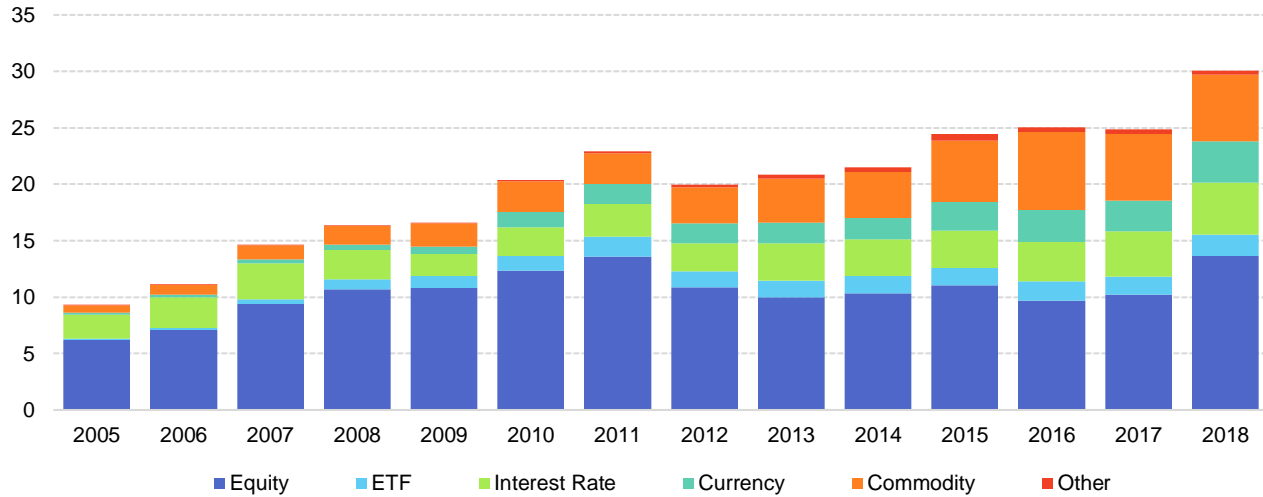
Interest rate derivatives: Interest rate derivatives volumes were up 14.6% on 2017. For the first time in the period examined, over 4.6 billion interest rate derivatives contracts were traded in a year. The growth was driven by increases in volumes across all product types, namely STIR options, STIR futures, LTIR options and LTIR futures. The Americas region and the EMEA region, where a bulk of the volumes are traded (67% and 28% respectively), saw volumes increase by 17.1% and 11.1% respectively.

Currency derivatives: Currency derivatives volumes were up 32.9% on 2017. Volumes of currency derivatives contracts traded exceeded 3.5 billion contracts with 3.7 billion contracts traded in 2018. In the Americas and Asia-Pacific regions where 77% of the contracts were traded, volumes were up 31.7% and 57.2% respectively. Only in the EMEA region were volumes down (-5.1%) on 2017.

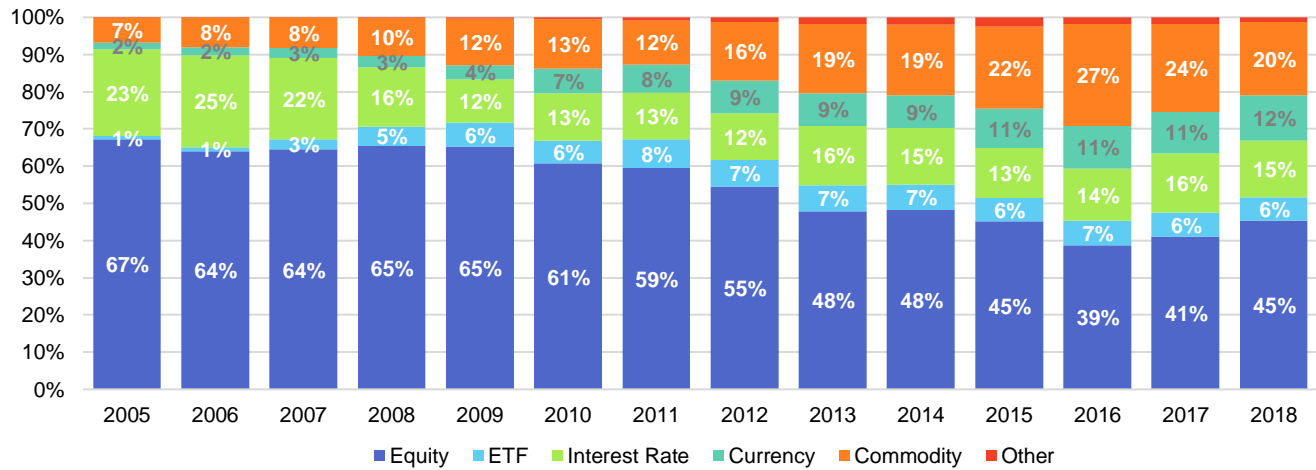
Commodity derivatives: Volumes traded of commodity derivatives increased marginally (0.6%) on 2017 with a total of 5.9 billion contracts traded in 2018. Commodity futures remained the most actively traded derivatives product accounting for 18.8% of overall volumes. A 1.4% decline in number of commodity derivatives contracts traded in the Asia-Pacific region where the major share (55%) of global volumes are traded was offset by increases in volumes in the Americas and the EMEA regions of 3.3% and 3% respectively.

Other derivatives: The 'other' derivatives category comprises a wide range of products, including index volatility options and futures, REIT derivatives, dividend index derivatives, CFDs, and inflation indexed futures and options. Volumes traded of other options and futures were down 7.8% and 18.7% on 2017.

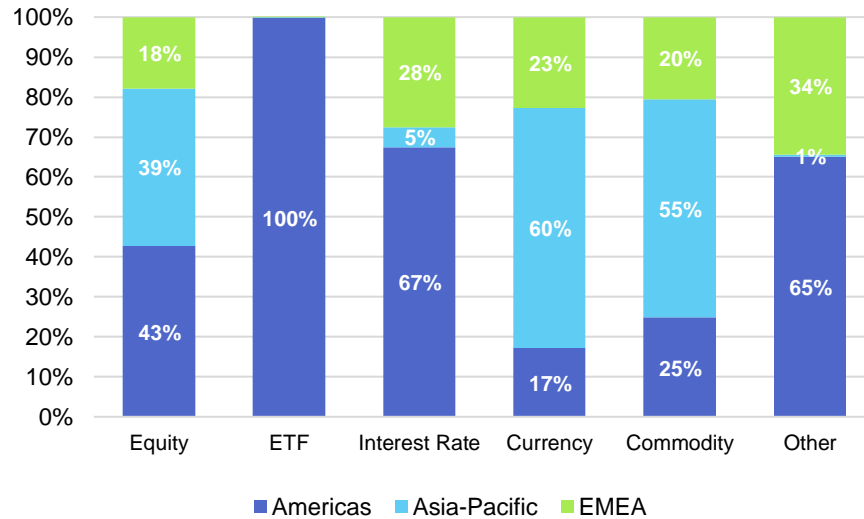
Number of exchange traded derivatives contracts traded worldwide (billions of contracts)



Product composition over time by number of contracts traded



Regional volume traded (% of total)



Number of exchange traded derivatives traded worldwide (millions of contracts)

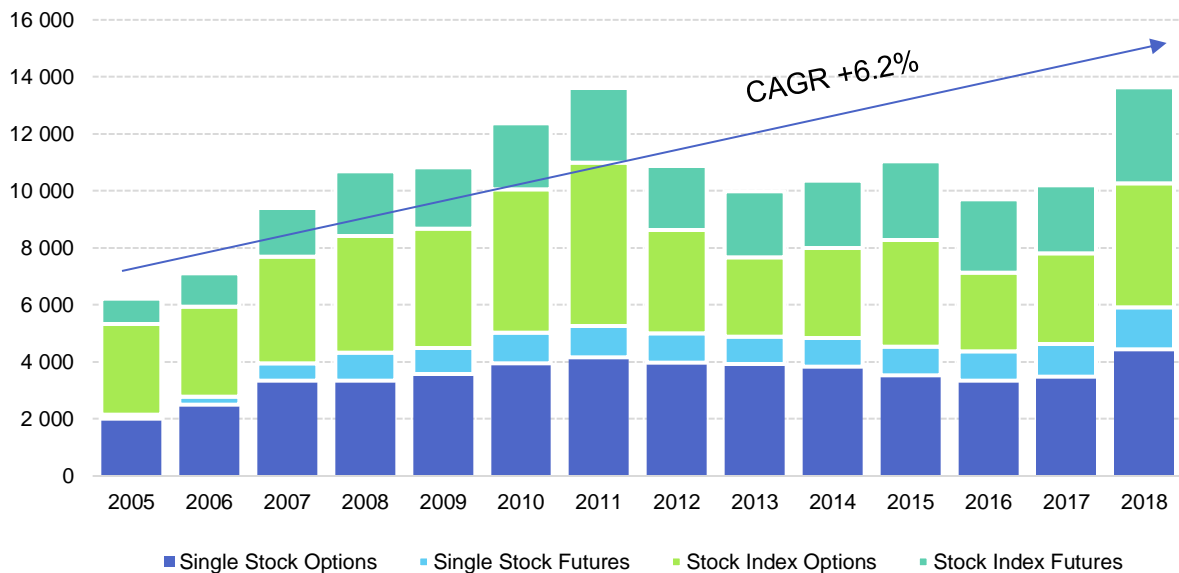
	2017	2018	% change	% of total (asset class)	% of total (overall)
Single Stock Options	3 485	4 452	27.8%	32.6%	14.8%
Single Stock Futures	1 138	1 455	27.8%	10.7%	4.8%
Stock Index Options	3 186	4 355	36.7%	31.9%	14.5%
Stock Index Futures	2 386	3 379	41.6%	24.8%	11.2%
Total Equity	10 196	13 641	33.8%		45.4%
ETF Options	1 611	1 889	17.2%	99.9%	6.3%
ETF Futures	1.9	2.1	7.7%	0.1%	0.0%
Total ETF	1 613	1 891	17.2%		6.3%
Currency Options	814	1 155	41.8%	31.4%	3.8%
Currency Futures	1 949	2 518	29.2%	68.6%	8.4%
Total Currency	2 763	3 673	32.9%		12.2%
Commodity Options	261	280	7.6%	4.7%	0.9%
Commodity Futures	5 624	5 640	0.3%	95.3%	18.8%
Total Commodity	5 884	5 921	0.6%		19.7%
STIR Options	520	545	4.8%	11.9%	1.8%
STIR Futures	1 566	1 754	12.0%	38.3%	5.8%
LTIR Options	263	330	25.5%	7.2%	1.1%
LTIR Futures	1 645	1 950	18.5%	42.6%	6.5%
Total Interest Rates	3 994	4 579	14.6%		15.2%
Other Options	197	182	-7.8%	45.6%	0.6%
Other Futures	236	192	-18.7%	54.4%	0.6%
Total 'other'	433	374	-13.7%		1.2%
Grand Total	24 884	30 078	20.9%		

5 EQUITY DERIVATIVES

- Overall equity derivatives volumes increased by 33.8% on 2017 driven by increases in volumes across single stock and stock index options and futures.
- Volumes also increased across all three regions. The Americas region was up 38.3%, the Asia-Pacific region up 41.9% and the EMEA region up 11% on 2017.
- In 2018, equity derivatives volumes exceeded 13.6 billion contracts, the highest level in the 14-year period under review. This represents a CAGR of 6.2% in volumes since 2005.

The surge in demand for, and trading of, equity derivatives occurred against a backdrop of volatile equity markets globally, marked by significant increases in trading activity in the underlying equity market. Overall value and volume of trades in equity shares were up 15.4% and 11.5% respectively on 2017.

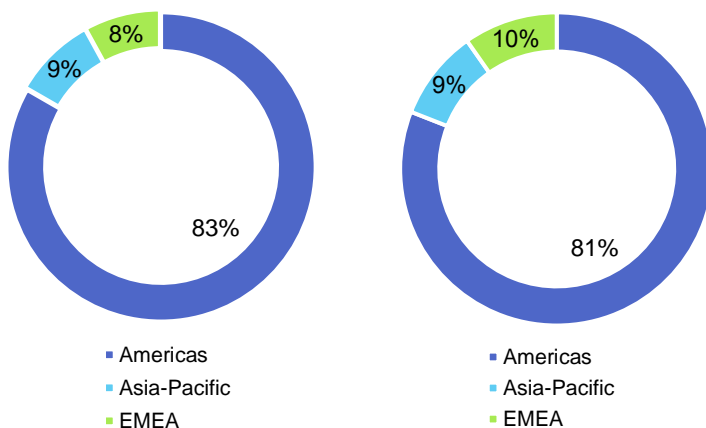
Number of equity derivatives contracts traded worldwide (millions of contracts)



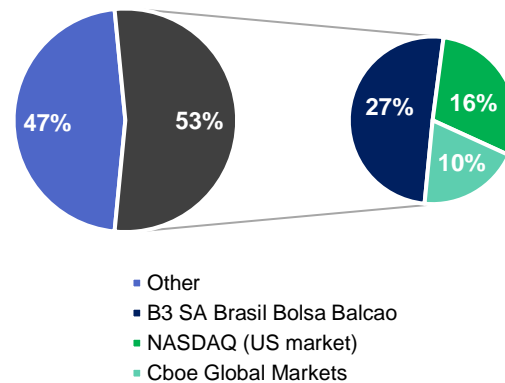
5.1 Single Stock Options

- Volumes of single stock options hit record high levels in 2018. Volumes exceeded 4 billion, a 27.8% increase on 2017.
- Single stock options were most actively traded equity derivatives product type, accounting for 32.6% of total equity derivatives volumes.
- All three regions recorded an increase in volumes: the Americas region was up 31.5%, the Asia-Pacific region up 19.1% and the EMEA region up 5%. However, the overall trend continues to be driven by the Americas region, which accounts for a bulk (83%) of the total volumes traded.
- Three exchanges from the Americas region – B3 SA Brasil Bolsa Balcao (B3), Cboe Global Markets and Nasdaq (US) accounted over half of global volumes.

