

C8

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# C8 China Onshore Futures Access Program

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# Opportunity Overview: C8 China Futures Program

- The China futures markets have developed over the past 30 years into some of the largest and most influential futures markets globally, trading traditional as well as esoteric contracts.
- Historically, regulatory controls have prevented offshore investors gaining exposure to the uncorrelated returns this highly liquid, yet still inefficient, market can offer.
- A number of western CTA managers (e.g. Winton, MAN, Aspect, Systematica) have been running onshore programs for several years. Recent regulatory changes have allowed global investors some limited access to these interesting markets, however, the new capacity has been soaked-up by their existing key institutional investors.
- C8 is relatively unique in its position of being independent and well established in the market with a 4+ year track record and local presence, with capacity available to offer to investors and managers alike.
- The strategy can be customized according to client needs but has generated a Sharpe Ratio of 1.7 with low correlation to other asset classes (including Chinese equities) which makes it particularly appealing as a portfolio diversifier.
- The most efficient way to access the market and returns, within the existing regulatory framework, is via a TRS on the Index, utilizing an existing prime broker which brings the benefits of no new credit risk, existing reporting structure and daily liquidity.



# Background: China and its Futures Markets

- **In 1988, China officially began preparing its own futures market.** After 30 years of development, the China futures market has gradually become a mature derivatives trading market with great international influence.
- China is the world's leading producer of, amongst others, flat glass, cement, aluminium, antimony, barite, coal, fluorspar, graphite, iron, steel, gold, cotton and food. It has 6% of the world's land mass and 20% of its population to feed.
- The pace of innovation in China's futures markets is accelerating, particularly in the commodity complex.
- China, as the world's largest consumer of many major commodities, is incentivised to improve its attraction and influence as a key trading centre. New legislation is set to improve market functioning and extend the scope for futures in other asset classes.
- As the engine of the world deepens and evolves its markets, there will be no shortage of interest from investors in creating and hedging Chinese exposure. The relationship between exploitable inefficiency and adequate liquidity has improved significantly and will attract foreign investors far more readily, as regulations encourage the same.



# Background: China and its Futures Markets

- **Total turnover of China's futures markets rose 50.6% in 2020** from the previous year to 437.53 trillion yuan or around \$68tr, reaching a historic high, according to the China Futures Association.
- Trading volume totalled 6.15 billion lots, an increase of 55.3% year on year.
- **Chinese futures market trading accounted for 13.2% of the global total in 2020**, 1.7 percentage points higher than in 2019.
- **China's four exchanges, aggregating at over 6 billion lots, equate to the third biggest futures market in the world** after India and Brazil: see *Appendix A for FIA exchange ranking data*.
- **China has many of the world's leading futures contracts**, particularly in the Agriculture, Energy and Metals categories: see *Appendix B for FIA contract ranking data*.



# Background: China Futures Markets Exchanges



## CFFEX

China Financial Futures Exchange ("CFFEX") is a demutualized exchange established with the approval of the State Council and CSRC and is dedicated to financial derivatives trading and settlement. On September 8, 2006, Shanghai Futures Exchange, Zhengzhou Commodity Exchange, Dalian Commodity Exchange, Shanghai Stock Exchange and Shenzhen Stock Exchange established CFFEX in Shanghai.

Top listed futures: CSI 300 Index Futures, CSI 500 Index Futures, SSE 50 Index Futures, 2-year Treasury Bond Futures, 5-year Treasury Bond Futures, and 10-year Treasury Bond Futures.



## DCE

Founded on February 28, 1993, Dalian Commodity Exchange ("DCE") is one of the four futures exchanges upon the approval of the State Council, and also the only futures exchange in Northeast China. After more than 20 years of standardized operation and steady development, DCE has become an important futures trading center in China and the world's largest futures trading market of agricultural products, plastics, coal and iron ore.

Top listed futures: iron ore, coke, coking coal, linear low density polyethylene (LLDPE), polyvinyl chloride (PVC), No.1 soybean, No.2 soybean, soybean meal, soybean oil, palm oil, corn, and corn starch.

Listed option: soybean meal option



## SHFE

Shanghai Futures Exchange ("SHFE") is a futures exchange under the uniform regulation of China Securities Regulatory Commission ("CSRC"). Currently, there are 16 futures products listed on SHFE, including copper, aluminum, zinc, lead, nickel, tin, gold, silver, steel rebar, steel wire rod, hot rolled coil, crude oil, fuel oil, bitumen, natural rubber, and paper pulp. The copper futures listed on SHFE has become one of the three most influential copper futures market in the world.

Top listed futures: copper, zinc, aluminum, nickel, natural rubber, gold, silver, steel rebar, and hot rolled coil.

Listed options: copper options.

# Background: China Futures Markets Exchanges



## ZCE

With the approval of the State Council, Zhengzhou Commodity Exchange ("ZCE") was established as China's first pilot futures market in October 1990 and is directly governed by CSRC. ZCE currently lists a wide variety of products, covering crucial fields of national economy such as grain, cotton, oil, sugar, fruit, energy, chemical, textile, metallurgy, and construction materials.

Representative futures include: PTA, rapeseed meal, cotton, cotton yarn, white sugar, methanol, common wheat, strong gluten wheat, rapeseed, rapeseed oil, and thermal coal.

Listed option: white sugar option



## INE

Registered on November 6, 2013 and approved by the China Securities Regulatory Commission, Shanghai International Energy Exchange Co., Ltd. ("INE") as a subsidiary of the Shanghai Futures Exchange is an international exchange for global futures investors. In accordance with the Company Law, the Regulations on the Administration of Futures Trading and relevant rules and regulations prescribed by the CSRC, INE fulfills the futures market self - regulatory function. INE operates the listing, trading and settlement affairs of energy derivatives including crude oil, natural gas, petrochemicals, etc.

