



Q3 Trends in Futures and Options Trading

29 October 2020





Reminders

- The webinar will be recorded and posted to the FIA website within 24 hours of the live webinar.
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Presenters



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MODERATOR

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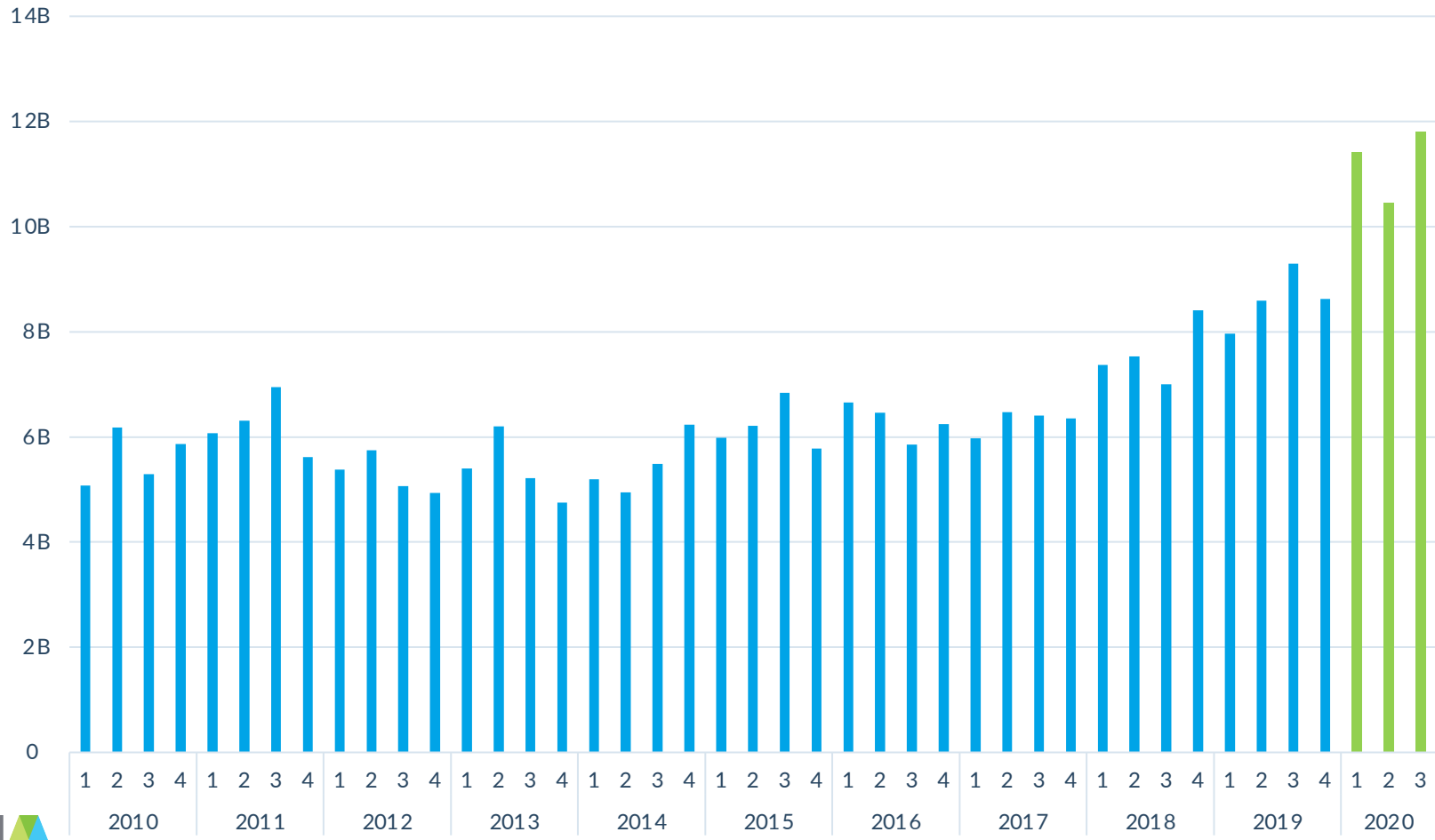


Agenda

- Global volume overview – quarterly volume since 2010
- Breaking down the global trends
 - By asset class
 - By region
- Top exchange and top contract rankings
- Monthly volume trends since January 2019
 - Focus on Europe and North America
- Guest presentation on European equity futures
 - Contract-level trends in open interest
 - Migration to total return futures
 - Impact of tick size reduction in Euro Stoxx 50 futures
 - Growth in ESG contracts