Single Stock Options - Regional activity
(number of contracts traded)
2018 2017



Single Stock Options – Exchange activity
(number of contracts traded)



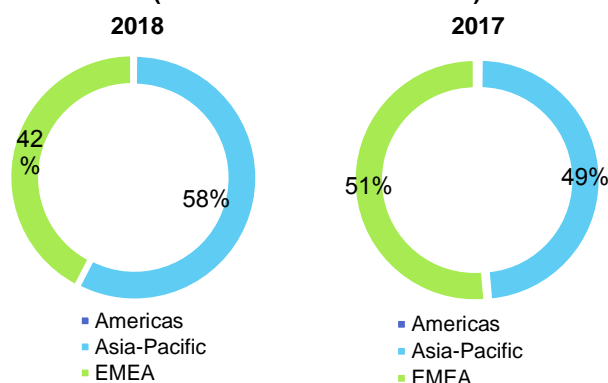
Top 10 exchanges by number of single stock options contracts traded in 2018

		Volume		Notional Value		Open interest	
		2018	AGR	2018	AGR	2018	AGR
1	B3 SA Brasil Bolsa Balcao	1 194 676 265	75%	595 757	37%	13 355 071	-20%
2	NASDAQ (US markets)	702 389 037	17%	NA	NA	NA	NA
3	Cboe Global Markets	466 114 487	13%	6 456 424	58%	178 673 000	-6%
4	NYSE Derivatives	444 946 374	40%	145 493	106%	NA	NA
5	International Securities Exchange (ISE)	326 935 159	8%	NA	NA	NA	NA
6	BATS Global Markets	314 506 027	15%	NA	NA	NA	NA
7	Eurex	188 891 931	12%	889 362	6%	47 077 055	12%
8	National Stock Exchange of India	170 098 254	46%	1 742 411	26%	282 037	19%
9	MIAX Options Exchange	122 530 187	6%	NA	NA	NA	NA
10	Hong Kong Exchanges and Clearing	125 683 652	22%	428 612	42%	7 111 350	-12%
	Others	395 470 547	1%	NA	NA	NA	NA
	Grand Total	4 452 241 920	27.8%				

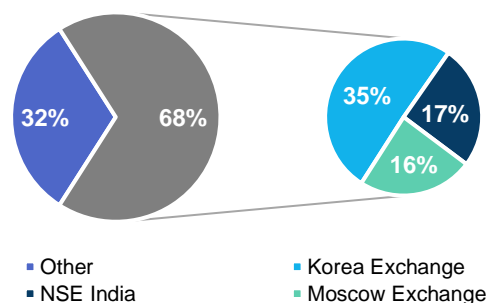
5.2 Single Stock Futures

- Single stock futures volumes were up 27.8% on 2017, with 1.5 billion contracts traded in 2018.
- They remained the least actively traded equity derivatives product type accounting for 10.7% of equity derivatives volumes.
- The Asia-Pacific and EMEA regions, which together accounted for most of the global volumes (57.5% and 42.4% respectively) saw volumes increase by 51.7% and 5.4% respectively. Only the Americas region saw a decline (of 34.3%) on 2017.
- Three exchanges, Korea Exchange, the National Stock Exchange of India and the Moscow Exchange continue to account for the majority (68%) of total volumes traded.

**Single Stock Futures - Regional activity
(number of contracts traded)**



**Single Stock Futures – Exchange activity
(number of contracts traded)**



10 exchanges by number of single stock futures contracts traded in 2018

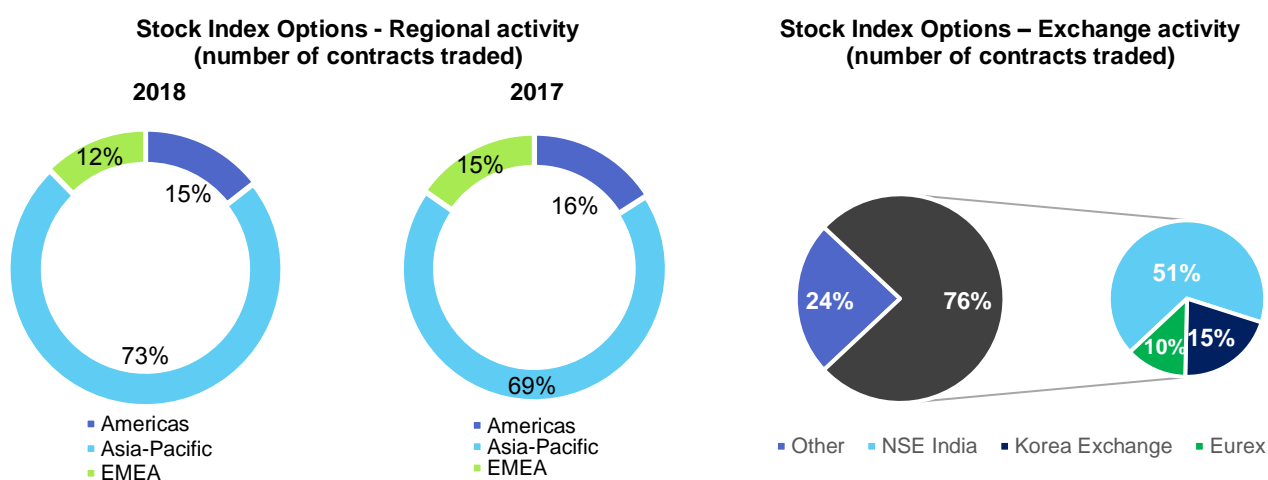
		Volume		Notional Value		Open interest	
		2018	AGR	2018	AGR	2018	AGR
1	Korea Exchange	501 723 576	79%	336 846	33%	3 071 030	42%
2	National Stock Exchange of India	252 932 988	25%	2 421 406	6%	1 750 520	3%
3	Moscow Exchange	235 942 570	17%	63 909	9%	1 486 390	-20%
4	Eurex	176 257 731	74%	624 164	41%	5 960 187	58%
5	ICE Futures Europe	102 738 408	25%	3 557 262	0%	290 094	-71%
6	Thailand Futures Exchange (TFEX)	55 332 444	17%	NA	NA	2 134 800	-11%
7	Borsa Istanbul	54 692 782	197%	NA	NA	741 946	-13%
8	TAIFEX	22 812 494	22%	174 002	54%	115 116	-24%
9	Athens Stock Exchange	13 212 566	-29%	1 848	-2%	242 066	-39%
10	MEFF	11 175 006	-7%	6 695	-26%	1 274 822	-7%
	Others	27 780 739	-82%				
	Grand Total	1 454 601 304	27.8%				

Top 10 single stock futures contracts traded in 2018

	Contract Name	Size (lot)	Exchange	Volume		Notional Value		Open interest	
				2018	AGR	2018	AGR	2018	AGR
1	Futures contract on Sberbank ordinary shares	100 shares	Moscow Exchange	148 793 456	21%	45 711	20%	625 888	7%
2	SK hynix	10 shares	Korea Exchange	59 421 026	43%	42 056	55%	92 674	-69%
3	Futures contract on Gazprom ordinary shares	100 shares	Moscow Exchange	36 639 241	-24%	7 856	-27%	182 790	-65%
4	FUT ON BANCO SANTANDER S.A.	100 shares	Eurex	24 504 989	216%	14 812	172%	27 618	NA
5	Futures contract on VTB ordinary shares	100 000 shares	Moscow Exchange	21 433 907	85%	1 409	14%	264 416	-29%
6	DRV Futures LG Display	10 shares	Korea Exchange	18 552 553	2%	3 849	-29%	79 041	-41%
7	Futures on Magnit ordinary shares	1 share	Moscow Exchange	12 643 958	NA	832	NA	173 816	NA
8	FUT ON BANCO BILBAO VIZ. ARG.	100 shares	Eurex	11 400 263	110%	7 583	72%	67 988	43%
9	FUT ON TELEFONICA S.A.	100 shares	Eurex	10 204 129	99%	8 773	53%	69 130	389%
10	SANTANDER	NA	MEFF	8 187 063	5%	4 564	-14%	1 095 722	14%

5.3 Stock Index Options

- Stock index options volumes were up 36.7% on 2017.
- They were the third most actively traded product type overall and the second most actively traded equity derivatives product type, accounting for 31.9% of equity derivatives volumes in 2018.
- Volumes were up across all three regions: the Americas region was up 23.9%, the Asia-Pacific region up 45.6% and the EMEA region 9.9%. However, the Asia-Pacific region remained the key driver of the overall trend, accounting for 73% of global volumes.
- The market for this product was highly concentrated at a global and regional level. Three exchanges accounted for 76% of the total volume traded. In the Asia-Pacific region, the National Stock Exchange of India and the Korea Exchange together accounted for 90.7% of the regional volume. Eurex and Cboe Global markets accounted for 78.1% and 62.3% of the contracts traded in the EMEA and Americas regions respectively.
- National Stock Exchange of India's Bank Nifty Index options, Korea Exchange's KOSPI 200 options and Cboe Global Markets' S&P 500 Index options were among the most actively traded contracts in 2018.
- Nine of the ten most actively traded contracts saw an uptick in volumes when compared to 2017.



Top 10 exchanges by number of stock index options contracts traded in 2018

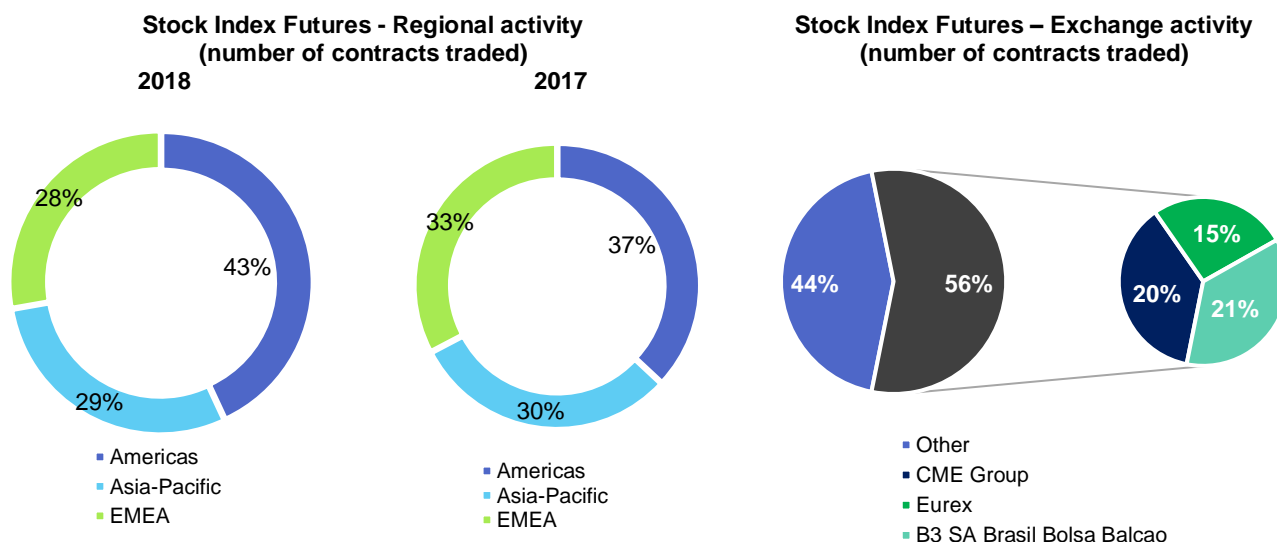
		Volume		Notional Value		Open interest	
		2018	AGR	2018	AGR	2018	AGR
1	National Stock Exchange of India	2 214 848 247	63%	27 392 518	51%	1 996 690	12%
2	Korea Exchange	676 874 836	22%	44 432 824	2%	2 917 430	6%
3	Eurex	419 177 371	12%	16 227 219	3%	41 697 152	19%
4	Cboe Global Markets	392 349 468	25%	104 867 944	41%	16 503 156	3%
5	CME Group	207 538 061	23%	35 045 600	28%	3 900 010	-14%
6	TAIFEX	194 808 912	4%	3 381 578	5%	570 241	-53%
7	Hong Kong Exchanges and Clearing	40 026 686	25%	4 206 620	33%	2 612 800	12%
8	Japan Exchange Group	36 283 128	9%	NA	NA	1 980 087	-8%
9	Tel-Aviv Stock Exchange	33 098 716	2%	1 361 202	2%	200 210	-29%
10	Moscow Exchange	31 123 228	-18%	63 889	-17%	259 824	-84%
	Others	108 693 423	21%	NA	NA	NA	NA
	Grand Total	4 354 822 076	36.7%				

Top 10 stock index options contracts traded in 2018

	Contract Name	Size	Exchange	Volume		Notional Value		Open interest	
				2018	AGR	2018	AGR	2018	AGR
1	Bank Nifty Index options	40 units.	National Stock Exchange of India	1 587 426 222	98%	NA	NA	876 581	213%
2	KOSPI 200 Options	Price* KRW 250,000	Korea Exchange	657 832 873	22%	44 215 664	2%	2 685 934	4%
3	CNX Nifty Index options	75 points	National Stock Exchange of India	622 118 790	11%	NA	NA	1 120 109	-25%
4	S&P 500 Index options	100 shares of the underlying index	Cboe Global Markets	371 345 596	27%	102 378 913	43%	15 493 434	7%
5	OPT ON EURO STOXX 50	€10 multiplied by the value of the index	Eurex	273 634 066	4%	10 052 247	-4%	30 831 739	5%
6	TAIEX Options	Index Point* NTD 50	TAIFEX	194 438 947	4%	3 376 906	5%	565 920	-53%
7	E-MINI S&P500 options	One E-mini S&P 500 futures contract	CME Group	191 656 491	26%	26 187 058	41%	3 653 405	-9%
8	OPT ON EURO STOXX BANKS	€50 multiplied by the value of the index	Eurex	46 613 902	37%	312 925	17%	7 154 719	190%
9	Nikkei 225 Options	Nikkei 225 x ¥1,000	JPX Group	36 103 866	9%	NA	NA	1 910 974	-8%
10	Options on RTS Index futures contract	1 Futures contract	Moscow Exchange	31 112 682	-18%	63 883	-17%	259 354	-84%

5.4 Stock Index Futures

- Stock index futures volumes were up 41.6% on 2018.
- They are the third most actively traded equity derivatives product type after stock index options and single stock options, accounting for 24.8% of overall equity derivatives volumes.
- Volumes were up across all three regions: the Americas region was up 68.6%, the Asia-Pacific region up 33.7% and the EMEA region up 18.5% and global volumes were fairly evenly distributed across the three regions.
- The top three exchanges (in terms of volumes traded) – two from the Americas region and one from the EMEA region - accounted for 56% of total volume traded and saw increases in volumes on 2017.
- Nine of the ten most traded contracts recorded an increase in volumes on 2017. B3's Bovespa Mini Index futures, CME group's E-Mini S&P 500 futures and Eurex's Futures on Euro Stoxx 50 remain the three most actively traded contracts in this product category.