Listed futures: Crude oil

# Background: QFII & Steadily Increasing Openness

- China has a long-standing and clear commitment to both boost foreign participation in local financial markets and promote international use of the renminbi.
- Recent QFII reforms underline the reform momentum and, despite geopolitical tensions, the backdrop is arguably even more favorable for liberalization going forward, bringing substantial new opportunities for overseas investors.
- A new draft Futures Law has been submitted to the National People's Congress, aimed at bringing China's futures markets closer to international norms, promoting closer links to global futures markets and rendering China's markets more attractive to international investors.
- Expanding the QFII program to allow the inclusion of futures boosts greater overseas interest and the list of international futures products listed on Chinese exchanges continues to grow.
- Chinese regulators lifted limits in 2020 on foreign ownership of securities and asset management companies after years of discussion.
- In making these moves, China attracts international trading onshore, improves its pricing power in key commodity markets and improves, over time, the recognition and standing of the yuan as a global currency.
- The most untapped opportunities for investors, onshore or off, lie in the futures and corporate bond markets: see [link](#) to ICMA's report from January 2021.
- The regulation of the China futures markets are 5 organizations in one unit (see next slide)

# Background: China Futures Markets Regulation

## China's Regulation Structure



**China Securities Regulatory Commission (CSRC)** performs unified supervision and administration of the national securities and futures markets in accordance with laws, regulations and the authorization of the State Council of PRC.

**Securities Regulatory Bureaus**, the subsidiaries of CSRC by provincial location, are directly governed by CSRC aiming in assisting CSRC in regulating China Futures Market in unified and centralized manner.

**China Futures Association (CFA)**, a national non-profit self-disciplinary organization of China futures industry, under the premise of centralized and unified supervision and management of the futures industry, implements futures industry self-discipline management.

**China Futures Market Monitoring Center (CFMMC)**, a non-profit organization established by the state council and China securities regulatory commission. Its main functions are monitoring futures margin security and market operation, providing investor trading/settlement info lookup, governing futures investor protection fund, and integrating futures investors account opening,

# C8 Strategy: C8 China Futures Access Program (Index)

- Background: C8 was founded by Mattias Eriksson and Dr Ebrahim Kasenally, who were both senior partners at BlueCrest, responsible for trading systems and quantitative research respectively.
- C8 Founders, Mattias Eriksson and Ebrahim Kasenally, drove 18% per annum performance 2003-2009 at BlueTrend, taking AUM from launch to \$15bn by 2009.
- Having spent over 20 years building and refining trading systems based on developed markets, in 2017 they looked to apply the same techniques on data related to the onshore China Futures markets.
- The test results were very positive and with some minor adjustments (notably trade horizons), the onshore business was launched in early 2018, having raised money from local institutions (SOE's).
- **C8's China Futures Access Program is now deployed on over 30 commodity assets in the liquid Chinese markets: a daily trading and re-balancing programme, targeting a net Sharpe Ratio superior to 1.5, with a combination of traditional trend-following with five to ten day holding periods and alternative risk premia/systematic macro themes that seek longer-term opportunities.**
- Based upon our own analysis, as well as observing peers, we believe that is possible to run the C8 China Futures Access Program with capacity of \$1-2bn, but the markets are evolving and deepening monthly so capacity could grow with the market underlying.

# C8 Strategy: C8 China Futures Access Program (Index)

The C8 China Futures Access Program is highly diversified by market, investment style, risk profile and trade frequency. Designed to remove uncertainty from the portfolio of forecasts by cross fertilizing ideas from disparate fields of science, engineering and quantitative finance including:

- Statistical signal processing, mathematical system theory and robust statistics
  - Scientific computing, numerical analysis and exploratory data analysis
  - Machine learning, data mining and robust optimization
  - Portfolio construction, macro and micro-economics and, market factor research
  - Software engineering, database architecture and networks
- 
- In the **C8 China Futures Access Program**, the forecast horizon is one business day since the portfolio re-balances daily. Portfolio positions adjust as expectation and volatility evolve. The holding period of this program ranges from 5 to 10 days
  - The model combines the positions across all the assets in a carefully crafted portfolio, targeting a prespecified level of volatility (currently the program has portfolios for clients running target volatilities from 5% to 30%).

# C8 Strategy: C8 China Futures Access Program (Index)

## C8 China Futures Access Program Sub-Strategies:

### (1) CTA:

- The first component of this C8 China Futures Access Program (Index) is directional where positions are dimensioned in proportion to the expected return in any given asset e.g. the stronger the expectation, the larger the position
- Positions are also dimensioned inversely to prevailing levels of volatility, namely, volatility represents the level of risk or uncertainty in any given asset e.g. higher levels of perceived risk result in smaller positions

### (2) Alternative Risk Premia:

- The second constituent of the Program (Index) is market neutral, seeking longer term opportunities with a low correlation to the directional component.
- Known as Alternative Risk Premia, these are widely defined in academic research, however, C8 integrates its own research to exploit these sources of medium-term beta
- Key drivers are roll-down-yield, reversion, momentum, value and spread, operating on individual asset curves and across assets

# C8 Strategy: C8 China Futures Access Program (Index)

## C8 China Futures Access Program Constituents:

- Across the various exchanges there are 60+ different futures contracts eligible for selection
- However, the Program only uses approximately 35 contracts, for which there is sufficient accurate and rich data history, as well as proven liquidity

### Dalian Commodity Exchange (13)

- Iron ore
- Linear low density polyethylene (LLDPE)
- Polyvinyl chloride (PVC)
- Polypropylene (PP)
- Coking coal
- Coke
- Soybean meal
- Soyabean oil
- Corn
- Corn starch
- RBD palm olein
- No.1 Soybeans
- Egg

### China Financial Futures Exchange (2)

- 5-year treasury bond futures
- 10-year treasury bond futures

### Shanghai Futures Exchange (11)

- Steel rebar
- Hot rolled coils
- Bitumen
- Aluminium
- Copper
- Lead
- Nickel
- Zinc
- Silver
- Gold
- Natural rubber

### Zhengzhou Commodity Exchange (10)

- Ferrosilicon
- Manganese silicon
- Flat glass
- Pure terephthalic acid (PT)
- Thermal coal
- Methanol
- Rapeseed meal
- White sugar
- Cotton No.1
- Rapeseed oil