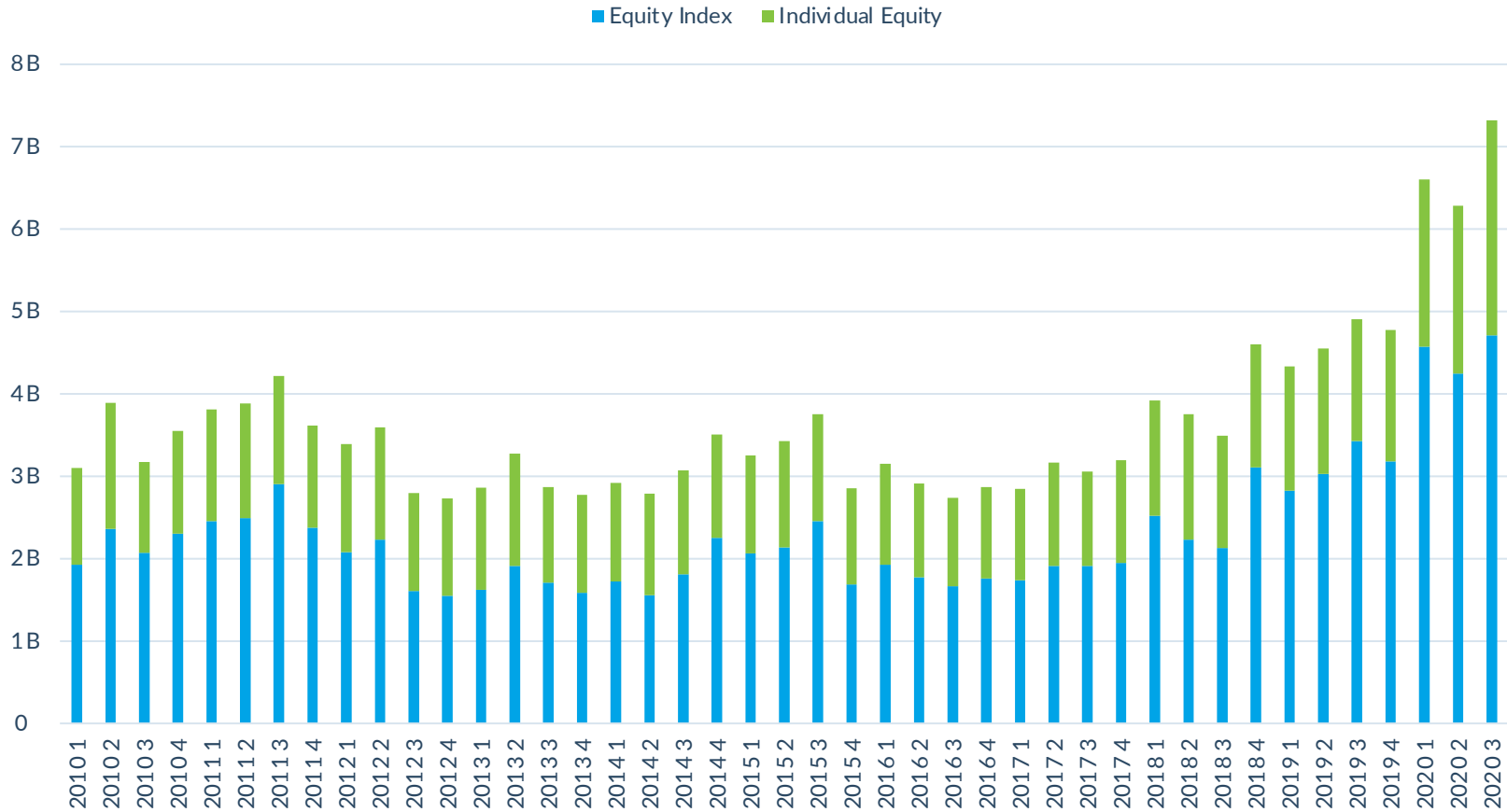
Global Volume on Track for Record Year

Quarterly Volume in Exchange-Traded Futures and Options



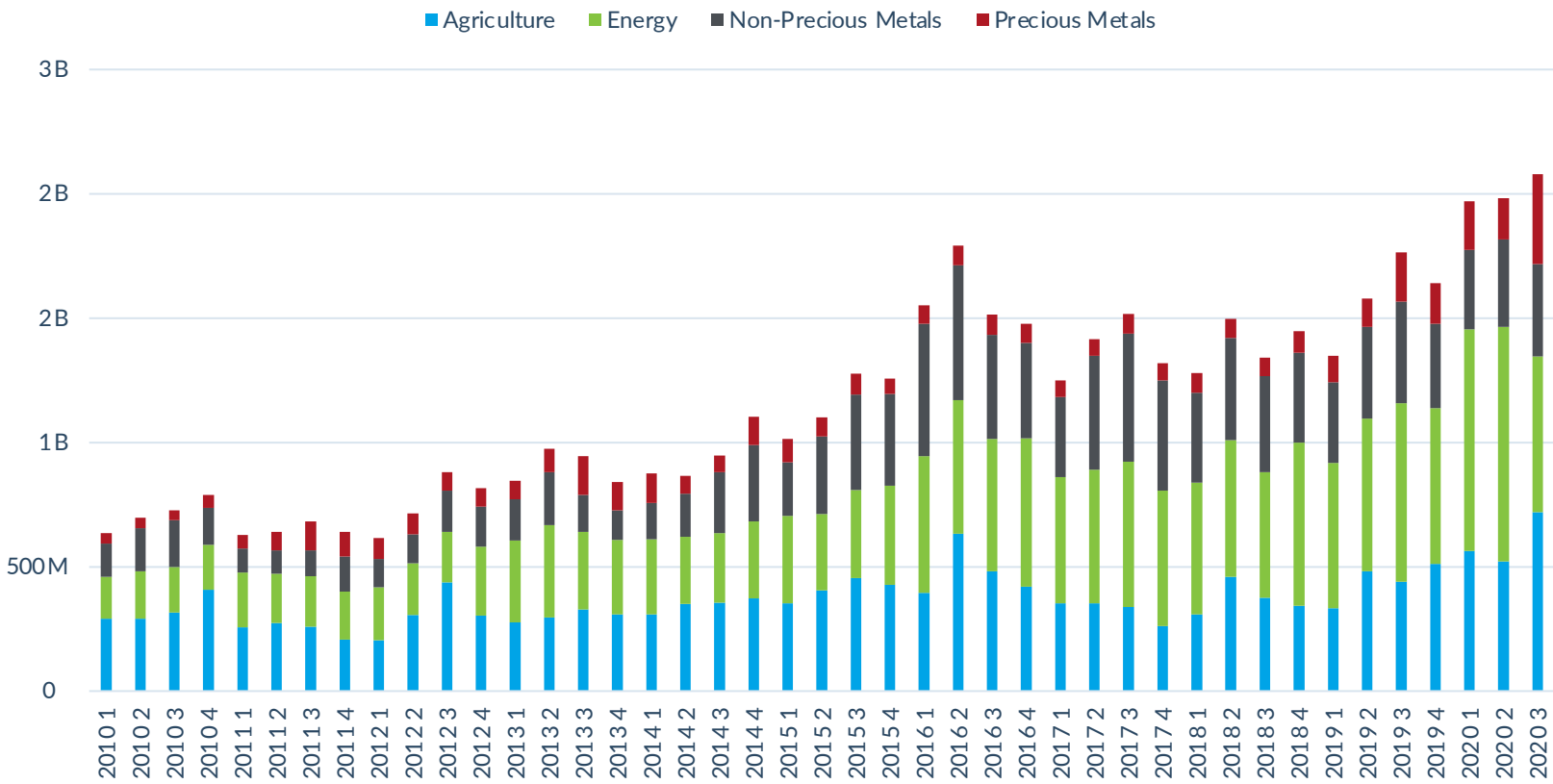
Explosive Growth in Equity Trading

Quarterly Volume in Equity Futures and Options



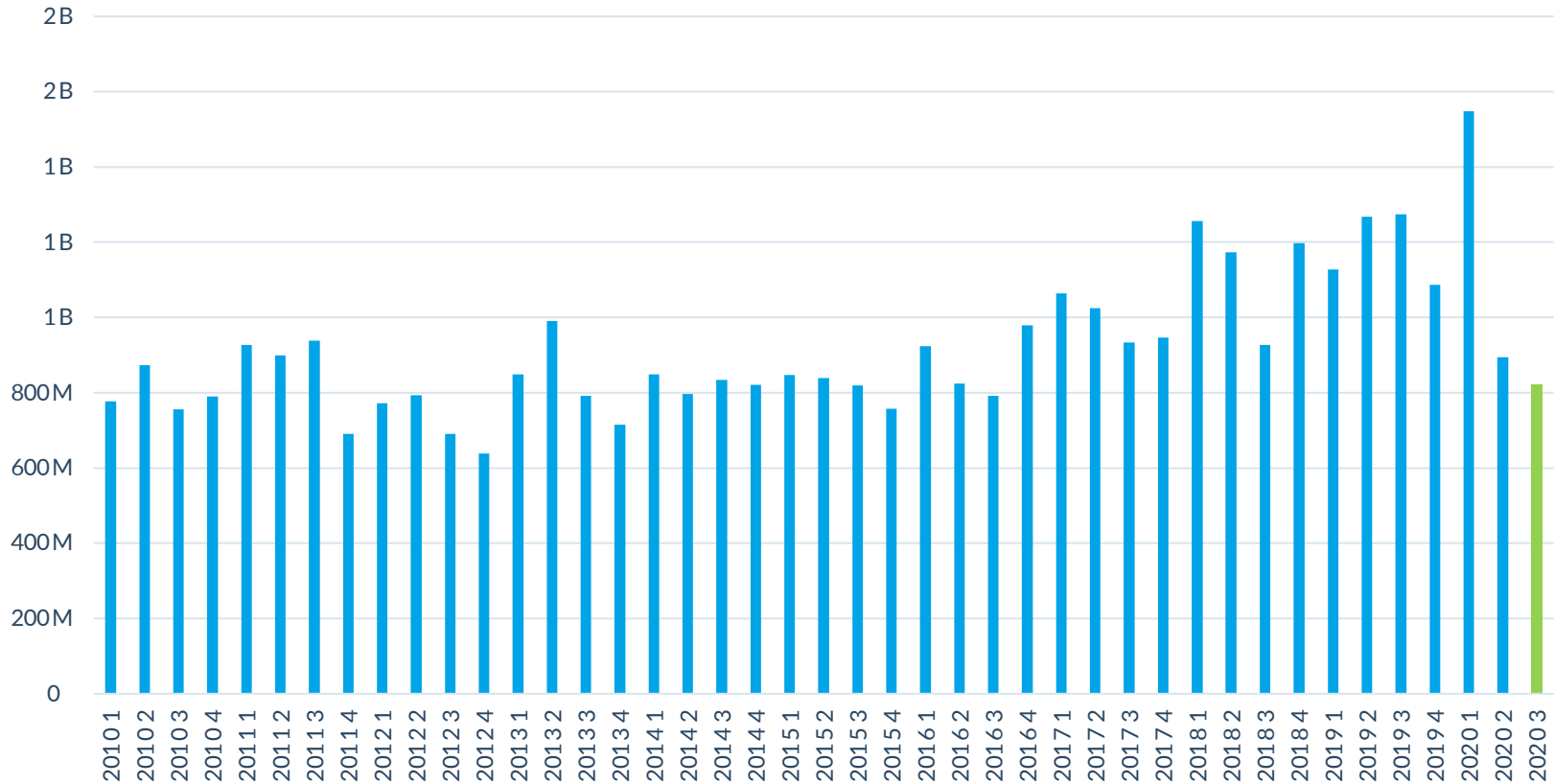
Commodity Trading Continues to Climb

Quarterly Volume in Commodity Futures and Options



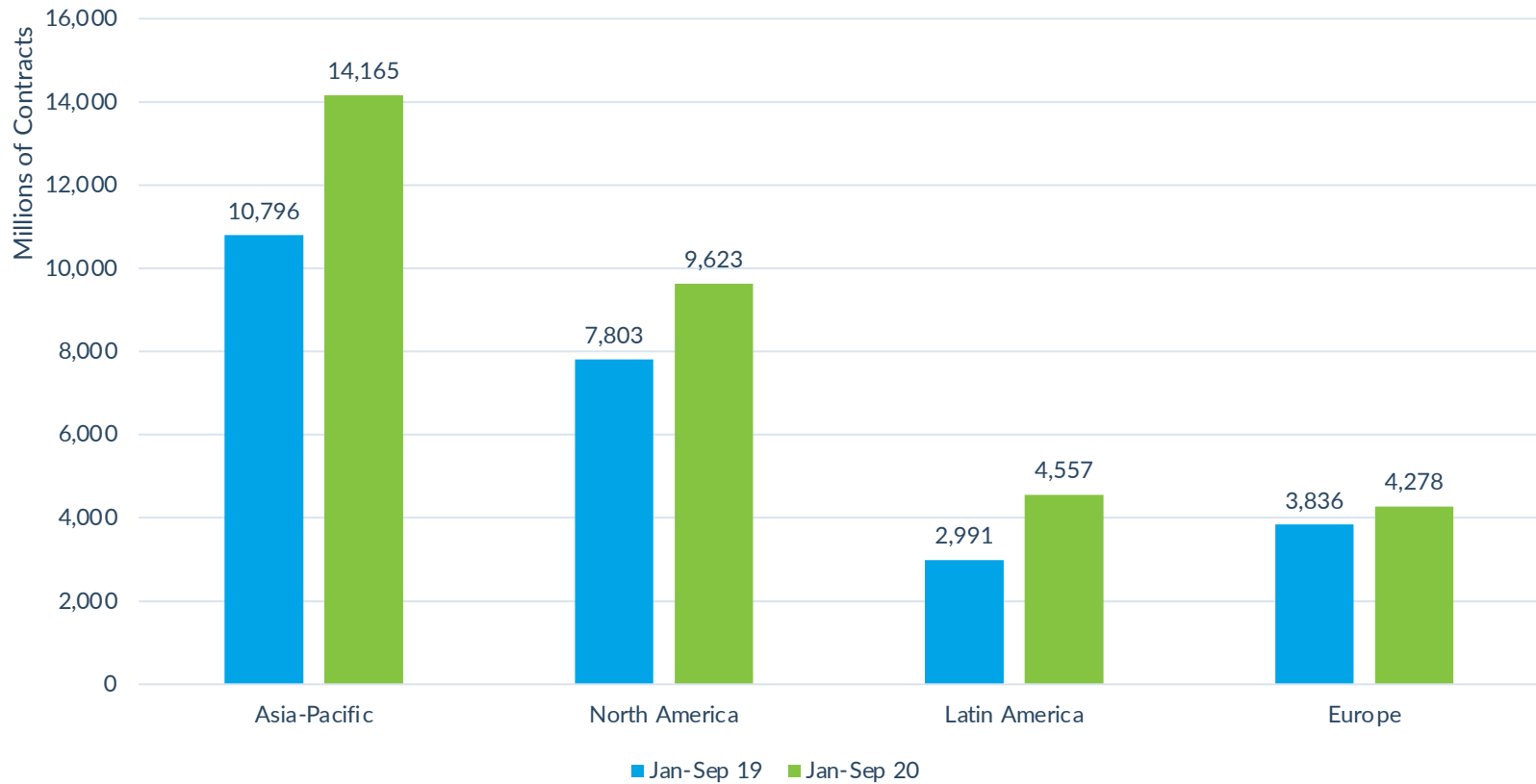
Q3 Rates Volume Lowest Since 2016

Quarterly Volume in Interest Rate Futures and Options



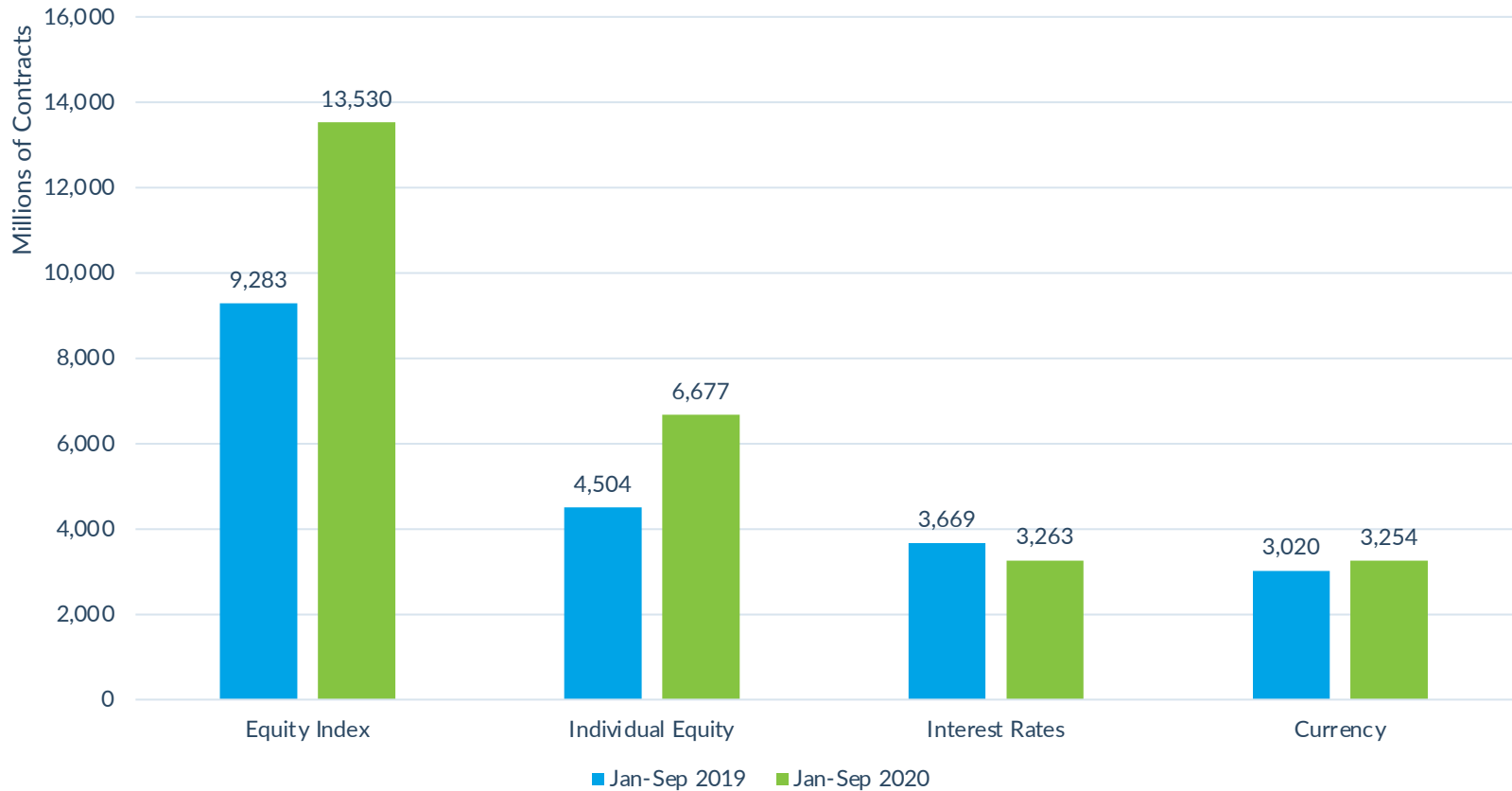
Year to Date: Trading Volume by Region

Futures and Options Volume Jan-Sep



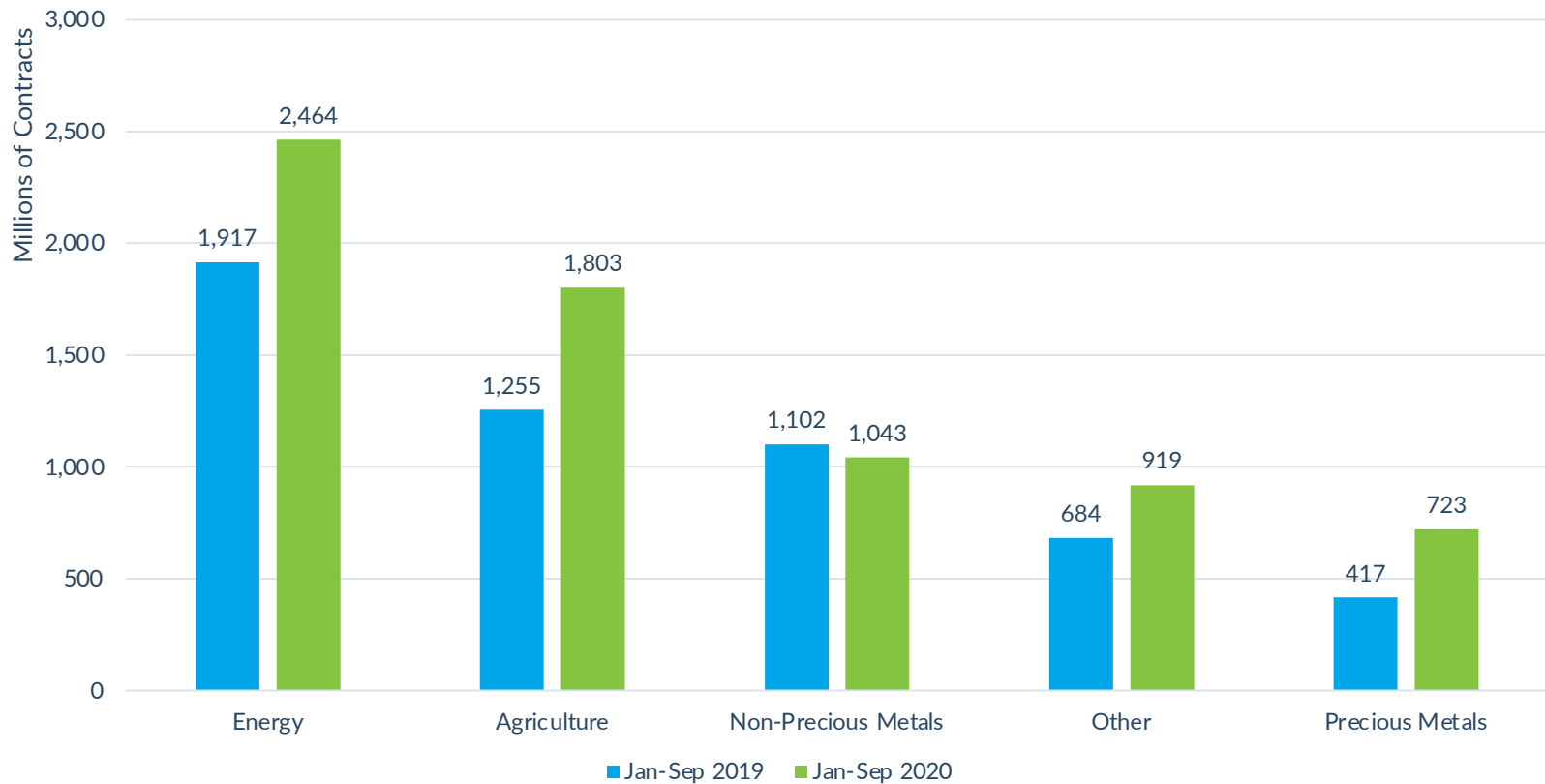
Year to Date: Focus on Financials

Financial Futures and Options Volume, Jan-Sep



Year to Date: Ag Outpaces Energy

Commodity Futures and Options Volume, Jan-Sep



Top Five Exchanges by Volume

| Rank | Exchange | Jan-Sep 2020 Vol | Vol % Change | 2020 Sep OI | OI % Change |
|----------|---|----------------------|--------------|--------------------|---------------|
| 1 | National Stock Exchange of India | 6,125,802,664 | 39.4% | 10,513,340 | 16.8% |
| 2 | B3 | 4,470,009,119 | 60.0% | 118,826,424 | 21.2% |
| 3 | CME Group | 3,782,176,062 | 0.9% | 88,894,632 | -30.2% |
| | Chicago Mercantile Exchange | 1,883,481,430 | 8.6% | 49,224,692 | -37.6% |
| | Chicago Board of Trade | 1,276,502,240 | -10.9% | 23,389,072 | -22.3% |
| | New York Mercantile Exchange | 485,721,281 | 5.1% | 13,850,756 | -9.6% |
| | Commodity Exchange (COMEX) | 136,471,111 | 12.6% | 2,430,112 | -22.9% |
| 4 | Intercontinental Exchange | 2,095,371,732 | 22.4% | 77,748,138 | -3.6% |
| | ICE Futures Europe | 886,361,145 | 2.0% | 47,596,518 | -11.4% |
| | NYSE Arca ¹ | 518,650,510 | 64.0% | n/a | n/a |
| | NYSE Amex ¹ | 400,237,203 | 41.7% | n/a | n/a |
| | ICE Futures U.S. | 288,602,093 | 18.4% | 30,149,892 | 12.1% |
| | ICE Futures Singapore | 1,520,781 | 64.8% | 1,728 | 577.6% |
| 5 | CBOE Holdings | 1,944,773,057 | 36.0% | 274,577 | -34.3% |
| | Chicago Board Options Exchange ¹ | 1,018,596,032 | 17.1% | n/a | n/a |