Top 10 exchanges by number of stock index futures contracts traded in 2018

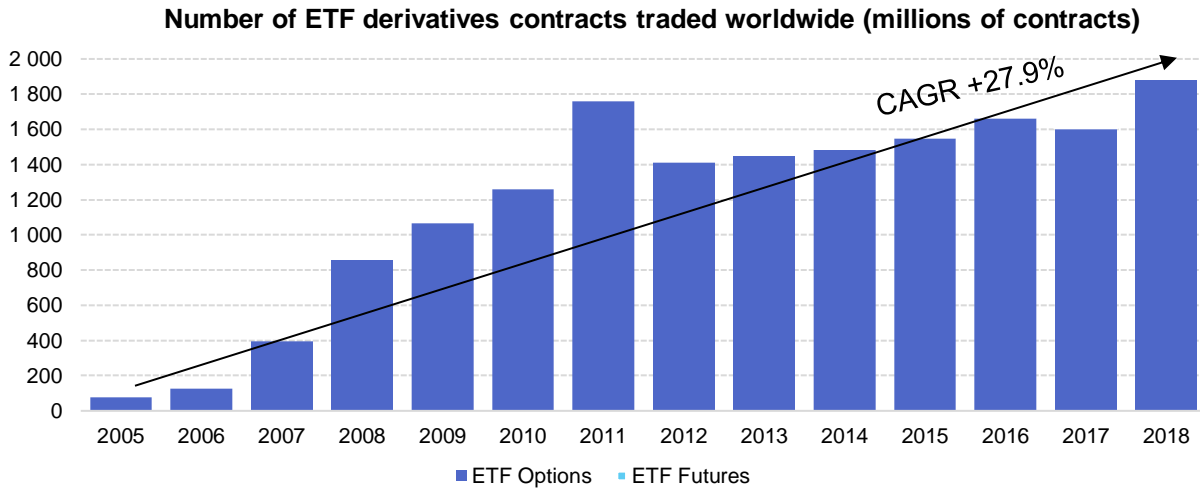
		Volume		Notional Value		Open interest	
		2018	AGR	2018	AGR	2018	AGR
1	B3 SA Brasil Bolsa Balcao	732 881 738	137%	3 662 105	124%	566 439	-87%
2	CME Group	696 741 217	38%	92 325 600	53%	4 201 590	-10%
3	Eurex	496 862 569	19%	25 324 054	11%	9 444 490	18%
4	Japan Exchange Group	339 707 241	22%	15 064 934	28%	2 478 340	26%
5	Singapore Exchange	170 522 336	21%	NA	NA	2 191 819	25%
6	Moscow Exchange	138 999 745	-9%	NA	NA	242 126	-35%
7	Hong Kong Exchanges and Clearing	125 840 585	67%	14 242 846	82%	708 430	49%
8	ICE Futures Europe	102 675 560	181%	3 793 407	1%	842 344	-40%
9	Korea Exchange	99 046 237	49%	4 747 406	13%	625 576	17%
10	TAIFEX	87 615 517	52%	3 991 940	43%	152 709	-7%
	Others	388 558 280	12%	NA	NA	NA	NA
	Grand Total	3 379 451 025	41.6%				

Top 10 stock index futures contracts traded in 2018

	Contract Name	Size	Exchange	Volume		Notional Value		Open interest	
				2018	AGR	2018	AGR	2018	AGR
1	Bovespa Mini Index futures	Ibovespa futures contract multiplied by the index point value in Brazilian Reals, each point BRL0.20.	B3 SA Brasil Bolsa Balcao	706 224 217	143%	NA	NA	142 558	101%
2	E-MINI S&P500 futures	\$50 x S&P 500 Index	CME Group	445 199 191	22%	60 771 917	36.1%	2 694 884	-10.8%
3	FUT ON EURO STOXX 50	€10 multiplied by the value of the index	Eurex	318 635 725	13%	12 194 697	4%	3 754 740	9%
4	Nikkei 225 mini index futures	JPY 100	JPX Group	273 327 463	25%	5 510 634	39%	1 279 710	87%
5	E-MINI NASDAQ 100 futures	\$20 x Nasdaq-100 Index	CME Group	124 195 504	79%	17 267 680	113%	203 989	-27%
6	RTS Index Futures	1 point	Moscow Exchange	118 174 805	-12%	247 366	-17%	206 738	-40%
7	FTSE China A50 Index Futures	US\$ 1 x SGX FTSE China A50 Index Futures Price	SGX	88 028 881	31%	NA	NA	878 618	26%
8	FUT ON EURO STOXX BANKS	€50 multiplied by the value of the index	Eurex	73 510 289	32%	474 322	10%	1 876 103	29%
9	E-MINI \$5 DOW	\$5 x Dow Jones Industrial Average ("DJIA")	CME Group	60 324 164	84%	7 507 986	111%	73 727	-49%
10	KOSPI 200 Futures	KOSPI 200 Index times KRW 500,000	Korea Exchange	58 939 222	28%	3 942 248	7%	353 406	10%

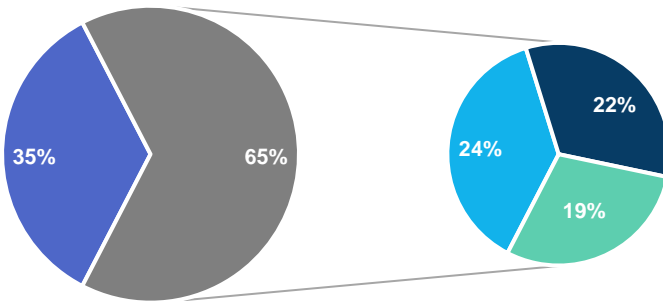
6 ETF DERIVATIVES

- ETF derivatives volumes were up 17.2% on 2017. This was a reversal of the decline observed in 2017 when volumes traded were down on 2016.
- ETF derivatives are among the fastest growing derivatives product type, and recorded the highest CAGR of 27.9% since 2005. This was due to ETF derivatives volumes growing from a very low base of 78 million contracts in 2005 to 1.9 billion contracts in 2018.
- ETF options continued to account for most (99.9%) of the ETF derivatives trading. ETF futures recorded 2.1 million contracts traded in 2018.



- ETF derivatives are primarily traded in the Americas region, housing the nine largest exchanges by volumes traded.

ETF Derivatives – Exchange activity (number of contracts traded)



- Others
- Cboe Global Markets
- NASDAQ (US market)
- NYSE Derivatives

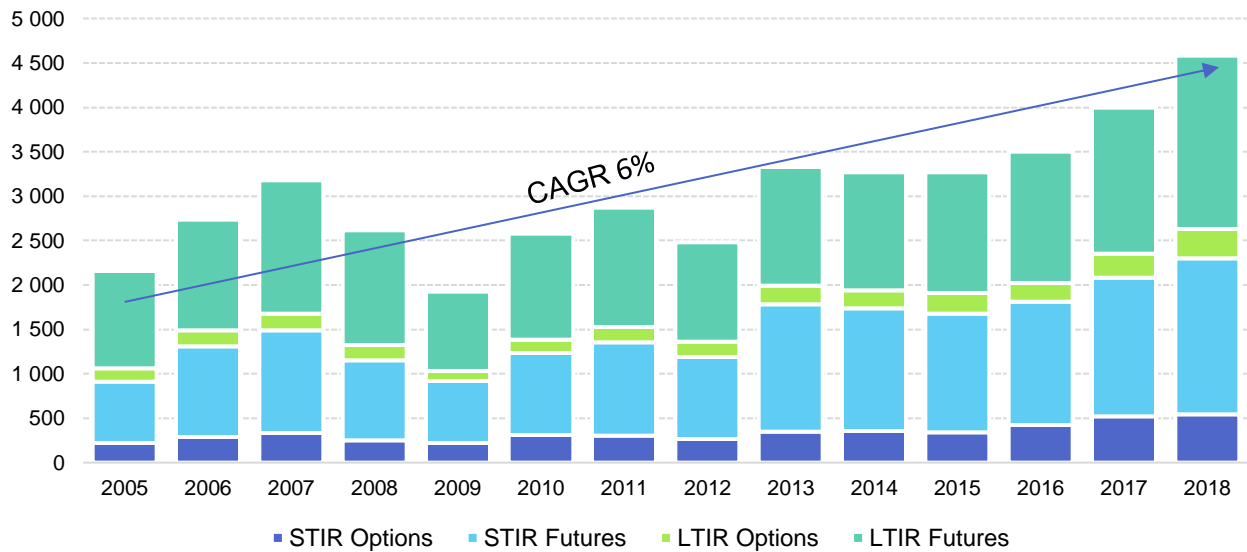
Top 10 exchanges by number of ETF options and futures contracts traded in 2018

		Volume		Notional Value		Open interest	
		2018	AGR	2018	AGR	2018	AGR
1	NASDAQ (US markets)	464 343 181	15%	NA	NA	NA	NA
2	Cboe Global Markets	408 258 324	12%	7 317 726	26%	93 290 400	-1%
3	NYSE Derivatives	361 804 393	30%	67 144	67%	NA	NA
4	International Securities Exchange (ISE)	285 368 872	25%	NA	NA	NA	NA
5	BATS Global Markets	226 486 268	19%	NA	NA	NA	NA
6	MIAX Options Exchange	78 181 231	4%	NA	NA	NA	NA
7	Boston Options Exchange (TMX Group)	30 130 999	18%	NA	NA	NA	NA
8	B3 SA Brasil Bolsa Balcao	17 803 686	-44%	NA	NA	NA	NA
9	Montréal Exchange (TMX Group)	14 492 823	27%	23 498	12%	989 624	-33%
10	TAIFEX	1 674 342	20%	18 501	19%	19 759	-28.5%
	Others	2 535 780	-32%	NA	NA	NA	NA
	Grand Total	1 891 079 899	17.2%				

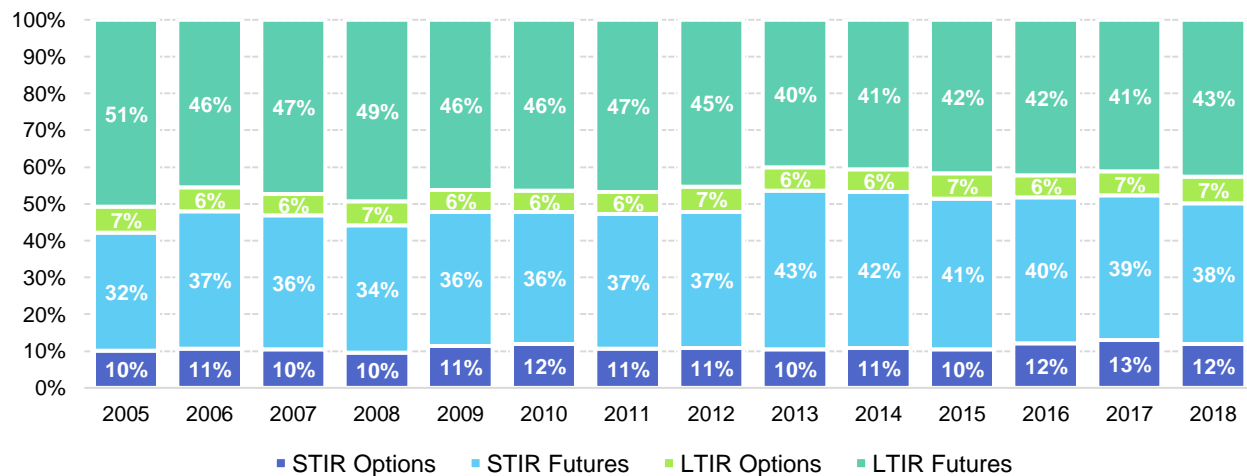
7 INTEREST RATE DERIVATIVES

- In an environment of uncertainty and speculation regarding the future course of monetary policy, volumes of interest rate derivatives surged to record high levels in 2018.
- For the first time in the period under review, the number of interest rate derivatives contracts traded exceeded 4.5 billion. This was a 14.6% increase in volumes on 2017.
- Volumes were up across all interest rate derivatives products namely Short term interest rate (STIR) options and futures and Long term interest rate (LTIR) options and futures.
- All three regions recorded increases in volumes. In the Americas region and the EMEA region, where a bulk of the volumes are traded (67% and 28% respectively), volumes increased by 17.1% and 11.1% respectively. In the Asia-Pacific region, where the remaining 5% of trading took place, volumes were up 3.1% on 2017.

Number of interest rate exchange traded derivatives traded worldwide (millions of contracts)



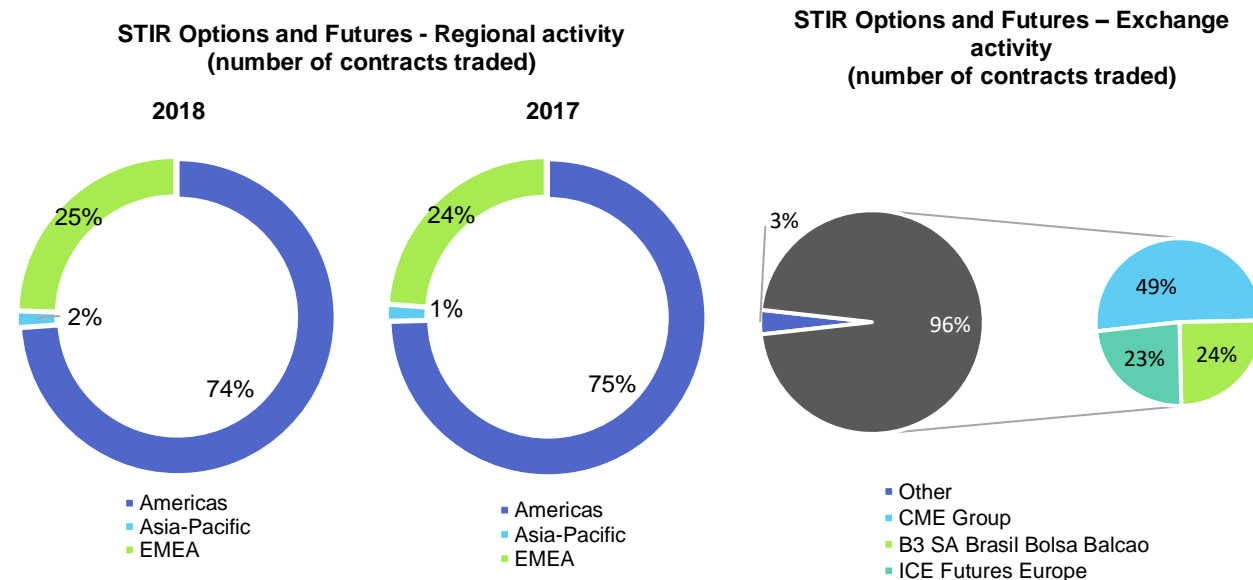
Product composition over time by number of contracts traded



The interest rate derivatives market remained highly concentrated, with the top four exchanges - CME Group, Eurex, ICE Futures Europe and B3 SA Brasil Bolsa Balcao - representing 93% of total interest rate contracts traded in 2018. CME Group continues to account for the highest share of volume traded (55%), followed by Eurex (14%) and ICE Futures Europe (13%).

7.1 STIR Options and Futures

- STIR derivatives volumes increased by 10.2% on 2017. They accounted for 7.6% of global derivatives volumes traded.
- While the overall trend was driven by the 12% increase in volumes of STIR futures, which accounted for a bulk (76%) of the volumes traded, STIR options also saw volumes increase by 4.8% on 2017.
- The Americas region, where 74% of global STIR derivatives are traded, saw volumes increase by 9.2%, while in the Asia-Pacific and EMEA regions, volumes were up 7.8% and 13.6% respectively on 2017.
- Nearly 96% of the trading activity took place on three exchanges - CME Group, ICE Futures Europe and B3 SA Brasil Bolsa Balcao exchange - reflecting the highly concentrated market for STIR derivatives.
- Some of the most actively traded contracts were CME Group's Eurodollar futures, ICE Futures Europe's Three Month Euribor futures and ASX's 90 Day Bank Bill futures.