# C8 Strategy: C8 China Futures Access Performance

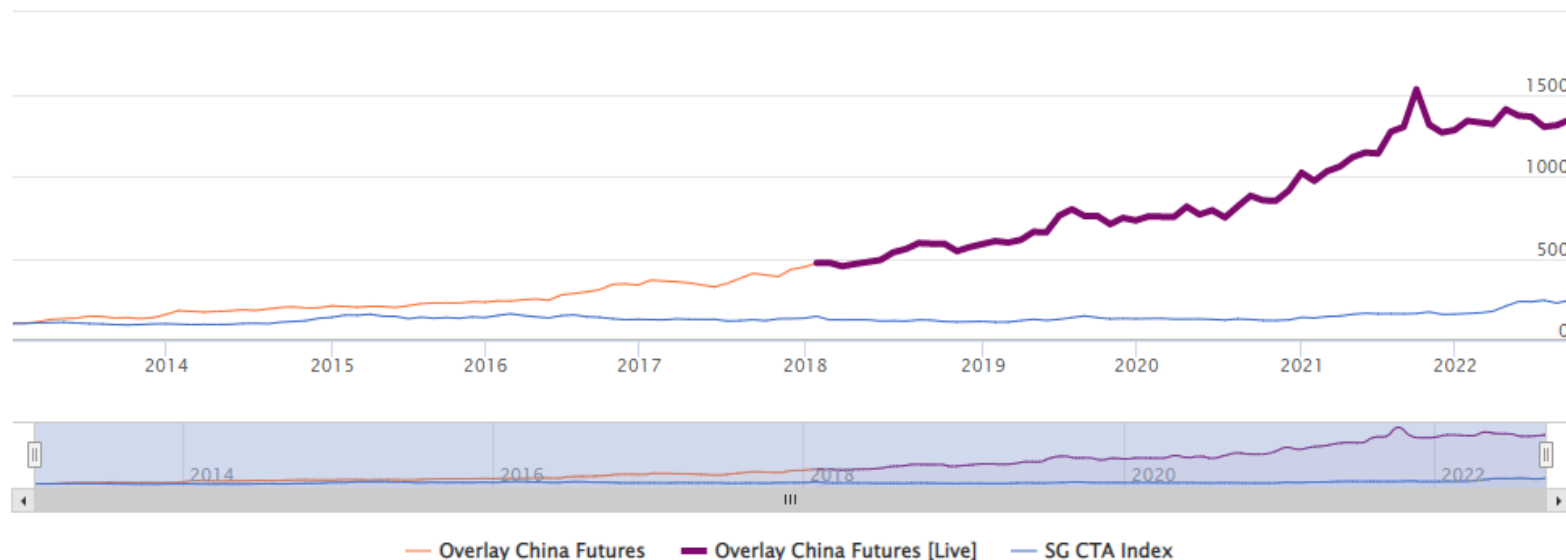
## Index Performance

\* Live Track Record in Bold. This Index is not a benchmark within the meaning of the Benchmarks Regulation issued by ESMA

☐ Logarithmic Y axis

Zoom 1m 3m 6m YTD 1y **All**

Jan 31, 2013 → Aug 31, 2022



## Statistics

|                     | Overlay China Futures | SG CTA Index    |
|---------------------|-----------------------|-----------------|
| Annualised Return   | 30.84%                | 9.68%(4.58%)    |
| Realised Volatility | 18.99%                | 18.99%(8.3%)    |
| Downside Volatility | 9.07%                 | 9.71%(4.25%)    |
| Max Drawdown        | -17.17%               | -31.7%(-14.26%) |
| Winning months      | 62.93%                | 56.03%          |
| Sharpe Ratio        | 1.62                  | 0.55            |
| Sortino Ratio       | 3.4                   | 1.08            |
| Calmar Ratio        | 1.8                   | 0.32            |

# C8 Strategy: C8 China Futures Access Performance

## Monthly performance

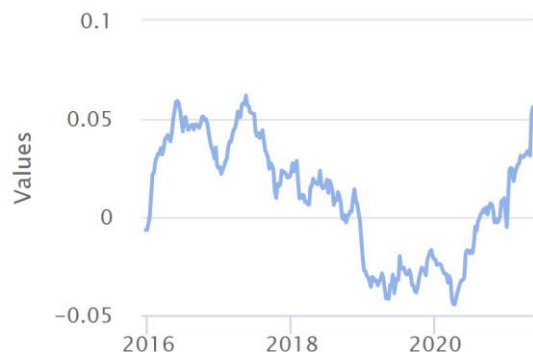
|      | Jan    | Feb    | Mar    | Apr    | May    | Jun    | Jul    | Aug    | Sep    | Oct     | Nov    | Dec    | YTD    |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|
| 2022 | 4.4%   | -1.51% | 6.83%  | -2.72% | -0.45% | -4.57% | 0.74%  | 2.56%  |        |         |        |        | 4.89%  |
| 2021 | -4.85% | 6.06%  | 2.74%  | 5.45%  | 2.49%  | -0.5%  | 11.67% | 2.25%  | 17.6%  | -14.06% | -3.63% | 1.17%  | 25.47% |
| 2020 | 3.49%  | -0.52% | 8.44%  | -5.94% | 3.41%  | -5.57% | 9.08%  | 7.88%  | -3.23% | -0.17%  | 7.36%  | 11.76% | 39.86% |
| 2019 | 6.39%  | -1.49% | 2.75%  | 7.98%  | -0.5%  | 15.44% | 5.21%  | -5.24% | 0.1%   | -6.61%  | 5.43%  | -2.16% | 28.42% |
| 2018 | 5.8%   | 0.32%  | -4.63% | 3.17%  | 5.12%  | 9.56%  | 3.84%  | 6.47%  | -0.63% | -0.01%  | -7.7%  | 4.59%  | 27.53% |
| 2017 | 8.59%  | -2.64% | -1.86% | -3.57% | -3.51% | 6.71%  | 8.72%  | 7.83%  | -2.19% | -2.48%  | 11.18% | 3.12%  | 32.08% |
| 2016 | 3.61%  | -0.41% | 3.17%  | 1.96%  | -3.15% | 13.71% | 3.04%  | 3.35%  | 4.53%  | 10.33%  | 0.84%  | -1.86% | 45.29% |
| 2015 | -1.71% | -2.39% | 2.7%   | -0.48% | -2.76% | 5.58%  | 5.6%   | 2.06%  | 0.13%  | -0.18%  | 3.19%  | -1.23% | 10.52% |
| 2014 | 15.08% | -5.25% | 2.82%  | 1.65%  | 3.52%  | -2.21% | 5.33%  | 4.68%  | 1.79%  | -3.54%  | 0.84%  | 5.84%  | 33.28% |
| 2013 | 2.61%  | 1.94%  | 7.43%  | 13.64% | 6.6%   | 8.24%  | -1.67% | -5.9%  | 1.63%  | -4.46%  | 4.4%   | 14.14% | 57.74% |

\*Performance is net of rebalancing costs, fixed fees (0% annually) and performance fees (0% over high watermark).