| | BATS Exchange ¹ | 507,008,281 | 71.9% | n/a | n/a |
| | EDGX Options Exchange ¹ | 216,738,046 | 128.4% | n/a | n/a |
| | C2 Exchange ¹ | 161,862,755 | 31.8% | n/a | n/a |
| | CBOE Futures Exchange | 40,567,943 | -15.7% | 274,577 | -34.3% |

Next 10 Exchanges by Volume

| Rank | Exchange | Jan-Sep 2020 Vol | Vol % Change | 2020 September OI | OI % Change |
|-----------|--|----------------------|---------------|--------------------|---------------|
| 6 | Nasdaq | 1,902,367,004 | 43.0% | 5,563,159 | -46.7% |
| | Nasdaq PHLX ¹ | 624,557,996 | 19.6% | n/a | n/a |
| | Nasdaq Options Market ¹ | 512,393,748 | 73.7% | n/a | n/a |
| | International Securities Exchange ¹ | 395,739,909 | 34.3% | n/a | n/a |
| | International Securities Exchange Gemini ¹ | 267,897,947 | 96.7% | n/a | n/a |
| | Nasdaq Exchanges Nordic Markets | 59,901,373 | 0.0% | 5,390,886 | -13.6% |
| | International Securities Exchange Mercury ¹ | 31,242,057 | 374.2% | n/a | n/a |
| | Nasdaq Boston ¹ | 10,157,492 | 20.4% | n/a | n/a |
| | Nasdaq Commodities | 476,482 | 21.2% | 172,273 | 10.2% |
| 7 | Korea Exchange | 1,614,161,573 | 34.9% | 10,537,225 | 13.9% |
| 8 | Moscow Exchange | 1,575,330,622 | 43.1% | 9,880,208 | -12.2% |
| 9 | Shanghai Futures Exchange | 1,542,131,367 | 44.9% | 6,136,080 | 14.3% |
| | Shanghai Futures Exchange | 1,506,366,672 | 45.6% | 5,837,186 | 9.5% |
| | Shanghai International Energy Exchange | 35,764,695 | 21.5% | 298,894 | 728.7% |
| 10 | Dalian Commodity Exchange | 1,533,239,234 | 63.9% | 9,590,558 | 46.1% |
| 11 | Eurex | 1,436,990,085 | -3.2% | 143,681,934 | -4.0% |
| 12 | Zhengzhou Commodity Exchange | 1,102,366,524 | 29.8% | 6,370,877 | 67.8% |
| 13 | Borsa Istanbul | 889,041,513 | 233.1% | 13,510,258 | 193.0% |
| 14 | Miami International Holdings¹ | 605,716,389 | 86.0% | n/a | n/a |
| 15 | BSE | 578,950,842 | -26.2% | 1,059,407 | 8.3% |

Retail Participation Rising in Equity ETD

| Top 20 Equity Index Futures and Options Contracts | | | | | |
|---|---|------------------|--------------|-------------|-------------|