Top 10 exchanges by number of short-term interest rate derivatives contracts traded in 2018

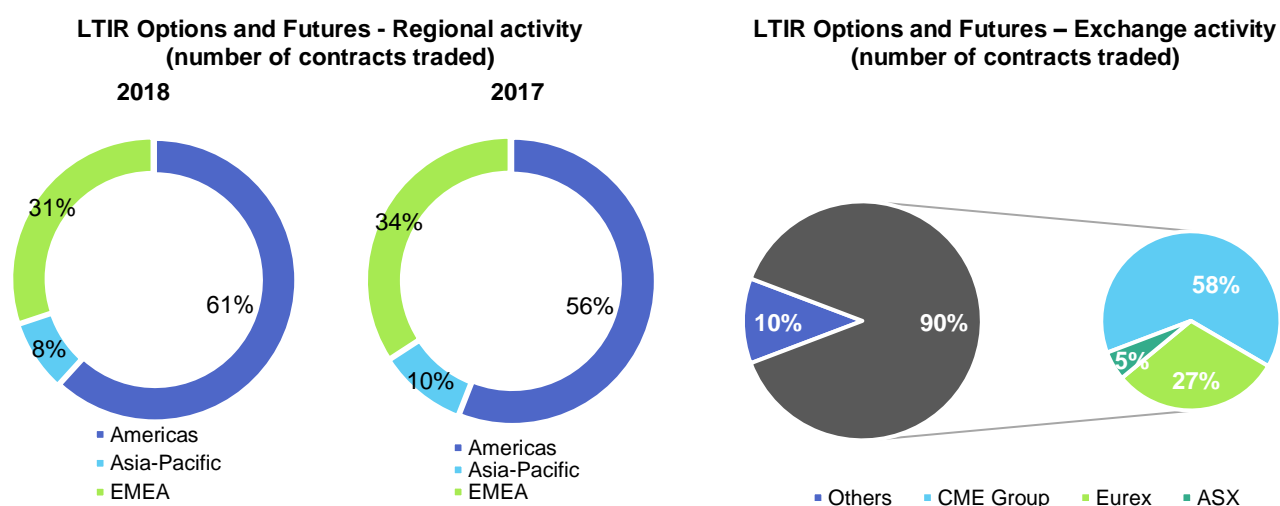
Rank	Exchange	Volume		Notional Value		Open interest	
		2018	AGR	2018	AGR	2018	AGR
1	CME Group	1 188 728 225	15%	1 463 156 997	20%	56 298 737	13%
2	ICE Futures Europe	533 336 315	13%	473 430 325	8%	23 630 665	28%
3	B3 SA Brasil Bolsa Balcao	479 452 829	-3%	8 321 014	-32%	36 907 762	-34%
4	Australian Securities Exchange	36 415 712	8%	26 815 264	-9%	1 477 671	16%
5	Montréal Exchange (TMX Group)	30 113 759	1%	22 093 734	-7%	972 338	14%
6	NASDAQ OMX Nordic Exchanges	13 005 779	15%	14 885 864	10%	2 568 424	22%
7	Johannesburg Stock Exchange	10 817 043	5%	82 052	-11%	NA	NA
8	LSE Group	6 619 742	282%	2 484 831	70%	347 940	114%
9	Moscow Exchange	107 808	360%	119	278%	19 602	40%
10	MexDer	91 010	251%	461	251%	71 274	-17%
	Others	82 182	-17%				
	Total	2 298 770 404	10.2%				

Top 10 STIR contracts traded in 2018

	Contract Name	Size	Exchange	Volume		Notional Value		Open interest	
				2018	AGR	2018	AGR	2018	AGR
1	EURODOLLARS futures	NA	CME Group	765 208 581	20%	765 208 581	20%	12 690 809	0%
2	One Day Inter-Bank Deposit Futures, B3	Unit price (PU) times BRL1.00. The Contract values 100,000 point at the maturity.	B3 SA Brasil Bolsa Balcao	371 801 536	4.9%	NA	NA	19 121 160	-22.7%
3	EURODOLLARS options	NA	CME Group	356 735 941	133%	370 661 360	142%	41 240 443	89%
4	Three Month Euro (Euribor) Future	€1 000 000	ICE Futures Europe	226 441 372	15%	259 175 200	10%	4 964 530	17%
5	Three Month Sterling Future	£500 000	ICE Futures Europe	216 984 337	9%	140 208 565	3%	3 974 313	26%
6	IDI Index Option	1 contract.	B3 SA Brasil Bolsa Balcao	102 904 073	4%	NA	NA	16 958 546	-32%
7	30 DAY FED FUND FUTURES	\$4,167 x Contract IMM Index	CME Group	65 336 892	36%	326 684 460	36%	2 281 980	-99%
8	90-day bank bills (IR)	A\$1,000,000 face value	ASX24	32 853 692	8%	22 840 581	-4%	1 128 132	19%
9	Three Month Sterling Option	One Three Month Sterling Futures Contract	ICE Futures Europe	29 350 989	24%	18 966 374	17%	4 896 755	25%
10	Three-Month Canadian Bankers' Acceptance Futures	C\$1,000,000	Montreal Exchange	29 018 180	0.2%	21 289 934	-8%	822 968	12%

7.2 LTIR Options and Futures

- Over 2.3 billion LTIR derivatives contracts were traded in 2018, up 19.5% on 2017. LTIR derivatives accounted for about 7.6% of total derivatives volumes in 2018.
- LTIR futures which accounted for the major share (86%) of LTIR derivatives saw volumes increase by 18.5% and LTIR options recorded a 25.5% increase in volumes on 2017.
- The Americas region where the majority (61%) of the LTIR derivatives are traded saw volume increase by 28.6%, while in the Asia-Pacific and EMEA regions, volumes were up 2.2% and 9.1% respectively.
- The market remained fairly concentrated with over half of all volumes traded on a single exchange (CME Group). Three exchanges (one from each region) were responsible for nearly 90% of the contracts traded and contributed to the increase in volumes of contracts traded.
- The contracts with the highest volumes traded were the CME group's 5-year and 10-year Treasury Note futures in the Americas, Eurex's Euro Bund and Euro Bobl futures in the EMEA region and ASX's 3-year Treasury bond futures in the Asia-Pacific region.



Top 10 exchanges by number of long-term interest rate options and futures contracts traded in 2018

Rank	Exchange	Volume		Notional Value		Open interest	
		2018	AGR	2018	AGR	2018	AGR
1	CME Group	1 318 995 668	29%	146 029 003	30%	20 897 763	44%
2	Eurex	628 386 613	8%	100 900 233	1%	8 457 387	2%
3	Australian Securities Exchange	107 552 858	7%	7 354 794	-7%	2 275 668	11%
4	ICE Futures Europe	65 514 464	27%	8 453 477	20%	792 915	2%
5	B3 SA Brasil Bolsa Balcao	42 675 958	31%	3 868 831	28%	4 396 041	35%
6	Korea Exchange	38 125 594	11%	3 896 315	6%	422 563	38%
7	Montréal Exchange (TMX Group)	29 219 707	20%	2 143 779	11%	538 536	NA
8	National Stock Exchange of India	13 613 000	-17%	37 317	-29%	79 625	-5%
9	Japan Exchange Group	11 091 388	23%	NA	NA	NA	NA
10	China Financial Futures Exchange	10 865 726	-26%	NA	NA	80 060	-25%
	Others	14 180 470	-21%				
	Grand Total	2 280 221 446	19.5%				

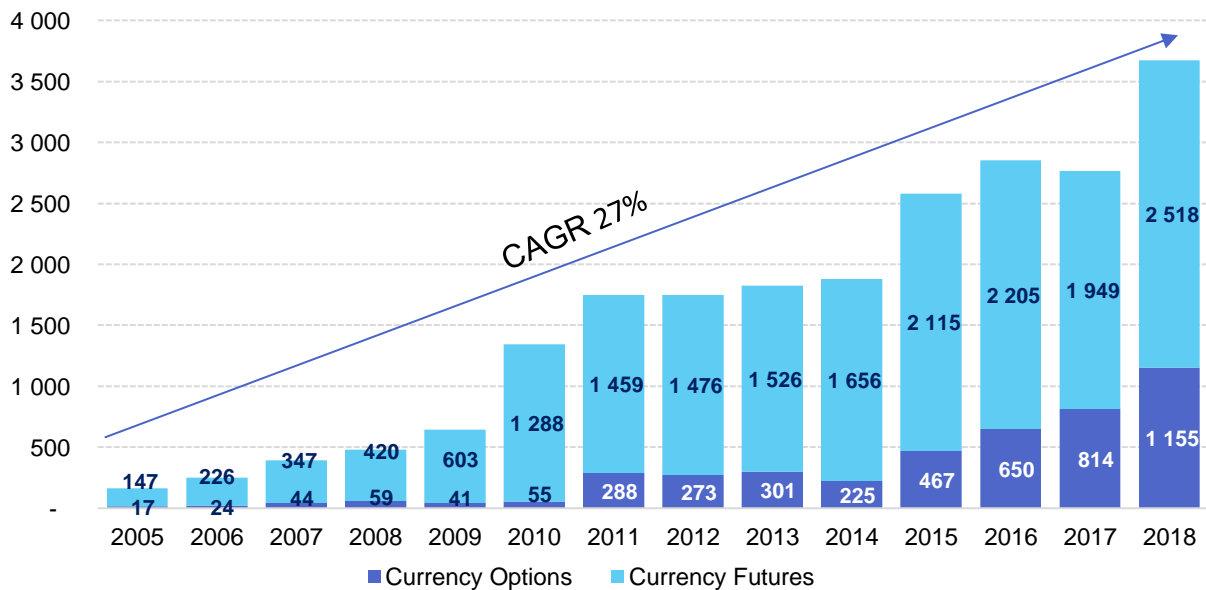
Top 10 LTIR contracts traded in 2018

	Contract Name	Size	Exchange	Volume		Notional Value		Open interest	
				2018	AGR	2018	AGR	2018	AGR
1	10-YR NOTE futures	Face value at maturity of \$100,000	CME Group	457 719 304	22%	45 771 930	22%	4 044 514	25%
2	5-YR NOTE futures	Face value at maturity of \$100,000	CME Group	287 221 081	27%	28 722 108	27%	4 695 255	51%
3	Euro Bund futures	\$100 000	Eurex	202 027 816	3%	37 060 019	-3%	1 735 050	-1%
4	10-YR NOTE options	Face value at maturity of \$100,000	CME Group	167 962 668	31%	16 796 267	31%	3 366 837	44%
5	Euro Bobl futures	\$100 000	Eurex	138 001 817	2%	20 750 952	-3%	1 355 686	-10%
6	2-YR NOTE futures	Face value at maturity of \$200,000	CME Group	135 499 156	39%	27 099 831	39%	2 752 772	54%
7	FUT 1 3/4-2 1/4 Y.GOV.BONDS 6%	\$100 000	Eurex	108 326 655	26%	13 879 032	20%	1 709 567	14%
8	30-YR BOND futures	Face value at maturity of \$100,000	CME Group	92 661 809	26%	9 266 181	26%	943 667	24%
9	Long Gilt Future	£100,000 nominal value	ICE Futures Europe	64 887 815	27%	8 382 364	20%	767 457	2%
10	3 year bonds (YT) futures	A\$100,000 face value	ASX	55 198 297	-1%	3 791 808	-13%	1 040 720	4%

8 CURRENCY DERIVATIVES

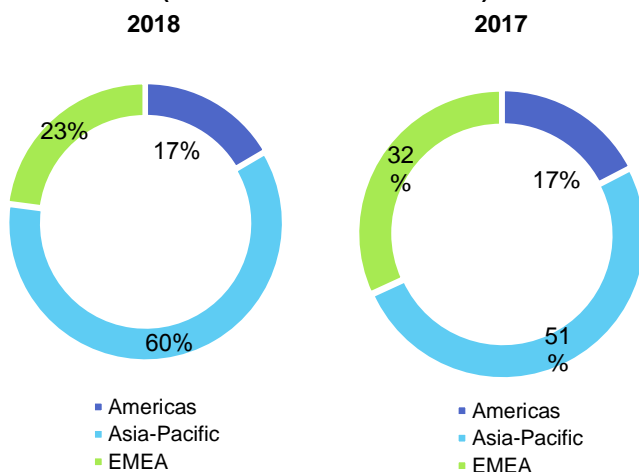
- Currency derivatives saw a 32.9% increase in volumes traded on 2017, in a year marked by volatility in currency markets globally. This was a reversal of the trend observed in 2017, when volumes were down on 2016.
- Currency derivatives contracts scaled a new high of 3.7 billion contracts traded in 2018.
- Volumes largely consist of currency futures contracts (68.6%) which were up 29.2% on 2018. Currency options volumes were up 41.8% on 2018.
- The Asia-Pacific region, where a bulk of the volumes (60%) are traded, saw volumes increase by 57.2% on 2017. The Americas region, which accounts for 17% in terms of volumes traded, recorded a 31.7% increase in volumes. Only in the EMEA region were volumes down (-5.1%) on 2017.

Number of currency derivatives traded worldwide (millions of contracts)

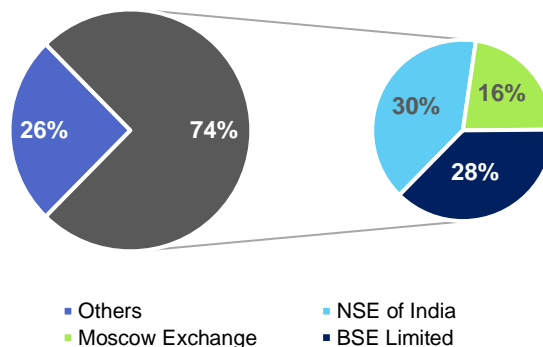


- In terms of volumes, the market for currency derivatives is quite concentrated at a regional level. The Moscow Exchange accounts for 74% of the volumes in the EMEA region. In the Asia-Pacific region, the National Stock Exchange of India and BSE Ltd together accounted for nearly 96% of the regional volumes and in the Americas region B3 SA Brasil Bolsa Balcao and CME Group accounted for 98% of volumes traded.