# C8 Strategy: Diversification Benefits to the Investor

We believe that C8's China Futures Access Program is a key ingredient in any global investor's portfolio

## ➤ China Futures vs SG CTA Index



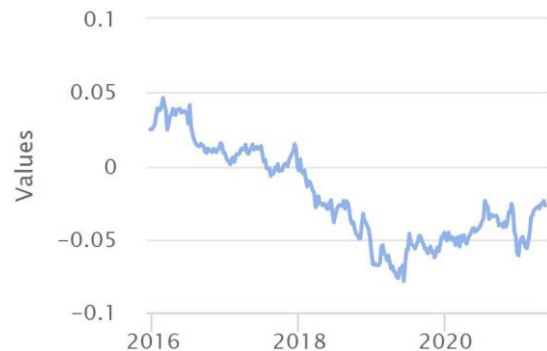
## ➤ China Futures vs CSI 300 Total Return Index



## ➤ China Futures vs S&P 500 Total Return Index



## ➤ China Futures vs GSAM Macro Risk Premia Index



## Diversification Benefit:

- 30 days rolling correlation between C8 China Futures and key relevant benchmarks confirms the diversification potential of such a portfolio strategy.

## Other Benefits Include:

- Over 4 years in existence but built on 20+ years of research and experience.
- Existing onshore client base is over 20 Institutional (SOEs) investors and \$200mm+ AUM.
- Flexible risk profile (vol of 5 - 30%).
- Diversified breadth of exposure (35+ contracts and multiple signals and systems at work).

# C8 Strategy: Competitors & Competitive Advantage

The main competitors to C8 in the China Futures Markets are a mixture of local traders as well as western asset managers (CTAs) who have been running local programs the past few years. C8 have a number of competitive advantages with respect to both of these groups:

## Advantages vs. Local Traders:

- Pedigree and experience of C8 founders.
- Institutional set up and approach – robust infrastructure.
- Better risk controls.
- Systematic with no intervention unless liquidity concerns – no manual adding to positions on the way up.
- IP / Risk Premia component (leading to better return profile) – 0% correlation to CTA/trend so very additive.
- Lower cost (of the embedded CICC/Guotai swap) since less trading frequency than locals who favour intra-day.

## Advantages vs. Western CTAs (e.g. Winton, MAN Group, Systematica, Aspect):

- Over the past few years a number of these organizations have also set up programs in China and have been successful with raising assets from local investors, running \$1-2bn AUM.
- The relaxation in rules has allowed them to market the programs to offshore investors but it is our understanding the majority of the new capacity has been consumed by key existing offshore institutional investors.
- As such they do not have spare capacity and would also be reticent to offer this unique capabilities to peer managers.
- C8 are **independent** and have no existing offshore clients to whom capacity has been promised in advance.
- Also, limited flexibility in how others could customize each strategy and no alternative risk premia component.

# C8 Strategy: Persistent Barriers to Entry

- While regulatory changes have allowed a degree of liberalization, barriers to entry remain which in the near term prevent a large number of new participants moving in which could lead to alpha erosion.
- Setting up a local presence in China and becoming licensed still comes with time and costs.
- The government influence and oversight of the markets can also make potential participants nervous of starting the process.
- As previously mentioned, these strategies are relatively capacity constrained to (<\$2bn approx.) due to;
  - Exchange controls.
  - Limits set by CICC and other institutions providing access to the returns on swap.
  - The strategies themselves.
- Given the specialist nature and limited scalable business opportunity, large asset managers could be deterred, in the near term.
- These factors suggest that while the market will continue to grow organically, and regulatory restrictions could ease further in the medium term, the inefficiencies which exist to create alpha generating opportunities will persist for the next 2-3 years.

# Summary: C8 China Futures Access Program (Index)

While the restrictions around participants in onshore futures markets have relaxed - strict controls on the ability of foreign investors to take money out of China remain in place. The C8 China Futures Access Program, is designed as a gateway product with strong track record and excellent portfolio diversification benefits for international investors.

- The onshore Chinese futures markets are well developed and liquid, offering exposure to a wide range of different assets and uncorrelated return streams.
- For a number of years, local traders and a limited number of western asset managers (with a local presence), have been exploiting persistent inefficiencies within these markets on behalf of Chinese investors to generate alpha, using systematic trading programs.
- C8 are an **independent firm**, established by two senior partners from BlueCrest and have been active in China for over 4 years building a successful investment program based upon on 20+ years of research and experience which utilizes a unique combination of traditional CTA and alternative risk premia sub-strategies to generate a **Sharpe of 1.7**.
- The C8 China Futures Access Program (Index) is currently available via total return swaps to offshore investors and managers who can customize the parameters of the strategy to match their portfolio needs.
- C8 will be launching a Cayman based fund structure in the next couple of months, in partnership with an established fund house, with both onshore and offshore feeders, with monthly liquidity and advantageous terms for early stage investors.