| Rank | Contract | Jan-Sep 2020 Vol | Vol % Change | 2020 Sep OI | OI % Change |
| 1 | Bank Nifty Index Options, National Stock Exchange of India | 2,917,514,029 | 33.2% | 1,027,932 | 51.4% |
| 2 | Bovespa Mini Index Futures, B3 | 2,066,635,356 | 75.0% | 767,281 | -12.4% |
| 3 | CNX Nifty Index Options, National Stock Exchange of India | 1,628,410,904 | 92.5% | 1,892,713 | 54.0% |
| 4 | SPDR S&P 500 ETF Options * | 887,584,360 | 68.3% | 21,584,795 | 5.6% |
| 5 | Kospi 200 Options, Korea Exchange | 467,221,090 | -6.3% | 2,087,524 | -30.9% |
| 6 | E-mini S&P 500 Futures, Chicago Mercantile Exchange | 400,870,862 | 31.0% | 2,483,219 | 0.3% |
| 7 | Euro Stoxx 50 Index Futures, Eurex | 285,597,214 | 27.5% | 3,354,269 | -6.8% |
| 8 | Nikkei 225 Mini Futures, Osaka Exchange | 265,576,285 | 45.6% | 488,664 | 6.5% |
| 9 | S&P 500 Index (SPX) Options, Chicago Board Options Exchange | 245,369,415 | 1.7% | 14,626,489 | -16.6% |
| 10 | Euro Stoxx 50 Index Options, Eurex | 228,998,514 | 11.9% | 35,915,457 | -2.0% |
| 11 | Powershares QQQ ETF Options * | 190,137,232 | 41.8% | 8,648,677 | 43.5% |
| 12 | Micro E-mini S&P 500 Index Futures, Chicago Mercantile | 168,087,271 | 483.8% | 70,694 | 203.5% |
| 13 | Taix (TXO) Options, Taiwan Futures Exchange | 153,951,317 | 22.9% | 626,673 | -4.8% |
| 14 | Micro E-mini Nasdaq 100 Index Futures, Chicago Mercantile | 122,781,960 | 493.4% | 61,169 | 175.6% |
| 15 | RTS Index Futures, Moscow Exchange | 117,347,321 | 78.4% | 642,588 | 195.0% |
| 16 | E-mini Nasdaq 100 Futures, Chicago Mercantile Exchange | 113,165,872 | 24.8% | 260,149 | 26.7% |
| 17 | iShares Russell 2000 ETF Options * | 106,104,814 | 50.9% | 7,166,959 | 56.8% |
| 18 | CBOE Volatility Index (VIX) Options, Chicago Board Options | 94,324,903 | -6.1% | 5,245,269 | -28.6% |
| 19 | Kospi 200 Weekly Options, Korea Exchange ² | 81,348,475 | n/a | 0 | n/a |
| 20 | FTSE China A50 Index Futures, Singapore Exchange | 76,794,134 | -3.8% | 739,947 | -1.3% |

* Traded at multiple US options exchanges. Note: Micro E-Mini Nasdaq Futures and Kospi 200 Weekly Options began trading in 2019