Currency Options and Futures - Regional activity (number of contracts traded)



Currency Options and Futures – Exchange activity (number of contracts traded)



Top 10 exchanges by number of currency options and futures contracts traded in 2018

		Volume		Notional Value		Open interest	
		2018	AGR	2018	AGR	2018	AGR
1	National Stock Exchange of India	1 087 336 029	49%	1 085 834	43%	3 750 066	-1%
2	BSE Limited	1 020 759 657	70%	1 006 937	65%	NA	NA
3	Moscow Exchange	614 384 872	-12%	574 661	-21%	4 171 970	-37%
4	B3 SA Brasil Bolsa Balcao	380 568 912	64%	7 901 966	18%	2 437 950	-51%
5	CME Group	237 393 440	3%	41 407 133	79%	2 293 386	-5%
6	Borsa Istanbul	104 851 949	34%	95 601	24%	1 337 203	63%
7	Korea Exchange	76 170 096	22%	754 658	14%	635 443	-25%
8	Johannesburg Stock Exchange	74 203 285	9%	77 595	45%	6 898 690	5%
9	Dubai Gold & Commodities Exchange	18 888 252	24%	117 802	18%	280 205	22%
10	Singapore Exchange	18 369 782	84%	NA	NA	71 095	-24.5%
	Others	40 107 447	-1%	NA	NA	NA	NA
	Grand Total	3 673 033 721	32.9%				

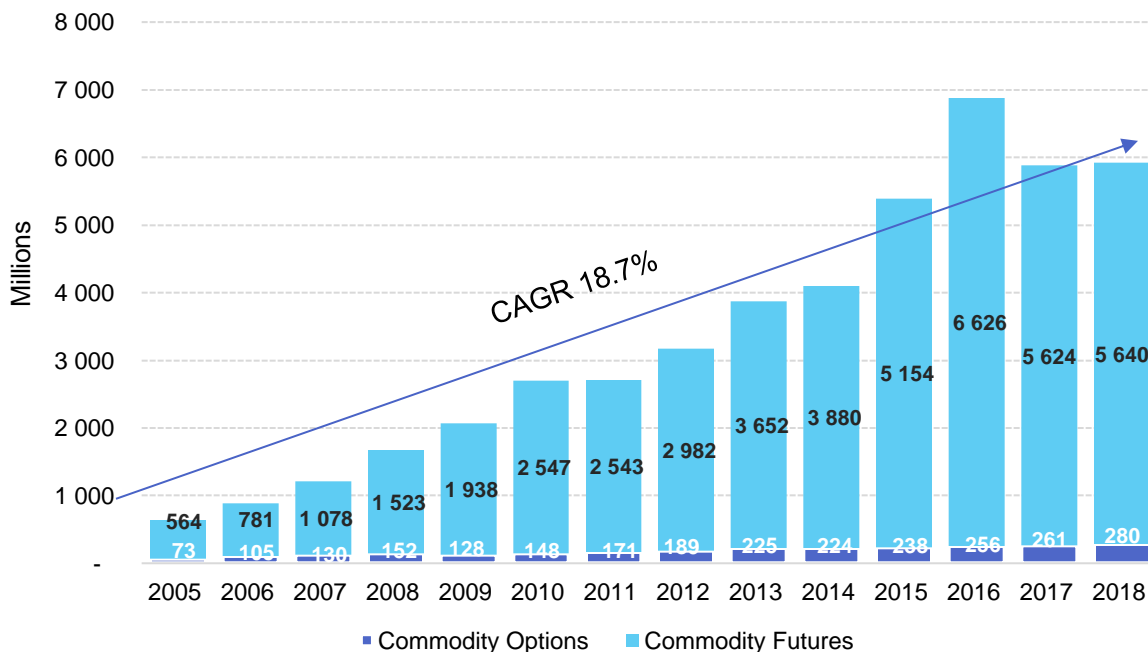
Top 10 currency contracts traded in 2018

	Contract Name	Size	Exchange	Volume		Notional Value		Open interest	
				2018	AGR	2018	AGR	2018	AGR
1	USD INR options	1000 USD	BSE Limited	559 423 445	67%	549 275	62%	128 721	-55%
2	USDINR Futures	1000 USD	National Stock Exchange of India	537 847 778	72%	NA	NA	1 889 692	5%
3	Futures on USD/RUB	1000 RUB	Moscow Exchange	496 225 103	-16%	453 804	-25%	2 501 898	-43%
4	USDINR Options	1000 USD	National Stock Exchange of India	484 853 286	30%	NA	NA	1 712 470	-4%
5	USD INR futures	1000 USD	BSE Limited	457 702 402	75%	453 310	69%	699 247	-26%
6	Mini U.S. Dollar Futures	10 000 USD	B3 SA - Brasil Bolsa Balcao	266 982 975	82%	NA	NA	94 695	34%
7	USD/TRY FUTURES	1 000 USD	Borsa İstanbul	93 417 172	43%	84 975	32%	1 234 295	146%
8	U.S. Dollar Futures	50 000 USD	B3 SA Brasil Bolsa Balcao	91 695 866	24%	NA	NA	1 200 433	17%
9	USD Futures	1 000 USD	Korea Exchange	73 431 150	22%	726 954	14%	591 719	-20%
10	EURO FX futures	125 000 EUR	CME Group	68 785 137	22%	10 190 033	27%	505 986	-5%

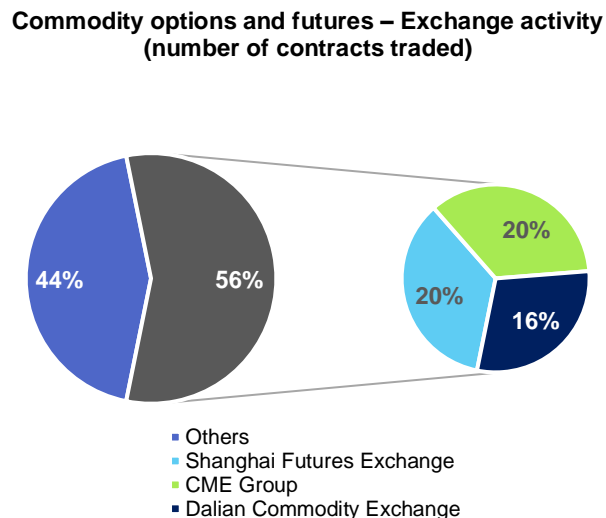
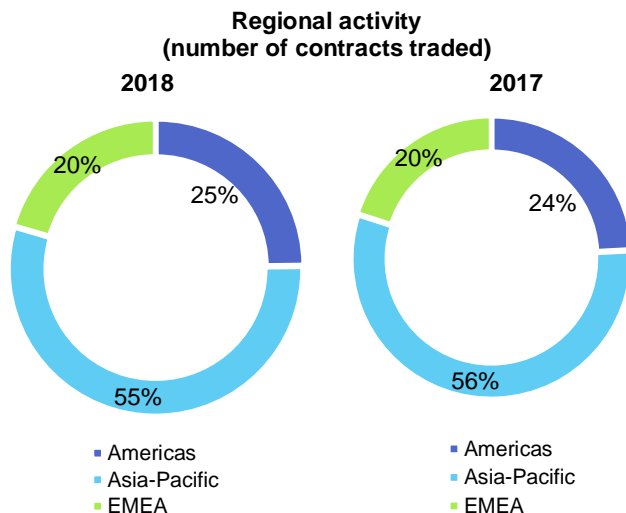
9 COMMODITY DERIVATIVES

- In contrast to all other derivatives types, commodity derivatives recorded only a marginal 0.6% increase on 2017.
- Commodity futures, which accounted for most (95.3%) of the trading in commodity derivatives, saw volumes increase by 0.3%, while commodity options volumes were up 7.6% on 2017.
- Commodity futures remained the most actively traded derivatives product accounting for 18.8% of overall volumes.
- A 1.4% decline in number of commodity derivatives contracts traded in the Asia-Pacific region, where the majority (55%) of global volumes are traded, was offset by increases in volumes in the Americas and the EMEA regions of 3.3% and 3.0% respectively.
- Three exchanges – Shanghai Futures Exchange, CME Group and Dalian Commodity Exchange - accounted for 56% of overall volumes.

Number of commodity options and futures traded worldwide (millions of contracts)



- In the Asia-Pacific region, while the Shanghai Futures Exchange and the Dalian Commodity Exchange saw volumes fall by 13.8% and 10.8% respectively, the Zhengzhou Commodity Exchange saw volumes increase by 39.6% on 2017.
- The trading in the Americas region continued to be dominated by CME Group and ICE Futures US. Together they accounted for 99.9% of the regional volumes and saw volumes increase by 4.4% and 1% respectively on 2017.
- In the EMEA region, a 2.6% decline in volumes traded on the Moscow Exchange was offset by a 2% and 17.4% increase in volumes on ICE Futures Europe and the London Metal Exchange respectively.
- The Steel Rebar futures traded on the Shanghai Futures Exchange, Moscow Exchange’s Crude Oil Brent futures and CME Group’s Crude Oil futures were among the most traded commodity derivatives contracts in 2017.



Top 10 exchanges by number of commodity options and futures contracts traded in 2018

		Volume		Notional Value		Open interest	
		2018	AGR	2018	AGR	2018	AGR
1	CME Group	1 179 216 669	4%	65 539 250	18%	28 009 925	-13%
2	Shanghai Futures Exchange	1 175 388 670	-14%	11 858 198	-14%	4 190 432	3%
3	Dalian Commodity Exchange	981 927 369	-11%	7 590 550	-90%	4 556 829	-55%
4	Zhengzhou Commodity Exchange	817 829 796	40%	5 558 195	70%	2 967 130	9%
5	ICE Futures Europe	493 383 028	2%	28 342 539	19%	13 192 822	-3%
6	Moscow Exchange	478 400 404	-3%	306 283	7%	1 601 990	57%
7	ICE Futures US	287 649 790	1%	2 096 792	3%	2 960 500	19%
8	Multi Commodity Exchange of India	230 339 630	16%	938 516	16%	338 314	4%
9	London Metal Exchange	184 816 059	17%	NA	NA	NA	NA
10	Borsa Istanbul	22 238 688	206%	NA	NA	274 026	144.1%
	Others	69 331 991	-14%				
	Total	5 920 522 094	0.6%				

Top 10 commodity contracts traded in 2018

	Contract Name	Size	Exchange	Volume		Notional Value		Open interest	
				2018	AGR	2018	AGR	2018	AGR
1	Steel Rebar	10 tons/lot	Shanghai Futures Exchange	530 976 610	-24%	NA	NA	1 407 885	-4%
2	Crude Oil Brent futures	10 USD per 1 barrel	Moscow Exchange	441 379 480	-2%	281 944	13%	897 268	60%
3	CRUDE OIL futures	1,000 barrels	CME Group	306 613 007	-1%	19 690 051	25%	2 104 675	-14%
4	Soybean Meal futures	100 Short Tons (~91 metric tons)	Dalian commodity exchange	238 162 413	46%	1 068 877	52%	1 020 955	-10%
5	Iron Ore futures	100 MT/Contract	Dalian commodity exchange	236 491 632	-28%	1 676 469	-36%	473 756	-53%
6	Brent Crude Oil futures	1,000 barrels	ICE Futures Europe	234 993 964	-3%	16 215 070	16%	2 174 197	-7%
7	PTA (Pure Terephthalic Acid)	1 ton/lot	Zhengzhou Commodity Exchange	170 845 666	22%	812 372	NA	723 191	9%
8	Methanol	10,000 million British thermal units (mmBtu).	Zhengzhou Commodity Exchange	163 896 306	20%	681 205	NA	552 349	66%
9	Nickel futures	10 metric tons/lot	Shanghai Futures Exchange	114 818 738	55%	NA	NA	260 742	-14%
10	NATURAL GAS futures	20 metric tons/lot	CME Group	114 256 078	5%	3 487 535	4%	1 234 072	-14%

9.1 Granular commodity derivatives data

This year, in addition to aggregate commodity derivatives trading statistics, more granular data on commodity derivatives by underlying commodity has also been collected. The categories of underlying by which commodity derivatives contracts have been classified are as follows:

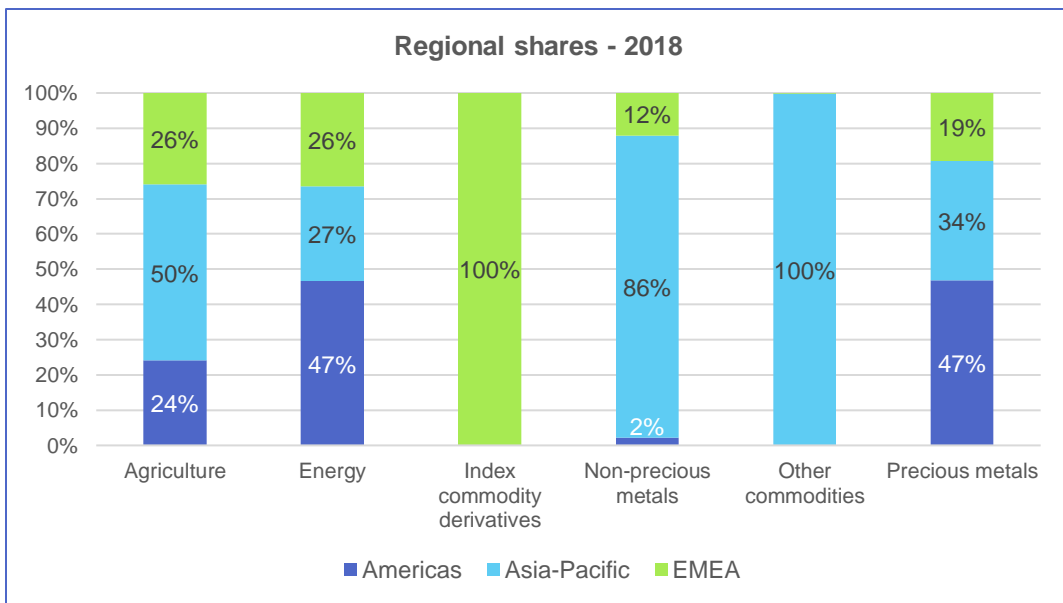
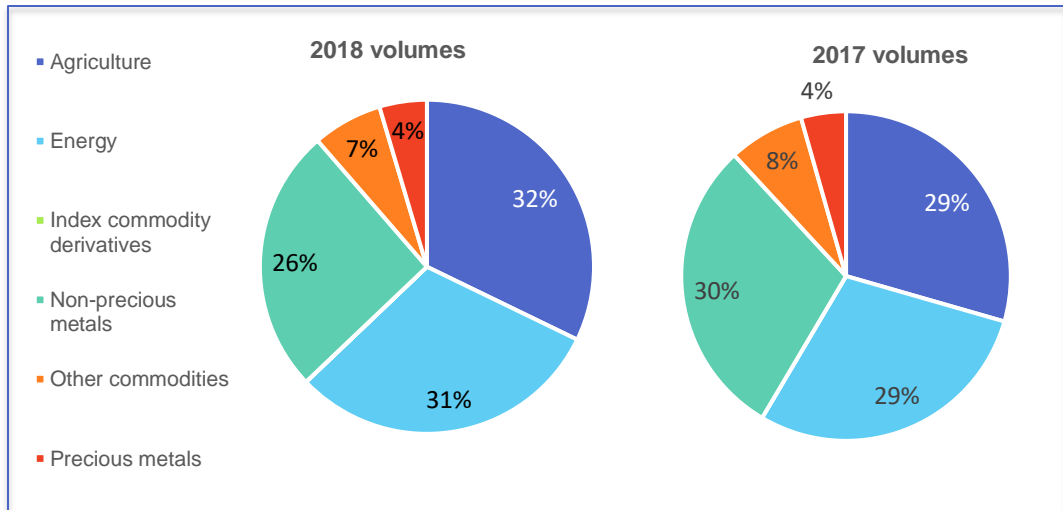
- Agriculture
- Energy: this includes emissions contracts and ethanol and methanol contracts, to the extent that these are energy-related
- Non-precious metals
- Precious metals
- Index commodity derivatives: a commodity index tracks a basket of commodities. The commodities in the index may all reference a particular underlying category (e.g. agricultural commodities) or a cross-section of commodities
- Other: meant to capture all contracts that do not clearly fall into one of the above-mentioned categories. It includes instruments like freight, plastic-polypropylene, and glass contracts.