# Appendix A: FIA Exchange Ranking Data

| Rank | Exchange                                               | Jan-Dec 2020 Vol | Jan-Dec 2019 Vol | Vol % Change | 2020 December OI | 2019 December OI | OI % Change |   |                                                                                                                                      |
|------|--------------------------------------------------------|------------------|------------------|--------------|------------------|------------------|-------------|---|--------------------------------------------------------------------------------------------------------------------------------------|
| 1    | National Stock Exchange of India                       | 8,850,473,823    | 5,977,219,777    | 48.07%       | 13,940,567       | 9,530,941        | 46.27%      |   |                                                                                                                                      |
| 2    | B3                                                     | 6,307,562,139    | 3,880,624,283    | 62.54%       | 143,732,530      | 132,293,290      | 8.65%       |   |                                                                                                                                      |
| 3    | CME Group                                              | 4,820,589,858    | 4,830,045,369    | -0.20%       | 81,940,409       | 113,338,792      | -27.70%     |   |                                                                                                                                      |
|      | Chicago Mercantile Exchange                            | 2,386,096,294    | 2,197,189,831    | 8.60%        | 42,963,522       | 67,490,585       | -36.34%     |   |                                                                                                                                      |
|      | Chicago Board of Trade                                 | 1,651,840,795    | 1,866,121,659    | -11.48%      | 23,611,441       | 28,591,213       | -17.42%     |   |                                                                                                                                      |
|      | New York Mercantile Exchange                           | 610,984,409      | 605,500,090      | 0.91%        | 13,225,581       | 14,396,828       | -8.14%      |   |                                                                                                                                      |
|      | Commodity Exchange (COMEX)                             | 171,668,360      | 161,233,789      | 6.47%        | 2,139,865        | 2,860,166        | -25.18%     | 1 | Open Interest for these exchanges attributed to OCC                                                                                  |
| 4    | Intercontinental Exchange                              | 2,788,944,012    | 2,256,762,531    | 23.58%       | 73,688,383       | 73,653,125       | 0.05%       |   |                                                                                                                                      |
|      | ICE Futures Europe                                     | 1,124,764,380    | 1,126,515,097    | -0.16%       | 43,511,042       | 46,052,440       | -5.52%      | 2 | Nasdaq NFX stopped trading in December 2019                                                                                          |
|      | NYSE Arca <sup>1</sup>                                 | 711,701,208      | 424,951,742      | 67.48%       | n/a              | n/a              | n/a         | 3 | MIAX Emerald began trading in March 2019                                                                                             |
|      | NYSE Amex <sup>1</sup>                                 | 578,952,684      | 374,339,448      | 54.66%       | n/a              | n/a              | n/a         |   |                                                                                                                                      |
|      | ICE Futures U.S.                                       | 371,506,254      | 329,588,573      | 12.72%       | 30,177,315       | 27,600,515       | 9.34%       |   |                                                                                                                                      |
|      | ICE Futures Singapore                                  | 2,019,486        | 1,367,671        | 47.66%       | 26               | 170              | -84.71%     | 4 | Tokyo Commodity Exchange became a subsidiary of Japan Exchange Group in October 2019                                                 |
| 5    | Nasdaq                                                 | 2,660,595,514    | 1,785,341,204    | 49.02%       | 5,027,300        | 8,980,784        | -44.02%     |   |                                                                                                                                      |
|      | Nasdaq PHLX <sup>1</sup>                               | 888,987,070      | 702,977,046      | 26.46%       | n/a              | n/a              | n/a         |   |                                                                                                                                      |
|      | Nasdaq Options Market <sup>1</sup>                     | 688,942,003      | 390,007,372      | 76.65%       | n/a              | n/a              | n/a         | 5 | Oslo Stock Exchange was formally consolidated under Euronext in December 2020; all historical Oslo data has been shifted to Euronext |
|      | International Securities Exchange <sup>1</sup>         | 545,827,621      | 398,331,710      | 37.03%       | n/a              | n/a              | n/a         |   |                                                                                                                                      |
|      | International Securities Exchange Gemini <sup>1</sup>  | 392,674,146      | 184,636,951      | 112.67%      | n/a              | n/a              | n/a         | 6 | Mercado a Termino de Buenos Aires and Rosario Futures Exchange merged into MATba ROFEX in August 2019                                |
|      | Nasdaq Exchanges Nordic Markets                        | 76,534,988       | 79,252,640       | -3.43%       | 4,811,386        | 5,272,016        | -8.74%      |   |                                                                                                                                      |
|      | International Securities Exchange Mercury <sup>1</sup> | 52,111,029       | 10,708,978       | 386.61%      | n/a              | n/a              | n/a         | 7 | LSE Derivatives Market was rebranded as CurveGlobal Markets in June 2019                                                             |
|      | Nasdaq Boston <sup>1</sup>                             | 14,846,436       | 11,063,646       | 34.19%       | n/a              | n/a              | n/a         |   |                                                                                                                                      |
|      | Nasdaq Commodities                                     | 672,221          | 542,558          | 23.90%       | 215,914          | 195,552          | 10.41%      |   |                                                                                                                                      |
|      | Nasdaq NFX <sup>2</sup>                                | -                | 7,820,303        | -100.00%     | -                | 3,513,216        | -100.00%    |   |                                                                                                                                      |

Ranked by number of contracts traded and/or cleared. Futures and options volume broken down by subsidiary exchanges.

# Appendix A: FIA Exchange Ranking Data

| Rank | Exchange                                    | Jan-Dec 2020 Vol | Jan-Dec 2019 Vol | Vol % Change | 2020 December OI | 2019 December OI | OI % Change |   |                                                                                                                                      |
|------|---------------------------------------------|------------------|------------------|--------------|------------------|------------------|-------------|---|--------------------------------------------------------------------------------------------------------------------------------------|
| 6    | CBOE Holdings                               | 2,614,108,017    | 1,912,084,008    | 36.72%       | 299,570          | 405,027          | -26.04%     |   |                                                                                                                                      |
|      | Chicago Board Options Exchange <sup>1</sup> | 1,349,799,569    | 1,147,034,647    | 17.68%       | n/a              | n/a              | n/a         |   |                                                                                                                                      |
|      | BATS Exchange <sup>1</sup>                  | 687,320,373      | 396,796,395      | 73.22%       | n/a              | n/a              | n/a         |   |                                                                                                                                      |
|      | EDGX Options Exchange <sup>1</sup>          | 296,397,463      | 133,844,192      | 121.45%      | n/a              | n/a              | n/a         |   |                                                                                                                                      |
|      | C2 Exchange <sup>1</sup>                    | 229,842,408      | 171,698,126      | 33.86%       | n/a              | n/a              | n/a         |   |                                                                                                                                      |
|      | CBOE Futures Exchange                       | 50,748,204       | 62,710,648       | -19.08%      | 299,570          | 405,027          | -26.04%     |   |                                                                                                                                      |
| 7    | Dalian Commodity Exchange                   | 2,207,327,866    | 1,355,584,225    | 62.83%       | 8,868,897        | 9,686,951        | -8.44%      | 1 | Open Interest for these exchanges attributed to OCC                                                                                  |
| 8    | Korea Exchange                              | 2,184,930,969    | 1,546,717,194    | 41.26%       | 11,111,316       | 10,096,960       | 10.05%      |   |                                                                                                                                      |
| 9    | Shanghai Futures Exchange                   | 2,128,613,700    | 1,447,597,054    | 47.04%       | 6,667,344        | 5,820,178        | 14.56%      | 2 | Nasdaq NFX stopped trading in December 2019                                                                                          |
|      | Shanghai Futures Exchange                   | 2,072,281,720    | 1,412,009,599    | 46.76%       | 6,377,267        | 5,748,273        | 10.94%      |   |                                                                                                                                      |
|      | Shanghai International Energy Exchange      | 56,331,980       | 35,587,455       | 58.29%       | 290,077          | 71,905           | 303.42%     | 3 | MIAX Emerald began trading in March 2019                                                                                             |
| 10   | Moscow Exchange                             | 2,119,939,033    | 1,455,043,932    | 45.70%       | 7,897,304        | 10,534,594       | -25.03%     |   |                                                                                                                                      |
| 11   | Eurex                                       | 1,861,416,584    | 1,947,144,196    | -4.40%       | 122,135,249      | 126,625,804      | -3.55%      | 4 | Tokyo Commodity Exchange became a subsidiary of Japan Exchange Group in October 2019                                                 |
| 12   | Zhengzhou Commodity Exchange                | 1,701,847,321    | 1,092,703,580    | 55.75%       | 8,486,582        | 4,429,311        | 91.60%      |   |                                                                                                                                      |
| 13   | Borsa Istanbul                              | 1,517,476,458    | 387,996,034      | 291.11%      | 14,279,961       | 5,618,811        | 154.15%     |   |                                                                                                                                      |
| 14   | BSE                                         | 924,427,025      | 1,026,425,811    | -9.94%       | 1,804,833        | 1,018,288        | 77.24%      | 5 | Oslo Stock Exchange was formally consolidated under Euronext in December 2020; all historical Oslo data has been shifted to Euronext |
|      | BSE                                         | 848,173,713      | 989,216,797      | -14.26%      | 1,803,812        | 1,014,281        | 77.84%      |   |                                                                                                                                      |
|      | India International Exchange                | 76,253,312       | 37,209,014       | 104.93%      | 1,021            | 4,007            | -74.52%     | 6 | Mercado a Termino de Buenos Aires and Rosario Futures Exchange merged into MATba ROFEX in August 2019                                |
| 15   | Miami International Holdings <sup>1</sup>   | 827,454,642      | 440,049,131      | 88.04%       | n/a              | n/a              | n/a         |   |                                                                                                                                      |
|      | MIAX Options <sup>1</sup>                   | 330,303,726      | 177,520,123      | 86.07%       | n/a              | n/a              | n/a         |   |                                                                                                                                      |
|      | MIAX Pearl <sup>1</sup>                     | 293,410,388      | 233,794,910      | 25.50%       | n/a              | n/a              | n/a         |   |                                                                                                                                      |
|      | MIAX Emerald <sup>1,3</sup>                 | 203,740,528      | 28,734,098       | 609.1%       | n/a              | n/a              | n/a         | 7 | LSE Derivatives Market was rebranded as CurveGlobal Markets in June 2019                                                             |