Broad Decline in Interest Rate Sector

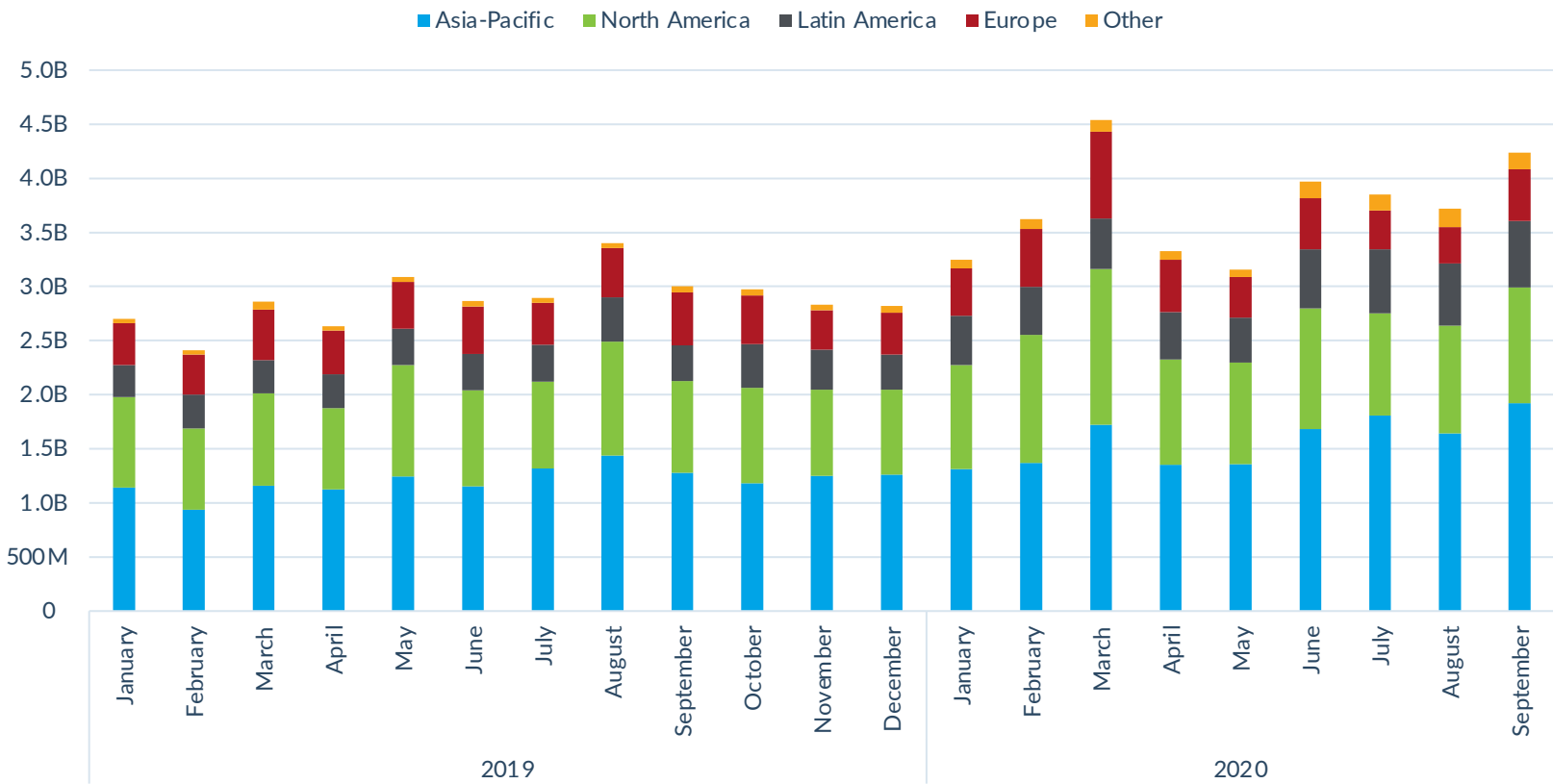
| Top 20 Interest Rate Futures and Options Contracts | | | | | |
|--|---|------------------|--------------|-------------|-------------|
| Rank | Contract | Jan-Sep 2020 Vol | Vol % Change | 2020 Sep OI | OI % Change |
| 1 | Eurodollar Futures, Chicago Mercantile Exchange | 412,742,245 | -26.5% | 9,059,010 | -24.5% |
| 2 | One Day Inter-Bank Deposit Futures, B3 | 394,414,431 | 23.6% | 24,706,489 | 1.0% |
| 3 | 10 Year Treasury Note Futures, Chicago Board of Trade | 312,606,615 | -9.7% | 3,240,331 | -9.5% |
| 4 | 5 Year Treasury Note Futures, Chicago Board of Trade | 191,175,079 | -16.3% | 3,228,736 | -22.3% |
| 5 | IDI Index Options, B3 | 188,120,834 | 17.4% | 38,811,760 | 11.3% |
| 6 | Eurodollar Options, Chicago Mercantile Exchange | 172,880,011 | -23.8% | 22,402,947 | -46.6% |
| 7 | 3 Month Euribor Futures, ICE Futures Europe | 138,775,860 | -7.5% | 3,385,981 | -11.5% |
| 8 | Euro-Bund Futures, Eurex | 133,318,961 | -6.5% | 1,122,797 | -19.8% |
| 9 | 3 Month Sterling Futures, ICE Futures Europe | 126,185,797 | -9.1% | 4,660,220 | 15.2% |
| 10 | 2 Year Treasury Note Futures, Chicago Board of Trade | 108,127,750 | -21.2% | 2,026,406 | -44.6% |
| 11 | 10 Year Treasury Note Options, Chicago Board of Trade | 99,011,736 | -21.0% | 1,928,529 | -42.7% |
| 12 | Euro-Bobl Futures, Eurex | 83,113,454 | -12.7% | 897,844 | -16.4% |
| 13 | Euro-Schatz Futures, Eurex | 70,711,197 | 0.0% | 1,417,798 | -1.1% |
| 14 | 30 Year Treasury Bond Futures, Chicago Board of Trade | 69,658,702 | 4.1% | 1,195,989 | 23.1% |
| 15 | Eurodollar Mid-Curve Options, Chicago Mercantile Exchange | 64,108,465 | -47.9% | 6,455,317 | -48.1% |
| 16 | Iboxx High Yield Corporate Bond ETF Options * | 49,098,271 | 32.6% | 4,056,848 | 5.7% |
| 17 | Federal Funds Futures, Chicago Board of Trade | 48,347,534 | -33.5% | 1,505,506 | -30.2% |
| 18 | Ultra 10 Year Treasury Note Futures, Chicago Board of Trade | 48,117,402 | 8.6% | 902,211 | 10.4% |
| 19 | Long Gilt Futures, ICE Futures Europe | 45,100,529 | 3.3% | 552,658 | -13.1% |
| 20 | 10 Year Treasury Bond Futures, ASX 24 | 45,015,700 | 9.6% | 1,527,578 | 17.2% |

China Drives Growth in Ag Futures

| Top 20 Agricultural Futures and Options Contracts | | | | | |
|---|---|------------------|--------------|-------------|-------------|
| Rank | Contract | Jan-Sep 2020 Vol | Vol % Change | 2020 Sep OI | OI % Change |
| 1 | Soybean Meal Futures, Dalian Commodity Exchange | 247,168,999 | 25.4% | 2,314,195 | 84.9% |
| 2 | RBD Palm Olein Futures, Dalian Commodity Exchange | 225,298,807 | 357.4% | 436,450 | 51.0% |
| 3 | Corn Futures, Dalian Commodity Exchange | 118,630,748 | 71.1% | 2,049,563 | 141.2% |
| 4 | Soybean Oil Futures, Dalian Commodity Exchange | 111,191,024 | 115.3% | 756,284 | 65.5% |
| 5 | Rapeseed Meal (RM) Futures, Zhengzhou Commodity Exchange | 109,561,864 | -2.4% | 344,181 | 58.6% |
| 6 | Egg Futures, Dalian Commodity Exchange | 109,417,359 | 422.8% | 234,734 | 47.0% |
| 7 | White Sugar (SR) Futures, Zhengzhou Commodity Exchange | 92,774,597 | 6.9% | 474,223 | 22.0% |
| 8 | Cotton No. 1 (CF) Futures, Zhengzhou Commodity Exchange | 77,628,681 | 80.7% | 383,224 | -2.8% |
| 9 | Rapeseed Oil (OI) Futures, Zhengzhou Commodity Exchange | 73,436,972 | 160.3% | 179,888 | 17.0% |
| 10 | Corn Futures, Chicago Board of Trade | 67,458,213 | -20.6% | 1,526,778 | -5.5% |
| 11 | Rubber Futures, Shanghai Futures Exchange | 51,850,256 | 34.1% | 230,231 | 8.5% |
| 12 | No. 1 Soybean Futures, Dalian Commodity Exchange | 44,584,407 | 233.5% | 133,544 | -7.0% |
| 13 | Soybean Futures, Chicago Board of Trade | 42,565,056 | 12.0% | 994,321 | 40.2% |
| 14 | Apple (AP) Futures, Zhengzhou Commodity Exchange | 42,496,903 | 57.2% | 167,047 | 33.9% |
| 15 | Sugar #11 Futures, ICE Futures U.S. | 33,698,435 | 9.0% | 966,862 | 8.2% |
| 16 | Chicago Soft Red Winter Wheat Futures, Chicago Board of Trade | 25,356,844 | 5.3% | 388,746 | 5.6% |
| 17 | Soybean Oil Futures, Chicago Board of Trade | 24,462,115 | 8.8% | 471,189 | -3.3% |
| 18 | Soybean Meal Futures, Chicago Board of Trade | 22,381,880 | 6.5% | 440,883 | 5.0% |
| 19 | Woodpulp Futures, Shanghai Futures Exchange | 21,106,046 | -31.4% | 168,537 | 32.1% |
| 20 | Soybean Meal Options, Dalian Commodity Exchange | 19,925,120 | 83.1% | 535,744 | 60.7% |