Key trends and highlights from this data are as follows:

- Agriculture, energy and non-precious metals accounted for the bulk (32%, 31% and 26% respectively) of global commodity derivatives volumes. While volumes of agriculture and energy based derivatives were up 9.9% and 6.2% respectively, non-precious metals saw volumes fall 12.6% on 2017.
 - Volumes of agricultural commodity derivatives were up in all three regions against a backdrop of weather disruptions, shortages in certain regions and concerns about a global trade war. In the Asia-Pacific region, where nearly 50% of the contracts were traded, volumes were up 14% while in the Americas and EMEA regions, where the remaining 24% and 26% trading takes place, volumes were up 10.5% and 2.4% respectively.
 - Energy derivatives volumes were up 6.2% almost entirely driven up by the 38.4% increase in the Asia-Pacific region where 27% of the trading takes place. In the Americas region, which accounts for the largest share of volumes (47%), the number of contracts traded was down 1.7% and the EMEA region also recorded a 2.9% decline in volumes.
 - The overall decline in the volumes of non-precious metals was due to the 16.1% fall in the Asia-Pacific region where 86% of the contracts are traded. In the Americas region and the EMEA region, volumes were up 15.5% and 17.3% respectively.
- 'Other' commodities, precious metals and Index commodity derivatives accounted for the remaining share of commodity derivatives volumes. While volumes of other commodity derivatives fell 8.7%, precious metals and index commodity volumes were up 4.7% and 1176.2% respectively.
- The net result of the increases and decreases across different commodity derivatives product categories was a 0.6% increase in volumes of commodity derivatives overall on 2017.
- As with other products, there is a large variation in contract sizes across markets. For instance, metal contract sizes vary from 10 tons to 100MT per contract, agricultural contracts from 10MT to 127MT per contract and crude oil contracts from 10 barrels to 1000 barrels. Hence, the regional shares of volumes traded chart must be interpreted in this context.

Category	Vol-2018	Vol-2017	% change Y-o-Y
Agriculture	1 906 498 461	1 734 334 851	9.9%
Energy	1 815 789 033	1 709 489 894	6.2%
Index commodity derivatives	1 443 103	113 076	1176.2%
Non-precious metals	1 522 680 271	1 741 973 887	-12.6%
Other commodities	400 669 143	438 752 259	-8.7%
Precious metals	271 817 771	259 667 301	4.7%
Grand Total	5 918 897 782	5 884 331 268	0.6%

Top 5 exchanges by volumes traded in 2018 and % change on 2017				
Agriculture	Volume	%/'17	Notional Value	%/'17
Dalian Commodity Exchange	505 127 262	-5%	2 442 413	-9%
ICE Futures Europe	475 821 387	2%	28 002 451	19.2%
CME Group	372 920 627	10%	11 078 826	10%
Zhengzhou Commodity Exchange	368 664 004	88%	3 309 894	123%
ICE futures USA	86 929 376	23%	NA	NA
Energy				
CME Group	645 417 493	-0.2%	37 717 317	23%
ICE Futures Europe	449 693 660	-2%	287 389	13%
Moscow Exchange	212 765 505	27%	1 120 353	33%
ICE Futures USA	200 720 414	-6%	NA	NA
Zhengzhou Commodity Exchange	120 996 599	18%	333 762	27%
Non-precious metals				
Shanghai Futures Exchange	935 928 680	-15%	9 243 358	-7%
Dalian Commodity Exchange	236 491 632	-28%	1 676 469	-36%
London Metal Exchange	183 705 642	17%	NA	NA
Multi Commodity Exchange of India	78 679 184	20%	368 243	19%
Zhengzhou Commodity Exchange	40 410 987	-2%	212 770	-2%
Precious metals				
CME Group	127 437 882	12%	14 293 053	11%
Shanghai Futures Exchange	58 374 459	-20%	981 334	-26%
MOEX	28 716 464	3%	221 083	2%
Multi Commodity Exchange of India	28 705 203	-13%	18 893	-41%
Borsa Istanbul	22 205 518	207%	3 837	39%
Index commodity derivatives				
Eurex	1 443 103	1176%	5 537	175%
Other commodities				
Zhengzhou Commodity Exchange	195 989 300	8%	915 179	24%
Dalian Commodity Exchange	124 771 352	-21%	779 072	-23%
Shanghai Futures Exchange	78 777 393	-19%	386 397	-1%
Nasdaq Nordic Exchanges	1 131 098	-49%	8 065	-47%



10 OTHER OPTIONS & FUTURES

Other options and futures include products which do not fall into the categories that have been analysed above such as index volatility options and futures, dividend options and futures, and inflation indexed derivatives. Five out of forty-eight exchanges that were surveyed submitted data on other options and futures.

Volumes traded of other options and other futures were down 7.8% and 18.7% on 2017.

Most exchanges recorded a decline in the volumes of their other options contracts traded. Cboe Global Market's SPX VIX Index options, which accounted for nearly 85% of the other options traded, recorded a 7.6% decline in volumes with 167 million contracts traded in 2018.

The decline in the volumes of other futures contracts traded was largely due to a 43.1% decline in volumes traded on the Johannesburg Stock Exchange, which accounted for nearly 40% of the contracts traded. Cboe Global Markets, which also accounted for about 40% of the total other futures volumes traded, experienced a 2% increase in volumes traded largely due to an uptick in the trading of VIX futures (74.3 million contracts traded in 2018, up 0.6% on 2017).

Eurex's futures on VStoxx and JPX Group's REIT Index futures were among the most traded other futures contracts.

Exchanges by number of 'other' options contracts traded in 2018

		Volume		Notional Value		Open interest	
		2018	AGR	2018	AGR	2018	AGR
1	Cboe Global Markets	167 470 563	-8%	280 052	39%	7 041 911	-29%
2	Eurex	10 956 102	-1%	52 810	35%	1 873 950	33%
3	Johannesburg Stock Exchange	2 517 736	245%	3 861	872%	218 876	71%
4	ICE Futures Europe	1 010 048	-77%	76	-40%	458 897	104%
5	Japan Exchange Group	140	-24%	NA	NA	NA	NA
	Grand Total	181 954 589	-7.8%				

Exchanges by number of 'other' futures contracts traded in 2018

		Volume		Notional Value		Open interest	
		2018	AGR	2018	AGR	2018	AGR
1	Johannesburg Stock Exchange	75 878 413	-43.1%	4 214	11%	5 306 329	NA
2	Cboe Global Markets	75 609 251	2.2%	1 252 883	53%	378 388	-33%
3	Eurex	29 639 718	36%	134 222	47%	5 216 669	60%
4	ICE Futures Europe	8 463 989	55%	165 786	326%	993 717	-2%
5	Japan Exchange Group	351 615	7%	5 352	14%	33 769	8%
6	LSE Group	37 342	-61%	97	NA	23 028	-21%
	Grand Total	191 687 801	-18.7%	1 562 555	63%	12 011 812	138%

11 ANNEX 1 – TRADING STATISTICS

Volume (full number) is the number of contracts traded. A contract is a standard unit of trading denoted by the number of shares or the amount of capital that may vary from class to class, or from product to product, as defined by the exchange.

Notional Value (USD millions) is the number of contracts traded multiplied by the contracts' underlying value. Contracts underlying value is calculated by multiplying the market price of the underlying asset for each contract times the contract's multiplier. It is an approximate measure of the underlying value of the number of contracts traded.

Open Interest (full number) is defined as the number of contracts outstanding at a given time (close of trading at the last trading day of the year)

12 ANNEX 2 - LIST OF EXCHANGES THAT HAVE CONTRIBUTED TO THE REPORT

Athens Exchange	Nasdaq Nordic Exchanges
Australian Securities Exchange	NASDAQ USA
Cboe Global Markets (Bats GM)	National Stock Exchange of India
B3 SA Brasil Bolsa Balcao	NYSE Derivatives
Bolsa de Comercio de Buenos Aires	NZX Ltd.
Bolsa de Valores de Columbia	Oslo Børs
Borsa Istanbul	Shanghai Futures Exchange
Boston Options Exchange	Singapore Exchange
BSE Ltd.	TAIFEX
Budapest Stock Exchange	Tel Aviv Stock Exchange
Bursa Malaysia Derivatives	Thailand Futures Exchange (TFEX)
Cboe Global Markets	Warsaw Stock Exchange
China Financial Futures Exchange	Zhengzhou Commodity Exchange
CME Group	
Dalian Commodity Exchange	
Dubai Gold & Commodities Exchange	
Eurex Exchange	
Euronext	
Hong Kong Exchanges and Clearing	
ICE Futures Europe	
ICE Futures US	
Indonesia Commodity and Derivatives Exchange	
International Securities Exchange	
Japan Exchange Group	
Johannesburg Stock Exchange	
Korea Exchange	
London Metal Exchange	
LSE Group	
MEFF	
Mexder	
MIAX Options Exchange	
Montréal Exchange	
Moscow Exchange	
Multi Commodity Exchange of India	

13 ANNEX 3 – PRODUCT LEVEL DATA TABLES

Single Stock Options

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	1 194 676 265	681 905 063	595 757	435 877	13 355 071	16 611 300
BATS Global Markets	314 506 027	272 439 361	NA	NA	NA	NA
Bolsa de Comercio de Buenos Aires	30 692 824	32 561 351	NA	NA	NA	NA
Boston Options Exchange (TMX Group)	76 663 505	61 350 871	NA	NA	NA	NA
Cboe Global Markets	466 114 487	413 625 665	6 456 424	4 084 321	178 673 000	190 867 000
International Securities Exchange (ISE)	326 935 159	302 630 789	NA	NA	NA	NA
MexDer	352 759	300 820	97	39	72 540	2 000
Miami International Securities Exchange	122 530 187	116 016 897	NA	NA	NA	NA
Montréal Exchange (TMX Group)	29 405 993	23 178 799	101 400	90 494	3 726 382	3 217 216
NASDAQ (US markets)	702 389 037	598 660 102	NA	NA	NA	NA
NYSE Derivatives	444 946 374	318 093 553	145 493	70 602	NA	NA
Asia-Pacific						
Australian Securities Exchange	72 126 000	86 902 467	140 317	167 147	6 113 202	7 128 500
BSE Limited	2	3	NA	NA	NA	NA
Hong Kong Exchanges and Clearing	125 683 652	103 223 230	428 612	302 584	7 111 350	8 114 500
Japan Exchange Group	596 368	747 416	NA	NA	67 283	51 253
Korea Exchange	18 743 585	17 674 231	236	285	291 749	305 906
National Stock Exchange of India	170 098 254	116 497 267	1 742 411	1 380 388	282 037	236 635
TAIFEX	209 341	215 425	1 184	843	3 023	5 558
EMEA						
Athens Stock Exchange	11 679	24 572	4	11	1 099	922
Borsa Istanbul	2 593 550	3 441 016	410	669	202 879	825 057
Eurex	188 891 931	169 118 965	889 362	838 270	47 077 055	42 206 211
Euronext	74 602 767	70 084 311	286 179	245 377	12 384 554	12 826 261
ICE Futures Europe	14 955 606	15 555 105	225 282	253 934	2 875 197	3 620 970
Johannesburg Stock Exchange	7 783 111	9 244 496	522	540	996 186	1 288 741
LSE Group	20 947 222	22 607 912	68 793	75 174	4 156 633	NA
MEFF	20 237 873	20 316 354	17 642	19 550	6 155 926	5 904 677
Moscow Exchange	1 230 677	2 154 952	364	615	106 742	65 572
NASDAQ OMX Nordic Exchanges	21 504 232	22 681 858	30 909	39 848	2 753 660	2 269 840
Oslo Børs	2 168 336	2 737 475	3 000	3 463	213 977	420 886
Tel-Aviv Stock Exchange	645 117	727 458	4 379	4 339	35 771	61 409
Grand Total	4 452 241 920	3 484 717 784				

Single Stock Futures

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
Bolsa de Valores de Colombia	143 416	419 785	238	374	10 872	10 036
MexDer	15 200	277 720	4	42	2 700	300
Montréal Exchange (TMX Group)	1 051 667	1 145 427	3 627	4 472	141 816	227 470
Asia-Pacific						
Australian Securities Exchange	2 837 126	2 921 155	3 533	3 996	686 251	600 619
BSE Limited	295	647	3	8	3	7
Hong Kong Exchanges and Clearing	852 238	114 083	3 474	686	19 934	5 441
Korea Exchange	501 723 576	280 064 162	253 726	101 623	3 071 030	2 157 120
National Stock Exchange of India	252 932 988	201 923 887	2 421 406	2 283 280	1 750 520	1 704 820
TAIFEX	22 812 494	18 763 068	174 002	112 748	115 116	151 182
Thailand Futures Exchange (TFEX)	55 332 444	47 480 762	NA	NA	2 134 800	2 393 257
EMEA						
Athens Stock Exchange	13 212 566	18 698 023	1 848	1 884	242 066	395 963
Borsa Istanbul	54 692 782	18 440 819	9 545	3 305	741 946	853 204
Budapest Stock Exchange	173 039	214 606	1 126	1 305	6 532	10 035
Dubai Gold & Commodities Exchange (DGCX)	2 674 548	1 357 379	4 275	2 340	590	973
Eurex	176 257 731	101 475 028	624 164	444 051	5 960 187	3 769 972
Euronext	1 104 916	389 909	4 594	1 704	276 211	10 716
ICE Futures Europe	102 738 408	82 062 501	3 557 262	3 541 864	290 094	995 812
Johannesburg Stock Exchange	9 263 458	139 060 767	7 323	17 345	892 191	9 013 443
MEFF	11 175 006	12 018 650	6 695	9 086	1 274 822	1 365 404
Moscow Exchange	235 942 570	201 803 966	63 909	58 721	1 486 390	1 863 650
NASDAQ OMX Nordic Exchanges	3 725 479	3 523 309	5 945	6 588	507 578	199 715
Oslo Børs	702 393	1 032 993	555	525	66 625	130 834
Warsaw Stock Exchange	1 296 270	1 651 089	2 412	3 227	13 859	19 958
LSE Group	3 940 694	3 581 407	14 837	15 564	NA	NA
Grand Total	1 454 601 304	1 138 421 142				