Ranked by number of contracts traded and/or cleared. Futures and options volume broken down by subsidiary exchanges.

# Appendix A: FIA Exchange Ranking Data

| Rank | Exchange                              | Jan-Dec 2020 Vol | Jan-Dec 2019 Vol | Vol % Change | 2020 December OI | 2019 December OI | OI % Change |
|------|---------------------------------------|------------------|------------------|--------------|------------------|------------------|-------------|
| 16   | Japan Exchange Group                  | 454,261,835      | 361,095,467      | 25.80%       | 3,226,881        | 3,858,100        | -16.36%     |
|      | Osaka Exchange                        | 439,144,049      | 342,078,086      | 28.38%       | 3,087,767        | 3,524,878        | -12.40%     |
|      | Tokyo Commodity Exchange <sup>4</sup> | 15,117,786       | 19,017,381       | -20.51%      | 139,114          | 333,222          | -58.25%     |
| 17   | Hong Kong Exchanges and Clearing      | 437,073,315      | 438,690,021      | -0.37%       | 13,614,049       | 12,114,907       | 12.37%      |
|      | Hong Kong Exchanges and Clearing      | 282,225,200      | 262,885,798      | 7.36%        | 11,261,791       | 9,698,551        | 16.12%      |
|      | London Metal Exchange                 | 154,848,115      | 175,804,223      | -11.92%      | 2,352,258        | 2,416,356        | -2.65%      |
| 18   | Taiwan Futures Exchange               | 341,393,346      | 260,765,482      | 30.92%       | 987,019          | 941,097          | 4.88%       |
| 19   | TMX Group                             | 318,018,983      | 228,773,229      | 39.01%       | 8,128,321        | 7,514,864        | 8.16%       |
|      | Boston Options Exchange <sup>1</sup>  | 202,168,886      | 112,597,175      | 79.55%       | n/a              | n/a              | n/a         |
|      | Montreal Exchange                     | 115,850,097      | 116,176,054      | -0.28%       | 8,128,321        | 7,514,864        | 8.16%       |
| 20   | Singapore Exchange                    | 247,149,451      | 239,867,892      | 3.04%        | 4,342,797        | 5,779,529        | -24.86%     |
| 21   | ASX                                   | 224,853,882      | 260,478,736      | -13.68%      | 10,029,498       | 12,080,309       | -16.98%     |
|      | ASX 24                                | 155,750,589      | 179,612,061      | -13.29%      | 3,794,642        | 4,480,001        | -15.30%     |
|      | ASX                                   | 69,103,293       | 80,866,675       | -14.55%      | 6,234,856        | 7,600,308        | -17.97%     |
| 22   | Multi Commodity Exchange of India     | 221,016,837      | 307,095,652      | -28.03%      | 194,370          | 224,188          | -13.30%     |
| 23   | Euronext <sup>5</sup>                 | 175,583,217      | 152,020,700      | 15.50%       | 15,091,346       | 15,227,966       | -0.90%      |
| 24   | JSE Securities Exchange               | 169,728,724      | 156,862,691      | 8.20%        | 12,223,622       | 7,069,075        | 72.92%      |
| 25   | Thailand Futures Exchange             | 120,193,573      | 104,521,995      | 14.99%       | 2,194,994        | 3,330,230        | -34.09%     |
| 26   | MATba ROFEX <sup>6</sup>              | 117,485,220      | 210,135,523      | -44.09%      | 3,983,149        | 845,311          | 371.21%     |
| 27   | China Financial Futures Exchange      | 115,281,396      | 66,410,382       | 73.59%       | 854,738          | 507,615          | 68.38%      |
| 28   | Tokyo Financial Exchange              | 49,688,268       | 33,457,924       | 48.51%       | 1,607,107        | 1,840,228        | -12.67%     |
| 29   | Tel-Aviv Stock Exchange               | 42,406,411       | 35,560,572       | 19.25%       | 701,425          | 695,270          | 0.89%       |
| 30   | MEFF                                  | 40,476,929       | 44,920,848       | -9.89%       | 8,068,591        | 8,003,045        | 0.82%       |

|   |                                                                                                                                      |
|---|--------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Open Interest for these exchanges attributed to OCC                                                                                  |
| 2 | Nasdaq NFX stopped trading in December 2019                                                                                          |
| 3 | MIAX Emerald began trading in March 2019                                                                                             |
| 4 | Tokyo Commodity Exchange became a subsidiary of Japan Exchange Group in October 2019                                                 |
| 5 | Oslo Stock Exchange was formally consolidated under Euronext in December 2020; all historical Oslo data has been shifted to Euronext |
| 6 | Mercado a Termino de Buenos Aires and Rosario Futures Exchange merged into MATba ROFEX in August 2019                                |
| 7 | LSE Derivatives Market was rebranded as CurveGlobal Markets in June 2019                                                             |

Ranked by number of contracts traded and/or cleared. Futures and options volume broken down by subsidiary exchanges.