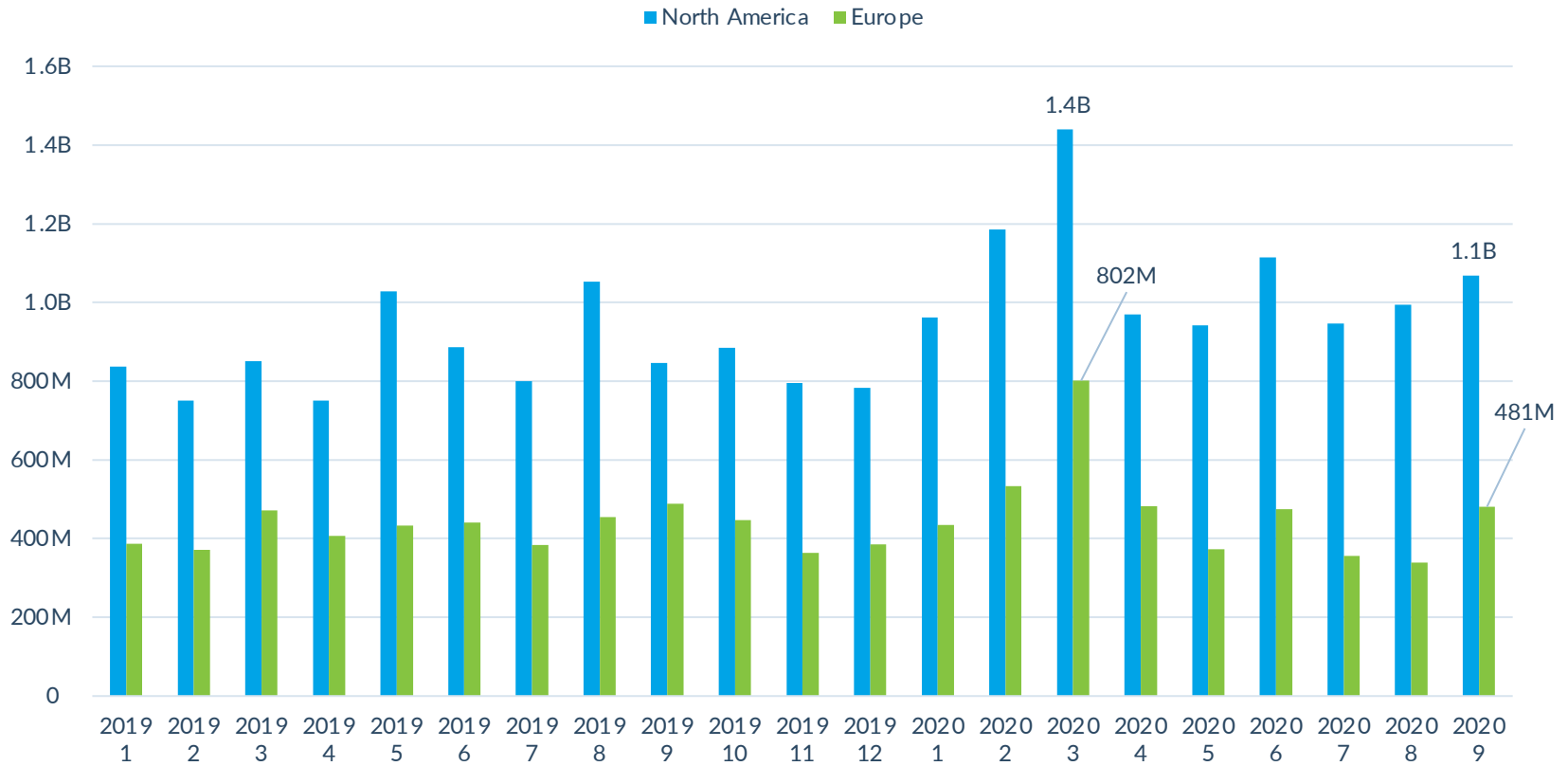
Strong September at the Global Level

Monthly Volume by Region



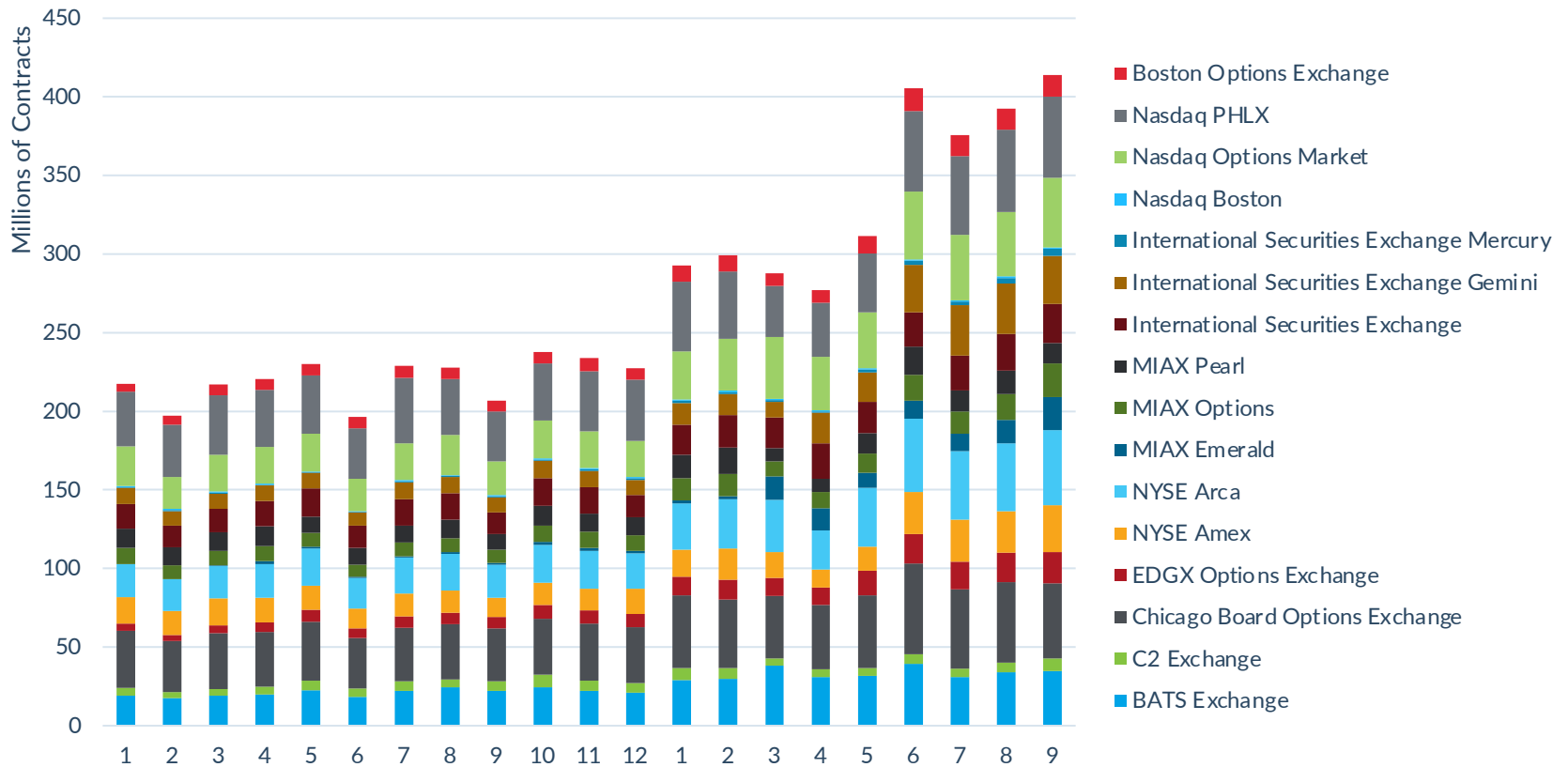
North America and Europe Level Off

Monthly Volume by Region



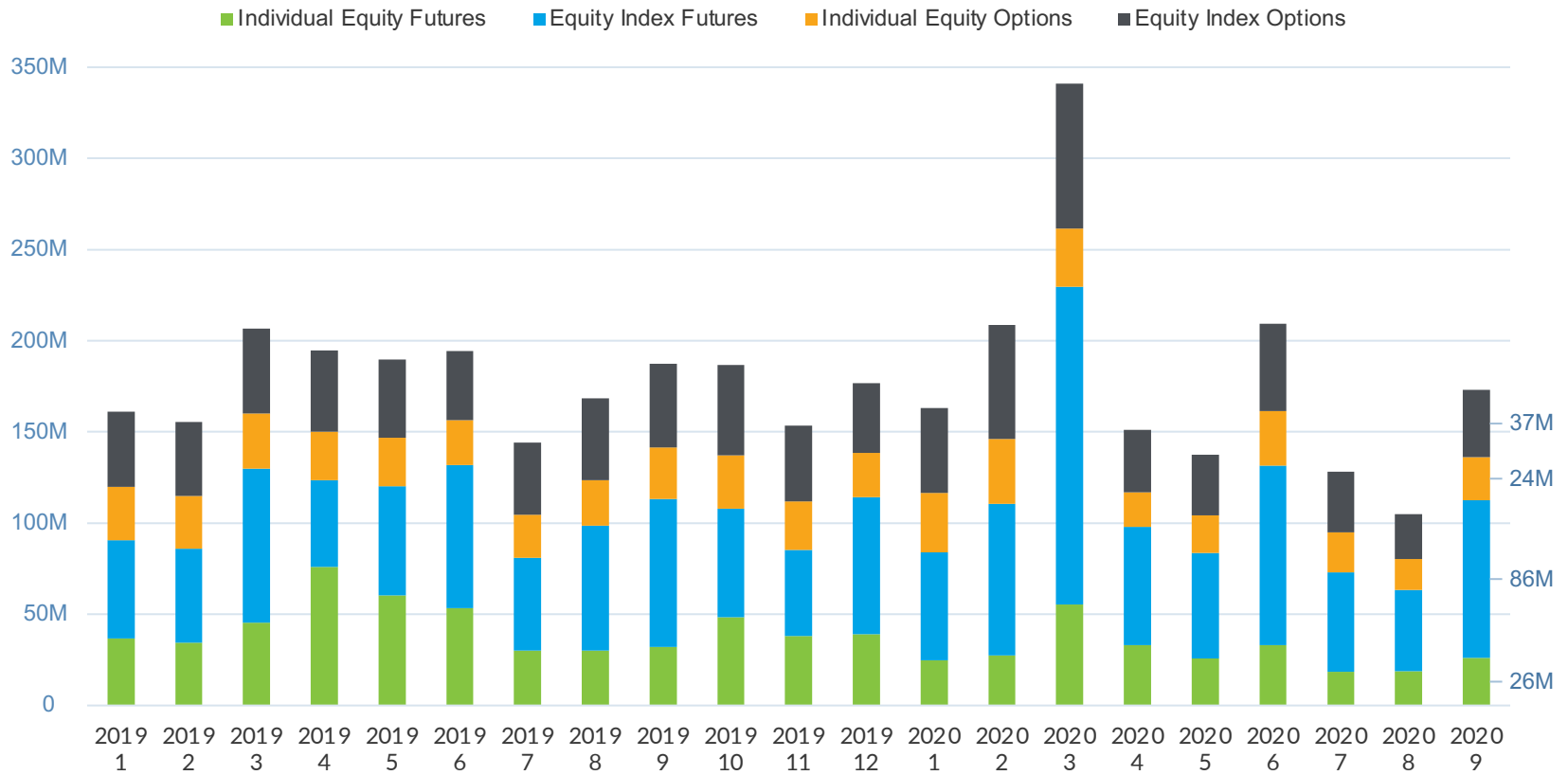
The Robin Hood Effect

US Single Stock Options: Monthly Volume by Exchange



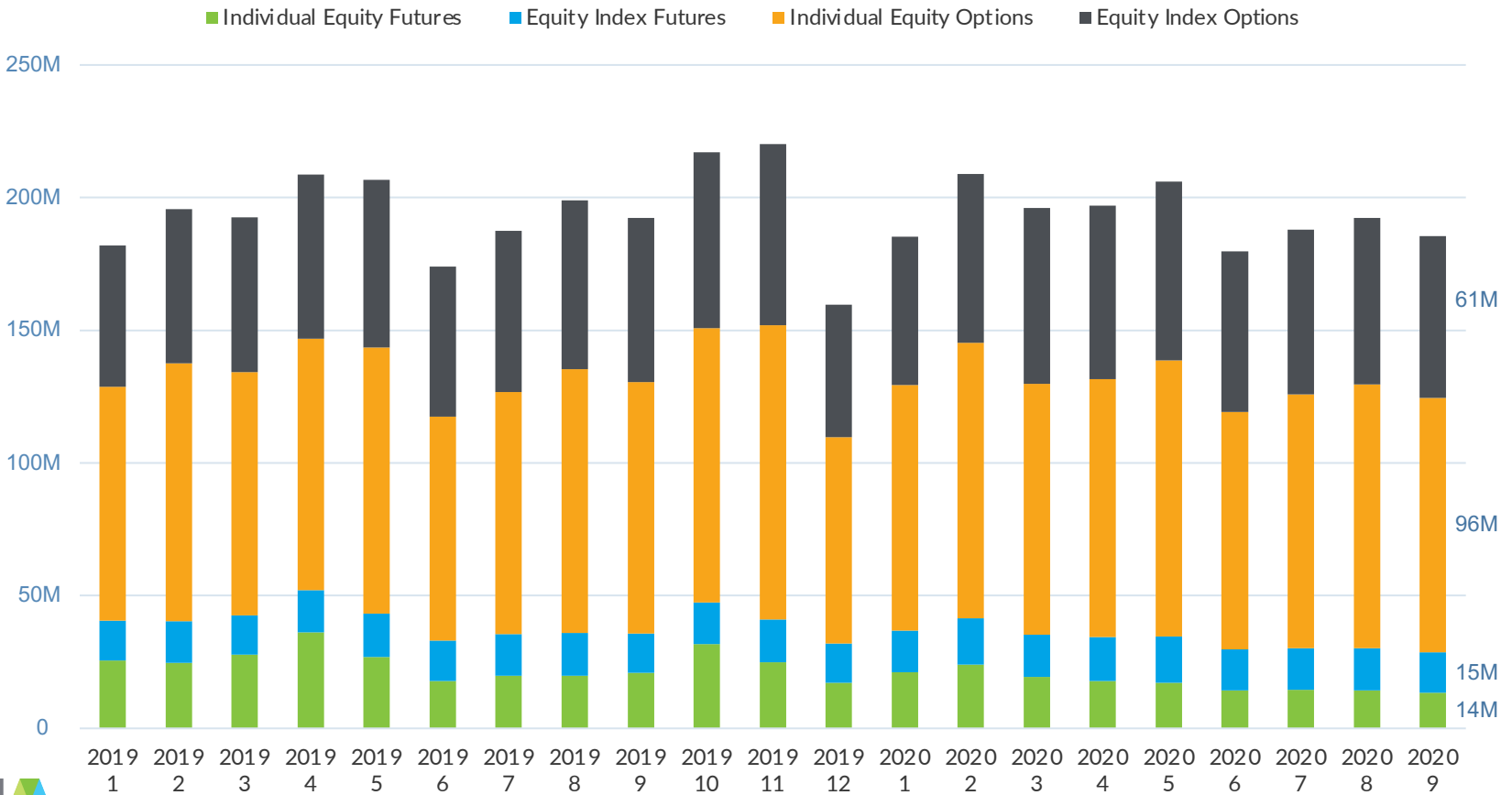
European Equity F&O: Volume Down ...

Europe: Monthly Volume in Equity ETD



... As Open Interest Edges Lower

Europe: Open Interest in Equity ETD



Guest Presentation: Goldman Sachs Overview and Notable Events

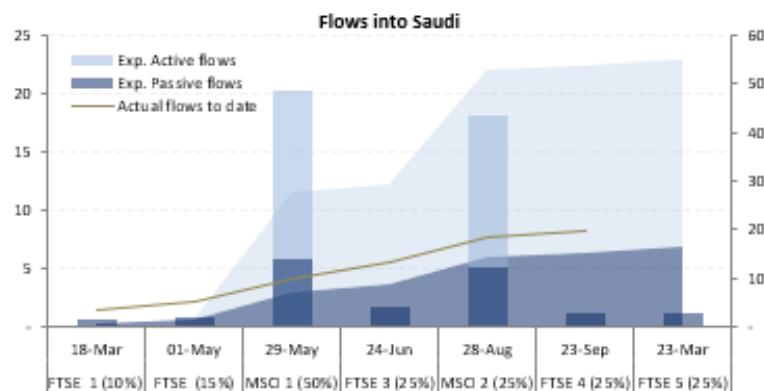
Overview of Quarter

- European equity markets held up over Q3 with MSCI Europe roughly flat on the quarter, while international markets saw a stronger performance, notably in the US
- Total Return Futures continue to see growth in open interest post the European dividend volatility earlier in the year.