Stock Index Options

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	24 677 496	19 972 818	505 933	224 935	420 797	381 184
BATS Global Markets	143 678	NA	NA	NA	NA	NA
Cboe Global Markets	392 349 468	315 022 891	104 867 944	74 447 028	16 503 156	16 011 487
CME Group	207 538 061	168 773 253	35 045 600	27 345 300	3 900 010	4 541 650
ICE Futures US	300	63 559	NA	8 748	NA	600
International Securities Exchange (ISE)	1 226 664	1 353 210	NA	NA	NA	NA
MexDer	10 789	22 685	260	558	1 047	292
Montréal Exchange (TMX Group)	198 698	193 038	1 362	1 411	115 716	91 090
NASDAQ (US markets)	3 514 163	2 758 019	NA	NA	NA	NA
Asia-Pacific						
Australian Securities Exchange	12 850 211	10 887 815	542 752	492 620	774 362	887 744
BSE Limited	0	118	0	1	NA	NA
Bursa Malaysia Derivatives (BMD)	10 486	20 285	105	197	244	462
Hong Kong Exchanges and Clearing	40 026 686	31 935 369	4 206 620	3 154 170	2 612 800	2 340 690
Japan Exchange Group	36 283 128	33 347 953	NA	NA	1 980 087	2 163 033
Korea Exchange	676 874 836	554 765 334	44 432 824	43 699 884	2 917 430	2 757 470
National Stock Exchange of India	2 214 848 247	1 362 724 693	27 392 518	18 124 076	1 996 690	1 778 350
Singapore Exchange	11 537 530	8 531 404	NA	NA	1 588 890	1 539 987
TAIFEX	194 808 912	186 736 963	3 381 578	3 224 524	570 241	1 201 209
Thailand Futures Exchange (TFEX)	1 362 520	1 081 681	NA	NA	18 439	35 939
EMEA						
Athens Stock Exchange	81 295	95 203	370	448	1 383	4 250
Borsa Istanbul	172 397	275 030	418	857	16 860	19 266
Eurex	419 177 371	372 741 102	16 227 219	15 743 394	41 697 152	35 138 231
Euronext	19 046 931	14 677 562	1 159 962	912 317	742 244	706 614
ICE Futures Europe	12 911 705	11 034 747	16 070	16 676	1 743 754	1 870 420
Johannesburg Stock Exchange	4 760 767	4 420 461	2 169	2 639	785 857	782 813
LSE Group	4 099 824	2 909 372	232 007	164 139	269 491	NA
MEFF	4 183 154	4 303 701	45 557	51 759	745 683	655 186
Moscow Exchange	31 123 228	38 061 837	63 889	77 081	259 824	1 606 300
NASDAQ OMX Nordic Exchanges	6 745 132	6 111 718	117 175	120 628	424 532	437 847
Oslo Børs	866 734	781 785	43 947	6 276	71 696	74 380
Tel-Aviv Stock Exchange	33 098 716	32 388 214	1 361 202	1 335 026	200 210	281 821
Warsaw Stock Exchange	292 949	304 494	1 799	2 030	13 475	17 621
Grand Total	4 354 822 076	3 186 296 314				

Stock Index Futures

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
Bolsa de Valores de Colombia	2 782	1 734	31	21	282	24
CME Group	696 741 217	504 155 607	92 325 600	60 326 200	4 201 590	4 693 160
ICE Futures US	47 752 834	61 085 119	2 707 039	NA	1 617 309	NA
MexDer	935 544	1 024 760	21 908	22 309	40 101	41 663
Montréal Exchange (TMX Group)	7 710 307	6 243 977	1 046 673	899 647	304 059	261 098
B3 SA Brasil Bolsa Balcao	732 881 738	309 127 546	3 662 105	1 636 367	566 439	4 385 480
Asia-Pacific						
Australian Securities Exchange	15 671 537	12 600 200	1 605 552	1 388 332	296 526	310 688
BSE Limited	393	47 257	5	540	NA	NA
Bursa Malaysia Derivatives (BMD)	2 670 645	2 034 237	51 993	40 872	20 106	23 190
China Financial Futures Exchange	16 344 327	9 825 623	2 289 042	1 612 384	178 625	87 712
Hong Kong Exchanges and Clearing	125 840 585	75 546 018	14 242 846	7 826 294	708 430	475 151
Japan Exchange Group	339 707 241	278 761 006	15 064 934	11 786 573	2 478 340	1 965 071
Korea Exchange	99 046 237	66 332 720	4 747 406	4 184 668	625 576	536 400
National Stock Exchange of India	69 003 655	54 332 172	836 892	674 200	393 741	354 552
Singapore Exchange	170 522 336	141 164 086	NA	NA	2 191 819	1 756 116
TAIFEX	87 615 517	57 798 917	3 991 940	2 797 751	152 709	164 222
Thailand Futures Exchange (TFEX)	42 544 040	26 321 073	NA	NA	241 787	318 464
EMEA						
Athens Stock Exchange	640 572	629 413	2 915	2 927	4 635	6 383
Borsa Istanbul	55 730 451	44 363 062	133 653	144 352	409 980	449 750
Budapest Stock Exchange	423 819	307 897	566	422	5 239	4 429
Dubai Gold & Commodities Exchange	75 226	140 615	715	1 198	644	1 144
Eurex	496 862 569	417 178 059	25 324 054	22 900 987	9 444 490	7 988 327
Euronext	39 885 361	41 912 510	2 938 384	NA	576 631	540 643
ICE Futures Europe	102 675 560	36 545 692	3 793 407	3 761 944	842 344	1 394 180
Johannesburg Stock Exchange	18 133 205	20 397 512	403 023	475 181	509 151	561 322
MEFF	7 906 185	7 938 272	712 119	787 779	129 533	141 990
Moscow Exchange	138 999 745	152 629 708	275 866	320 904	242 126	375 296
NASDAQ OMX Nordic Exchanges	42 318 183	39 065 778	712 589	706 182	579 181	950 577
Oslo Børs	2 525 786	2 810 099	19 326	22 703	44 684	47 515
Tel-Aviv Stock Exchange	3 659	12 457	149 614	NA	NA	NA
Warsaw Stock Exchange	4 529 902	4 582 943	55 047	61 359	49 466	60 267
LSE Group	13 749 867	11 571 753	1 132 637	987 917	NA	NA
Grand Total	3 379 451 025	2 386 487 822				

ETF Options

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	17 803 686	31 666 541	3 643	6 081 855	114 665	204 685
BATS Global Markets	226 486 268	190 099 210	NA	NA	NA	NA
Boston Options Exchange (TMX Group)	30 130 999	25 553 513	NA	NA	NA	NA
Cboe Global Markets	408 258 324	363 702 411	7 317 726	5 808 387	93 290 400	94 154 800
International Securities Exchange (ISE)	285 368 872	227 656 519	NA	NA	NA	NA
MexDer	4	247	NA	NA	NA	NA
Miami International Securities Exchange	78 181 231	75 136 976	NA	NA	NA	NA
Montréal Exchange (TMX Group)	14 482 523	11 417 417	23 482	20 978	984 624	1 467 245
NASDAQ (US markets)	464 343 181	405 040 187	NA	NA	NA	NA
NYSE Derivatives	361 804 393	277 938 488	67 144	40 179	NA	NA
Asia-Pacific						
Hong Kong Exchanges and Clearing	1 595 449	2 619 081	15 552	24 563	102 133	190 200
Japan Exchange Group	318 265	168 187	NA	NA	2 640	26 807
TAIFEX	153 669	165 967	1 425	1 698	3 437	6 075
EMEA						
Eurex	60 895	241 319	513	1 157	3 016	6 986
Euronext	30 459	28 903	109	110	10 729	9 198
Grand Total	1 889 018 218	1 611 434 966				

ETF Futures

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
Montréal Exchange (TMX Group)	10 300	0	16	0	5 000	0
Asia-Pacific						
Hong Kong Exchanges and Clearing	10 789	7 449	99	62	542	114
Korea Exchange	92 500	24 663	108	36	9 418	1 162
TAIFEX	1 520 673	1 224 271	17 076	13 806	16 322	21 573
EMEA						
Borsa Istanbul	4 364	5 653	2	4	NA	NA
Budapest Stock Exchange	0	2	NA	NA	NA	NA
Eurex	20	252	0.1	2	NA	NA
Johannesburg Stock Exchange	423 035	651 835	NA	NA	NA	NA
Grand Total	2 061 681	1 914 125				

Short Term Interest Rate Options

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	104 053 963	105 078 412	2 638	2 090	17 083 366	27 587 460
CME Group	356 755 198	343 447 929	370 757 645	343 399 726	41 242 387	35 527 683
Montréal Exchange (TMX Group)	1 095 579	801 051	803 800	638 256	149 370	120 390
EMEA						
Eurex	610	2 317	173	680	1 611	2 201
ICE Futures Europe	81 688 752	70 255 733	70 403 663	63 279 320	14 369 524	10 778 181
Johannesburg Stock Exchange	261 039	111 779	NA	NA	17 372 097	0
NASDAQ OMX Nordic Exchanges	917 500	285 000	1 050 132	341 442	585 000	195 000
Grand Total	544 772 641	519 982 221				

Short Term Interest Rate Futures

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	375 398 866	389 621 943	8 318 376	12 234 455	19 824 396	28 484 236
Bolsa de Valores de Colombia	9 104	19 267	1 522	3 449	3 332	11 397
CME Group	831 973 027	687 891 567	1 092 399 352	879 936 851	15 056 350	14 179 251
MexDer	91 010	25 938	461	131	71 274	86 004
Montréal Exchange (TMX Group)	29 018 180	28 962 355	21 289 934	23 076 434	822 968	735 064
Asia-Pacific						
Australian Securities Exchange	36 415 712	33 785 830	26 815 264	29 468 637	1 477 671	1 273 237
Hong Kong Exchanges and Clearing	759	588	118	93	272	20
EMEA						
Eurex	71 709	74 505	20 531	22 357	15 451	31 565
ICE Futures Europe	451 647 563	402 649 237	403 026 662	373 409 244	9 261 141	7 652 399
Johannesburg Stock Exchange	10 556 004	10 219 938	80 244	92 699	201 517 823	0
LSE Group	6 619 742	1 734 491	2 484 831	1 460 298	347 940	162 372
Moscow Exchange	107 808	23 462	119	32	19 602	14 010
NASDAQ OMX Nordic Exchanges	12 088 279	10 998 566	13 835 732	13 176 733	1 983 424	1 906 216
Warsaw Stock Exchange	0	2 537	0	79	0	100
Grand Total	1 753 997 763	1 566 010 224				

Long Term Interest Rate Options

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
CME Group	250 953 534	187 704 008	25 678 355	18 996 872	6 416 613	4 240 057
Montréal Exchange (TMX Group)	43 447	11 650	3 188	928	6 674	2 358
Asia-Pacific						
Australian Securities Exchange	781 113	961 877	55 109	75 092	5 440	2 000
Japan Exchange Group	783 545	861 714	NA	NA	7 720	20 995
EMEA						
Eurex	77 383 515	73 337 940	12 617 758	12 708 581	2 207 248	2 304 833
ICE Futures Europe	148 038	0	16 944	0	8 050	0
Johannesburg Stock Exchange	167 674	195 543	1 158	30	NA	NA
Grand Total	330 260 866	263 072 732				

Long Term Interest Rate Futures

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	42 675 958	32 688 779	3 868 831	3 023 943	4 396 041	3 258 745
Bolsa de Valores de Colombia	185 511	267 446	15 959	25 281	3 658	8 077
CME Group	1 068 042 134	836 481 051	120 350 648	93 373 051	14 481 150	10 309 746
MexDer	534 386	708 263	2 980	4 106	19 500	34 302
Montréal Exchange (TMX Group)	29 176 260	24 304 781	2 140 591	1 936 540	531 862	526 357
Asia-Pacific						
Australian Securities Exchange	106 771 745	99 911 369	7 299 685	7 799 914	2 270 228	2 044 318
BSE Limited	7 517 838	9 338 072	20 317	29 776	NA	5 901
China Financial Futures Exchange	10 865 726	14 770 315	1 509 791	2 161 422	80 060	107 403
Hong Kong Exchanges and Clearing	0	8 539	0	646	NA	NA
Japan Exchange Group	10 307 843	8 192 170	NA	NA	110 754	96 314
Korea Exchange	38 125 594	34 287 487	3 896 315	3 679 020	422 563	306 124
National Stock Exchange of India	13 613 000	16 325 501	37 317	52 210	79 625	83 651
Singapore Exchange	521 185	548 951	NA	NA	18 325	18 093
EMEA						
Eurex	551 003 098	508 720 954	88 282 476	86 883 899	6 250 139	6 021 582
ICE Futures Europe	65 366 426	51 568 953	8 436 533	7 050 464	784 865	780 152
Johannesburg Stock Exchange	1 232 346	1 726 406	8 962	14 890	39 010 945	0
LSE Group	15 156	15 463	1 123	2 394	50	20
Moscow Exchange	185 953	1 436 424	27	256	9 412	7 012
NASDAQ OMX Nordic Exchanges	3 820 379	3 780 060	4 372 644	4 528 667	217 698	220 128
Warsaw Stock Exchange	42	4 862	1	155	0	1
Grand Total	1 949 960 580	1 645 085 846				

Currency Options

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	8 826 346	8 641 075	5 542	4 552	1 123 316	622 666
Bolsa de Valores de Colombia	5	0	NA	NA	NA	NA
CME Group	17 405 229	19 537 355	3 385 938	2 245 508	638 449	659 172
ICE Futures US	5 708	10 210	535	1 004	1 472	675
MexDer	126 508	94 134	1 236	899	4 500	44 983
Montréal Exchange (TMX Group)	128	9 008	1	72	NA	678
Asia-Pacific						
BSE Limited	559 541 814	334 052 119	549 413	339 314	NA	283 114
Hong Kong Exchanges and Clearing	30 067	10 473	2 979	1 046	5 625	3 113
National Stock Exchange of India	484 284 232	371 600 526	483 119	382 861	1 712 653	1 779 471
Singapore Exchange	75	1 534	NA	NA	NA	NA
TAIFEX	135 026	138 690	3 939	4 079	3 532	10 497
EMEA						
Borsa Istanbul	5 306 146	8 935 808	4 524	8 667	74 998	254 160
Budapest Stock Exchange	70 150	21 100	80	24	9 600	300
Dubai Gold & Commodities Exchange (DGCX)	187 174	302 576	7	10	4 042	12 303
Eurex	0	3 474	0	413	0	NA
Euronext	0	18 399	0	220	0	4 505
Johannesburg Stock Exchange	32 230 327	20 574 664	37 189	563	5 489 721	4 526 266
Moscow Exchange	32 442 745	36 821 832	29 476	37 918	1 375 680	1 871 144
Tel-Aviv Stock Exchange	14 359 596	13 514 802	138 590	141 175	420 731	547 393
Grand Total	1 154 951 276	814 287 779				