# Appendix B: FIA Contract Ranking Data

## Top 40 Energy Futures and Options Contracts

| Rank | Contract                                                                      | Jan-Dec 2020 Vol | Jan-Dec 2019 Vol | Vol % Change | 2020 December OI | 2019 December OI | OI % Change |
|------|-------------------------------------------------------------------------------|------------------|------------------|--------------|------------------|------------------|-------------|
| 1    | Brent Oil Futures, Moscow Exchange                                            | 742,813,393      | 616,575,153      | 20.5%        | 1,060,910        | 2,684,190        | -60.5%      |
| 2    | Fuel Oil Futures, Shanghai Futures Exchange                                   | 477,193,406      | 176,719,415      | 170.0%       | 441,258          | 462,049          | -4.5%       |
| 3    | WTI Light Sweet Crude Oil (CL) Futures, New York Mercantile Exchange          | 274,180,352      | 291,465,320      | -5.9%        | 2,154,706        | 2,147,798        | 0.3%        |
| 4    | Brent Crude Oil Futures, ICE Futures Europe                                   | 231,879,831      | 221,331,490      | 4.8%         | 2,455,791        | 2,594,785        | -5.4%       |
| 5    | Bitumen Futures, Shanghai Futures Exchange                                    | 204,756,838      | 102,908,784      | 99.0%        | 661,666          | 270,305          | 144.8%      |
| 6    | Henry Hub Natural Gas (NG) Futures, New York Mercantile Exchange              | 120,799,509      | 103,394,504      | 16.8%        | 1,169,656        | 1,291,147        | -9.4%       |
| 7    | Gas Oil Futures, ICE Futures Europe                                           | 84,524,207       | 80,009,445       | 5.6%         | 915,323          | 909,342          | 0.7%        |
| 8    | Thermal Coal (ZC) Futures, Zhengzhou Commodity Exchange                       | 61,174,572       | 27,495,364       | 122.5%       | 229,471          | 229,104          | 0.2%        |
| 9    | Coke Futures, Dalian Commodity Exchange                                       | 57,464,017       | 55,680,120       | 3.2%         | 211,138          | 183,340          | 15.2%       |
| 10   | WTI Light Sweet Crude Oil Futures, ICE Futures Europe                         | 50,122,648       | 53,597,867       | -6.5%        | 471,721          | 581,311          | -18.9%      |
| 11   | Liquefied Petroleum Gas Futures, Dalian Commodity Exchange <sup>1</sup>       | 48,251,668       | n/a              | n/a          | 65,228           | n/a              | n/a         |
| 12   | Crude Oil Futures, Multi Commodity Exchange of India                          | 47,905,028       | 61,637,503       | -22.3%       | 1,122            | 25,757           | -95.6%      |
| 13   | RBOB Gasoline Physical (RB) Futures, New York Mercantile Exchange             | 46,492,488       | 49,851,807       | -6.7%        | 414,673          | 382,208          | 8.5%        |
| 14   | Natural Gas Futures, Multi Commodity Exchange of India                        | 46,106,898       | 16,659,623       | 176.8%       | 8,570            | 41,414           | -79.3%      |
| 15   | NY Harbor ULSD (HO) Futures, New York Mercantile Exchange                     | 44,003,184       | 43,400,809       | 1.4%         | 362,667          | 438,793          | -17.3%      |
| 16   | Medium Sour Crude Oil Futures, Shanghai International Energy Exchange         | 41,585,786       | 34,644,385       | 20.0%        | 84,680           | 29,410           | 187.9%      |
| 17   | Heating Oil Futures, ICE Futures Europe                                       | 36,021,671       | 10,669,610       | 237.6%       | 31,003           | 22,226           | 39.5%       |
| 18   | Crude Oil (LO) Options, New York Mercantile Exchange                          | 29,567,191       | 31,250,967       | -5.4%        | 1,420,100        | 1,725,407        | -17.7%      |
| 19   | Natural Gas (European) (LN) Options, New York Mercantile Exchange             | 28,452,319       | 19,232,369       | 47.9%        | 2,391,759        | 1,793,209        | 33.4%       |
| 20   | Dutch TTF Gas Futures, ICE Futures Europe                                     | 27,315,177       | 18,000,903       | 51.7%        | 1,737,598        | 1,183,366        | 46.8%       |
| 21   | Hard Coking Coal Futures, Dalian Commodity Exchange                           | 26,431,404       | 22,874,614       | 15.5%        | 128,868          | 90,432           | 42.5%       |
| 22   | Brent Crude Oil Last Day Financial (BZ) Futures, New York Mercantile Exchange | 25,979,078       | 25,616,925       | 1.4%         | 160,086          | 222,092          | -27.9%      |
| 23   | Brent Crude Oil Options, ICE Futures Europe                                   | 25,863,157       | 25,590,449       | 1.1%         | 1,658,017        | 1,891,931        | -12.4%      |
| 24   | U.S. Oil Fund ETF Options *                                                   | 24,235,162       | 23,387,963       | 3.6%         | 441,483          | 1,226,223        | -64.0%      |
| 25   | NYH (RBOB) Gasoline (Monthly) Futures, ICE Futures Europe                     | 21,064,950       | 7,162,351        | 194.1%       | 26,962           | 17,384           | 55.1%       |