- MSCI products are also continuing to gain traction, with the EUR denominated MSCI World Net Total Return contract RSAW gathering €3bn in open interest over the quarter
- In Saudi Arabia, we saw the launch of the Tadawul 30 Future, the first locally listed future tracking a broad Saudi Arabian Index
- ESG products are front of mind, with a number of key macroeconomic catalysts for performance and a variety of listings from the global exchange community

3Q20 Largest Increases in Open Interest

| Index | Ticker | Exchange | Notn'l Change | |
|-------------------|--------|----------|---------------|-------|
| | | | €bn | % |
| FTSE 100 | Z A | ICF | ▲ 8.0 | 17% |
| MSCI World NTR | RSWA | EUX | ▲ 3.0 | 84% |
| EURO STOXX 50 TRF | VHOA | EUX | ▲ 1.2 | 2% |
| MSCI Taiwan | FPOA | EUX | ▲ 0.7 | 1615% |
| FTSE 250 | YBYA | ICF | ▲ 0.6 | 106% |
| MSCI India | ZVLA | EUX | ▲ 0.5 | 398% |
| MSCI Canada | ZTBA | EUX | ▲ 0.5 | 21% |
| MSCI USA | JHTA | EUX | ▲ 0.5 | 35% |
| MSCI Emr Mkts EME | ZTYA | EUX | ▲ 0.4 | 44% |
| MSCI Australia | ZTOA | EUX | ▲ 0.3 | 75% |