Currency Futures

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	371 742 566	222 996 785	7 896 424	6 664 240	1 314 634	4 385 481
Bolsa de Valores de Colombia	723 984	407 796	28 322	15 146	8 329	3 623
CME Group	219 988 211	211 526 328	38 021 195	20 894 341	1 654 937	1 751 286
ICE Futures US	7 204 528	8 437 876	601 137	728 720	87 407	82 070
MexDer	6 265 311	8 576 719	62 606	83 778	336 466	865 529
Asia-Pacific						
BSE Limited	461 217 843	264 995 990	457 525	271 756	NA	975 712
Hong Kong Exchanges and Clearing	1 779 895	747 152	175 586	73 328	32 284	25 218
Korea Exchange	76 170 096	62 203 981	754 658	660 891	635 443	850 048
National Stock Exchange of India	603 051 797	358 254 960	602 716	374 802	2 037 413	2 025 665
Singapore Exchange	18 369 707	9 996 635	NA	NA	71 095	94 191
TAIFEX	624 532	533 918	18 346	16 879	6 563	6 697
Thailand Futures Exchange (TFEX)	685 847	346 890	NA	NA	18 627	13 150
EMEA						
Borsa Istanbul	99 545 803	69 334 515	91 077	68 650	1 262 205	564 606
Budapest Stock Exchange	6 036 966	6 477 100	6 578	7 384	592 018	580 216
Dubai Gold & Commodities Exchange (DGCX)	18 701 078	14 903 699	117 795	99 807	276 163	216 583
Eurex	14 733	0	1 678	0	902	0
Johannesburg Stock Exchange	41 972 958	47 794 037	40 406	53 103	1 408 969	2 066 426
Moscow Exchange	581 942 127	660 347 194	545 185	684 990	2 796 290	4 771 652
Warsaw Stock Exchange	2 044 463	1 076 703	2 026	1 194	66 811	42 180
	2 518 082 445	1 948 958 278				

Commodity Options

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	635 099	679 199	80	115	40 395	60 648
CME Group	160 947 284	153 435 890	7 737 668	6 530 200	10 516 351	10 091 600
ICE Futures Canada	0	154 524	0	21	0	10 986
ICE Futures US	41 225 268	53 134 517	349 412	331 722	1 150 005	955 465
Asia-Pacific						
Australian Securities Exchange	44 649	31 119	4 966	6 166	26 383	16 558
Bursa Malaysia Derivatives (BMD)	66 066	38 916	3	4	11 200	26 016
Dalian Commodity Exchange	12 521 591	3 635 682	1 348	366	187 046	159 370
Multi Commodity Exchange of India	1 085 808	25 036	21 810	1 168	13 117	1 341
NZX Limited	77 121	40 267	236	136	11 596	6 392
Shanghai Futures Exchange	1 193 828	0	1 205	0	27 878	0
Singapore Exchange	2 587 816	3 009 882	NA	NA	591 410	572 197
TAIFEX	45 385	40 075	343	312	576	331
Zhengzhou Commodity Exchange	4 593 395	1 492 393	503	220	100 712	76 741
EMEA						
Eurex	1 391 740	6 377	3 851	105	745 000	5
Euronext	1 148 063	994 987	13 982	2 423	208 688	183 907
ICE Futures Europe	37 864 180	29 163 171	51 899	36 298	4 274 879	3 838 110
Johannesburg Stock Exchange	351 110	291 204	285	262	71 176	50 578
London Metal Exchange	6 711 092	7 637 725	583 645	612 594	256 638	507 269
Moscow Exchange	7 775 321	6 695 060	5 122	3 690	306 740	102 274
NASDAQ OMX Nordic Exchanges	82 820	145 616	1 898	3 773	55	83 213
	280 347 636	260 651 640				

Commodity Futures

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	1 445 947	1 548 894	10 041	13 012	42 961	45 196
Bolsa de Valores de Colombia	713	475	3	3	292	132
CME Group	1 018 269 385	975 585 700	57 801 582	49 103 800	17 493 574	21 957 100
ICE Futures Canada	0	5 391 355	0	43 517	0	151 861
ICE Futures US	246 424 522	231 800 997	1 747 380	1 713 861	1 810 495	1 542 560
Asia-Pacific						
Australian Securities Exchange	505 829	447 573	21 812	24 077	89 760	83 860
BSE Limited	8 263	0	2 602	0	NA	NA
Bursa Malaysia Derivatives (BMD)	10 979 370	11 921 925	147 780	194 784	213 593	245 188
Dalian Commodity Exchange	969 405 778	1 097 644 470	7 589 203	79 803 968	4 369 783	10 059 542
Hong Kong Exchanges and Clearing	362 956	187 075	14 435	7 111	1 361	873
Indonesia Commodity and Derivatives Exchange	171 672	234 030	NA	NA	134	132
Multi Commodity Exchange of India	229 253 822	198 589 526	916 706	804 531	325 197	324 013
NZX Limited	268 530	271 408	1 034	1 374	58 980	45 771
Shanghai Futures Exchange	1 174 194 842	1 364 243 528	11 856 993	13 800 402	4 162 554	4 061 895
Singapore Exchange	13 401 896	15 024 300	NA	NA	689 189	651 200
TAIFEX	158 027	88 375	2 314	1 347	1 204	791
Thailand Futures Exchange (TFEX)	4 497 349	3 760 168	NA	NA	26 568	52 226
Zhengzhou Commodity Exchange	813 236 401	584 537 747	5 557 692	3 278 525	2 866 418	2 653 769
EMEA						
Borsa Istanbul	22 238 688	7 269 300	3 987	2 911	274 026	112 262
Budapest Stock Exchange	2	542	0	11	0	4
Dubai Gold & Commodities Exchange (DGCX)	622 110	735 389	6 531	6 834	3 315	3 764
Eurex	51 363	106 699	1 686	1 910	1 724	7 627
Euronext	13 435 644	12 170 346	166 618	158 438	446 232	435 917
ICE Futures Europe	455 518 848	454 376 258	28 290 640	23 847 245	8 917 943	9 807 460
Johannesburg Stock Exchange	3 080 836	2 718 489	46 892	45 814	111 034	117 783
London Metal Exchange	178 104 967	149 731 985	15 095 684	12 111 800	1 997 911	2 253 480
LSE Group	1 475	1 346	100	62	310	441
MEFF	12 343 047	17 930 084	781	1 024	5 464 016	8 009 262
Moscow Exchange	470 625 083	484 658 530	301 161	282 567	1 295 250	921 298
NASDAQ OMX Nordic Exchanges	1 567 093	2 679 502	47 741	46 356	227 902	628 898
Grand Total	5 640 174 458	5 623 656 016				

Other Options

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
Cboe Global Markets	167 470 563	181 314 269	280 052	201 083	7 041 911	9 885 413
Asia-Pacific						
Japan Exchange Group	140	184	NA	NA	0	22
EMEA						
Eurex	10 956 102	11 049 393	52 810	39 135	1 873 950	1 410 031
ICE Futures Europe	2 517 736	728 794	3 861	397	218 876	128 020
Johannesburg Stock Exchange	1 010 048	4 341 412	76	128	458 897	225 288
Grand Total	181 954 589	197 434 052				

Other Futures

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
Cboe Global Markets	73 991 390	75 609 251	820 121	1 252 883	566 140	378 388
Japan Exchange Group	329 990	351 615	4 698	5 352	31 244	33 769
Singapore Exchange	90 946	1 707 473	NA	NA	30 040	59 912
Eurex	21 841 926	29 639 718	91 319	134 222	3 268 522	5 216 669
Euronext	412 263	0	835	0	104 538	0
ICE Futures Europe	5 443 343	8 463 989	38 910	165 786	1 013 249	993 717
Johannesburg Stock Exchange	133 448 625	75 878 413	3 781	4 214	NA	5 306 329
LSE Group	95 909	37 342	101	97	29 295	23 028
Grand Total	235 654 392	191 687 801				

14 ANNEX 4 – GRANULAR COMMODITY DERIVATIVES DATA

Agriculture

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	2 047 833	2 176 488	9 782	13 319	79 426	120 858
CME Group	372 920 627	339 625 678	11 078 826	10 040 654	7 211 056	7 169 327
ICE Futures Canada	0	5 545 879	0	43 537	0	162 847
ICE futures USA	86 929 376	70 654 342	NA	NA	NA	NA
Asia-Pacific						
ASX	87 650	82 007	9 352	8 773	628	423
Bursa Malaysia	11 044 817	11 958 341	147 780	194 778	224 775	271 139
Dalian Commodity Exchange	505 127 262	533 107 585	2 442 413	2 679 951	3 024 669	3 214 605
Multi Commodity Exchange of India	1 947 383	2 437 131	15 429	18 412	24 252	25 747
NZX	336 732	311 675	70 233	1 036	7 394	52 163
Shanghai Futures Exchange	61 845 475	89 341 052	1 070 693	2 110 180	217 355	218 426
Singapore Exchange	1 813 192	1 475 592	NA	NA	86 397	84 356
Thailand Futures Exchange	34 482	10 613	NA	NA	60	521
Zhengzhou Commodity Exchange	368 664 004	195 632 377	3 309 894	1 482 109	1 296 446	177 915
EMEA						
Borsa Istanbul	835	19	1	NA	NA	NA
Budapest Stock Exchange	2	542	NA	11	NA	4
Euronext	14 583 707	13 165 273	180 600	160 861	654 920	619 824
ICE Futures Europe	475 821 387	465 903 095	28 002 451	23 499 921	12 510 332	12 910 894
Johannesburg Stock Exchange	3 292 622	2 906 705	46 540	45 397	176 211	164 113
LSE Group	0	174	0	2	NA	NA
MOEX	1 075	283	0.28	0.10	84	14
Grand Total	1 906 498 461	1 734 334 851				

Energy

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	39 284	82 257	525	607	3 870	3 691
Bolsa de Valores de Colombia	713	430	3	3	292	132
CME Group	645 417 493	646 869 556	37 717 317	30 726 815	18 284 543	22 723 023
ICE futures USA	200 720 414	214 281 172	NA	NA	NA	NA
Asia-Pacific						
ASX	462 828	396 685	72 589	69 621	37 328	38 316
BSE Limited	7 700	0	429	0	NA	NA
Dalian Commodity Exchange	115 537 123	82 315 804	2 692 596	278 976	304 820	300 283
Multi Commodity Exchange of India	120 996 599	102 914 689	333 762	261 982	93 323	71 413
Shanghai Futures Exchange	39 268 835	1 432	175 211	46	208 457	0
Singapore Exchange	211 089	176 223	NA	NA	27 911	22 525
TAIFEX	27 118	0	397	0	356	0
Zhengzhou Commodity Exchange	212 765 505	167 712 795	1 120 353	842 872	765 721	577 204
EMEA						
BME Spanish Exchanges	12 343 047	17 930 084	781	1 024	5 464 016	8 009 262
Borsa Istanbul	32 335	45 702	148	144	2 736	2 135
DGCX	118 736	146 650	5 844	4 167	902	587
Euronext	0	60	0	238	NA	NA
ICE Futures Europe	17 561 633	17 637 624	340 087	383 622	682 198	730 292
Johannesburg Stock Exchange	64 631	73 542	358	355	1 777	3 771
LSE Group	1 475	1 172	100	60	310	441
MOEX	449 693 660	458 295 729	287 389	254 242	1 210 436	660 864
Nasdaq Nordic Exchanges	518 815	608 288	41 574	34 964	181 877	179 255
Grand Total	1 815 789 033	1 709 489 894				

Non-precious metals

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
CME Group	33 440 667	28 952 371	2 450 054	1 940 608	320 688	406 812
Asia-Pacific						
Dalian Commodity Exchange	236 491 632	328 743 737	1 676 469	2 620 934	473 756	1 018 663
Hong Kong Exchanges and Clearing	11 250	20 940	105	184	1 125	451
Multi Commodity Exchange of India	78 679 184	65 506 594	368 243	308 571	118 148	105 980
Shanghai Futures Exchange	935 928 680	1 104 871 255	9 243 358	9 978 422	2 876 560	3 232 185
Singapore Exchange	13 997 401	16 016 160	NA	NA	1 175 211	1 044 631
Zhengzhou Commodity Exchange	40 410 987	41 199 193	212 770	216 631	97 874	149 787
EMEA						
DGCX	14 362	17 818	467	544	105	152
Johannesburg Stock Exchange	0	11 007	0	100	0	285
London Metal Exchange	183 705 642	156 633 873	NA	NA	NA	NA
MOEX	466	939	0.29	0.59	NA	NA
Grand Total	1 522 680 271	1 741 973 887				

Precious Metals

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Americas						
B3 SA Brasil Bolsa Balcao	1 208	35 548	NA	9	60	476
CME Group	127 437 882	113 634 957	14 293 053	12 927 959	2 193 638	1 773 722
Asia-Pacific						
BSE Limited	563	0	180 271	0	NA	NA
Bursa Malaysia	619	2 500	2	11	18	65
Hong Kong Exchanges and Clearing	351 706	166 135	15 563	6 927	236	422
Multi Commodity Exchange of India	28 716 464	27 756 148	221 083	216 733	102 591	122 214
Shanghai Futures Exchange	58 374 459	72 589 259	981 334	1 323 102	514 805	426 301
TAIFEX	176 294	128 450	2 260	1 659	1 424	1 122
Thailand Futures Exchange	4 462 867	3 749 555	NA	NA	26 508	51 705
EMEA						
Borsa Istanbul	22 205 518	7 223 579	3 837	2 767	271 290	110 127
DGCX	489 012	570 921	17 675	20 390	2 309	3 048
Johannesburg Stock Exchange	15 222	18 439	143	223	1 135	192
London Metal Exchange	880 754	735 171	NA	NA	NA	NA
MOEX	28 705 203	33 056 639	18 893	32 015	391 470	362 694
Grand Total	271 817 771	259 667 301				

Other commodity derivatives

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
Asia-Pacific						
Dalian Commodity Exchange	124 771 352	157 115 368	779 072	1 015 822	753 584	655 590
Shanghai Futures Exchange	78 777 393	97 440 530	386 397	388 652	345 377	184 983
Singapore Exchange	0	493 756	NA	NA	0	90 298
Zhengzhou Commodity Exchange	195 989 300	181 485 775	915 179	737 135	807 089	1 825 604
EMEA						
Nasdaq Nordic Exchanges	1 131 098	2 216 830	8 065	15 165	46 080	532 856
Grand Total	400 669 143	438 752 259				

Index Commodity Derivatives

	Volume		Notional Value		Open interest	
	2018	2017	2018	2017	2018	2017
EMEA						
Eurex	1 443 103	113 076	5 537	2 015	746 724	7 632
Grand Total	1 443 103	113 076				