Saudi Arabia: Local Futures



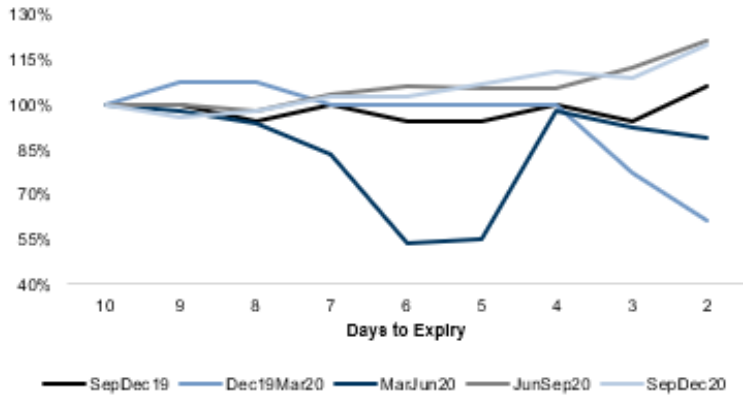
3Q20 Largest Reductions in Open Interest

| Index | Ticker | Exchange | Notn'l Change | |
|-----------------|--------|----------|---------------|------|
| | | | €bn | % |
| EURO STOXX 50 | VGA | EUX | ▼ -19.1 | -15% |
| OMXS30 | QCA | SSE | ▼ -5.3 | -90% |
| DAX | GXA | EUX | ▼ -2.9 | -13% |
| SWISS MKT | SMA | EUX | ▼ -2.5 | -18% |
| MSCI Emer Mkts | ZTWA | EUX | ▼ -2.1 | -13% |
| FTSE/JSE TOP 40 | AIA | SAF | ▼ -1.7 | -95% |
| EURO STOXX BANK | CAA | EUX | ▼ -1.0 | -17% |
| CAC40 10 EURO | CFA | EOP | ▼ -1.0 | -6% |
| MSCI World | ZWPA | EUX | ▼ -0.9 | -19% |
| MSCI Europe | FJLA | EUX | ▼ -0.9 | -28% |

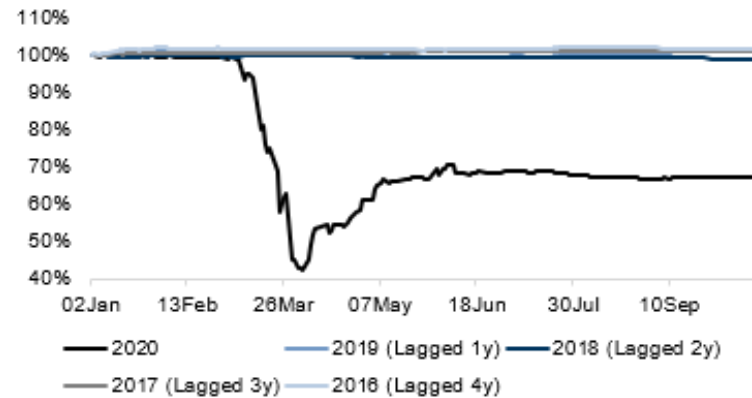
Source: Goldman Sachs Global Markets Division as of Oct20. Past performance is not indicative of future results. For illustrative purposes only. This material is for discussion purposes only, and does not purport to contain a comprehensive analysis of the risk/rewards of any idea or strategy herein. All references to "we/us/our" refer to the views and observations of the desk.

Guest Presentation: Goldman Sachs Eurostoxx Key Themes

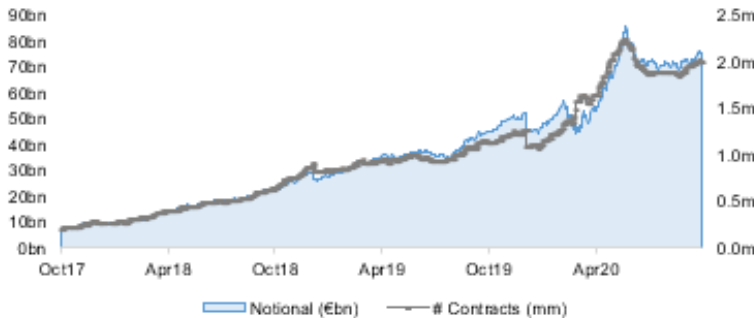
Volatility in the Basis – Stabilized in Q3 2020



Volatility in Dividends



EuroSTOXX 50 Total Return Futures: Aggregate Open Interest



▼ EuroSTOXX 50 Futures Roll Tick Size Reduction

- Roll tick size was reduced from 1.0 to 0.25 index points
- Calendar order book share increased to 80% during June roll period, falling to less than 70% during the September roll
- During the roll period, the roll market showed approximately 30,000 at the top of the order book
- The Sep20 roll spread reduced to 0.25 index pts / 1 tick throughout the majority of the roll period.
- There was lower price volatility overall, with most of the volumes trading in a narrow price range

Looking to Q4, EUREX will be listing an SX5E ESG Futures and Options suite...

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Guest Presentation: Goldman Sachs ESG Product Growth

Catalysts for ESG Growth

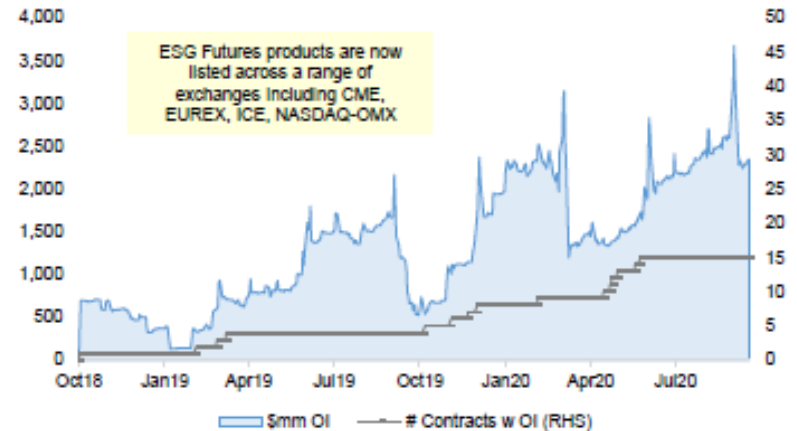
There have been a wide range of catalysts for the growth in ESG:

- 
EU Green Deal Bloc-wide goal of net zero carbon emissions by 2050, and a 50%-55% cut in emissions by 2030 (vs 1990)
- 
EU Taxonomy The first and most detailed attempt to classify economic activities as (non-)sustainable
- 
EU Regulation including Sustainable Finance Disclosure Regulation (SFDR)
- 
UK Clean Energy and Infrastructure Growth Package
- 
Japan Revisions to Stewardship Code including ESG
- 
China Carbon neutrality target for 2060

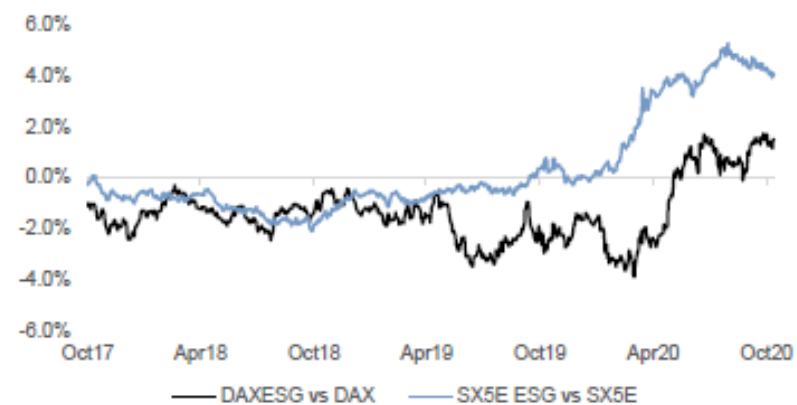
UN Principles for Responsible Investing (PRI)



ESG Futures Open Interest



SX5E and DAX ESG 1y Rolling Performance vs Non-ESG Index



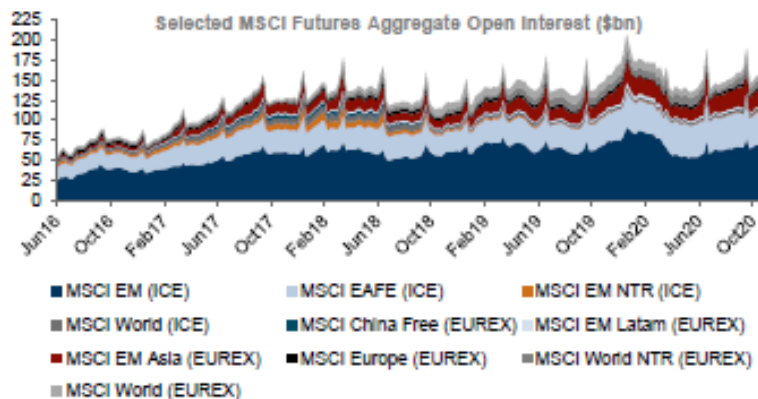
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Guest Presentation: Goldman Sachs Growing MSCI Complex

Growing MSCI Complex

- MSCI is the preeminent index provider for Equity Assets, with >\$13.1tr benchmarked to their indices.
- Historically investors looking for derivatives on these indices have had to trade OTC products such as swaps with those who require a listed wrapper often trading baskets of futures (e.g. S&P500, SX5E, NKY). These baskets of futures can closely approximate the MSCI indices but there is usually some degree of tracking error.
- The last few years have seen notable growth in the number of MSCI Futures listed and a significant pick up in open interest - ICE, EUREX, SGX and HKFE all have MSCI offerings.
- There are various categories of available MSCI Index Futures available such as Country, Regional, Price Return, NTR, Factor and ESG

MSCI Futures Open Interest



Return Type

The three main index return types that are generally available are:

Price Return: standard price return indices similar to the popular SPX and SX5E. Dividends are not reinvested.

Total Return Gross: Dividends are reinvested in the index using 100% of the regular cash distributions

Total Return Net: Dividends are reinvested with haircuts to approximate the minimum possible reinvestment of regular cash distributions

MSCI Futures ADV



Source: <https://www.msci.com/documents/1200102/1300805/msci-LFO-Q2-cfs-en-booklet.pdf?09e1dd9d-9e09-92b3-5782-5ad05cec4008>

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