# Appendix B: FIA Contract Ranking Data

| Rank | Contract                                                                              | Jan-Dec 2020 Vol | Jan-Dec 2019 Vol | Vol % Change | 2020 December OI | 2019 December OI | OI % Change |
|------|---------------------------------------------------------------------------------------|------------------|------------------|--------------|------------------|------------------|-------------|
| 26   | Brent Oil Options, Moscow Exchange                                                    | 10,077,081       | 8,709,740        | 15.7%        | 46,262           | 198,270          | -76.7%      |
| 27   | Low Sulfur Fuel Oil Futures, Shanghai International Energy Exchange <sup>2</sup>      | 9,762,329        | n/a              | n/a          | 140,563          | n/a              | n/a         |
| 28   | U.S. Natural Gas ETF Options *                                                        | 9,321,324        | 5,047,877        | 84.7%        | 366,328          | 565,779          | -35.3%      |
| 29   | EUA Futures, ICE Futures Europe                                                       | 8,945,417        | 7,462,422        | 19.9%        | 857,204          | 809,449          | 5.9%        |
| 30   | E-mini Crude Oil (QM) Futures, New York Mercantile Exchange                           | 6,834,996        | 5,470,936        | 24.9%        | 3,103            | 4,024            | -22.9%      |
| 31   | Crude Oil Futures, Tokyo Commodity Exchange                                           | 5,973,086        | 2,679,766        | 122.9%       | 131,894          | 58,089           | 127.1%      |
| 32   | Dutch TTF Gas Options, ICE Futures Europe                                             | 5,005,737        | 3,241,443        | 54.4%        | 729,849          | 910,300          | -19.8%      |
| 33   | Henry Hub Natural Gas Futures, Moscow Exchange <sup>3</sup>                           | 3,951,213        | n/a              | n/a          | 38,898           | n/a              | n/a         |
| 34   | Thermal Coal (ZC) Options, Zhengzhou Commodity Exchange <sup>1</sup>                  | 3,565,955        | n/a              | n/a          | 89,578           | n/a              | n/a         |
| 35   | Natural Gas (Henry Hub) Last-day Financial (HH) Futures, New York Mercantile Exchange | 3,299,893        | 3,561,606        | -7.3%        | 370,197          | 294,699          | 25.6%       |
| 36   | WTI Light Sweet Crude Oil Options, ICE Futures Europe                                 | 3,183,744        | 3,694,346        | -13.8%       | 297,975          | 559,128          | -46.7%      |
| 37   | EUA Options, ICE Futures Europe                                                       | 2,600,850        | 2,630,825        | -1.1%        | 322,166          | 225,304          | 43.0%       |
| 38   | WTI Crude Oil 1 Month Calendar Spread (WA) Options, New York Mercantile Exchange      | 2,221,732        | 2,460,664        | -9.7%        | 429,225          | 310,050          | 38.4%       |
| 39   | Crude Oil Options, Multi Commodity Exchange of India                                  | 2,207,935        | 2,149,572        | 2.7%         | 2,063            | 10,958           | -81.2%      |
| 40   | Mont Belvieu LDH Propane (OPIS) (B0) Futures, New York Mercantile Exchange            | 2,044,718        | 1,717,506        | 19.1%        | 134,772          | 128,609          | 4.8%        |

\* Traded on multiple U.S. options exchanges

<sup>1</sup> Began trading in March 2020

<sup>2</sup> Began trading in June 2020

<sup>3</sup> Began trading in February 2020

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# Appendix B: FIA Contract Ranking Data

## Top 40 Agricultural Futures and Options Contracts

| Rank | Contract                                                      | Jan-Dec 2020 Vol | Jan-Dec 2019 Vol | Vol % Change | 2020 December OI | 2019 December OI | OI % Change |
|------|---------------------------------------------------------------|------------------|------------------|--------------|------------------|------------------|-------------|
| 1    | Soybean Meal Futures, Dalian Commodity Exchange               | 359,464,679      | 272,869,691      | 31.7%        | 2,304,861        | 2,925,246        | -21.2%      |
| 2    | RBD Palm Olein Futures, Dalian Commodity Exchange             | 315,167,096      | 135,504,196      | 132.6%       | 416,392          | 888,380          | -53.1%      |
| 3    | Corn Futures, Dalian Commodity Exchange                       | 177,715,573      | 99,119,054       | 79.3%        | 1,556,234        | 1,181,222        | 31.7%       |
| 4    | Soybean Oil Futures, Dalian Commodity Exchange                | 173,116,523      | 87,543,178       | 97.7%        | 587,469          | 802,169          | -26.8%      |
| 5    | Rapeseed Meal (RM) Futures, Zhengzhou Commodity Exchange      | 159,893,801      | 138,085,360      | 15.8%        | 478,995          | 329,954          | 45.2%       |
| 6    | Egg Futures, Dalian Commodity Exchange                        | 132,053,500      | 37,130,045       | 255.7%       | 333,364          | 394,728          | -15.5%      |
| 7    | White Sugar (SR) Futures, Zhengzhou Commodity Exchange        | 124,551,207      | 112,515,650      | 10.7%        | 559,029          | 391,747          | 42.7%       |
| 8    | Cotton No. 1 (CF) Futures, Zhengzhou Commodity Exchange       | 108,338,363      | 63,971,129       | 69.4%        | 635,692          | 701,376          | -9.4%       |
| 9    | Rapeseed Oil (OI) Futures, Zhengzhou Commodity Exchange       | 105,447,334      | 37,786,701       | 179.1%       | 161,387          | 129,056          | 25.1%       |
| 10   | Rubber Futures, Shanghai Futures Exchange                     | 100,942,773      | 53,850,389       | 87.5%        | 280,142          | 261,683          | 7.1%        |
| 11   | Corn Futures, Chicago Board of Trade                          | 89,753,068       | 103,189,062      | -13.0%       | 1,750,518        | 1,473,252        | 18.8%       |
| 12   | Apple (AP) Futures, Zhengzhou Commodity Exchange              | 63,009,295       | 37,461,668       | 68.2%        | 329,205          | 99,379           | 231.3%      |
| 13   | Soybean Futures, Chicago Board of Trade                       | 61,122,980       | 53,333,211       | 14.6%        | 889,698          | 713,572          | 24.7%       |
| 14   | No. 1 Soybean Futures, Dalian Commodity Exchange              | 59,445,167       | 18,450,462       | 222.2%       | 107,489          | 98,204           | 9.5%        |
| 15   | Sugar #11 Futures, ICE Futures U.S.                           | 39,949,270       | 37,687,885       | 6.0%         | 1,066,198        | 989,858          | 7.7%        |
| 16   | Woodpulp Futures, Shanghai Futures Exchange                   | 34,362,850       | 36,345,367       | -5.5%        | 288,927          | 135,256          | 113.6%      |
| 17   | Chicago Soft Red Winter Wheat Futures, Chicago Board of Trade | 33,365,343       | 30,407,143       | 9.7%         | 402,613          | 411,204          | -2.1%       |
| 18   | Soybean Oil Futures, Chicago Board of Trade                   | 32,961,867       | 31,694,867       | 4.0%         | 469,214          | 500,970          | -6.3%       |
| 19   | Soybean Meal Options, Dalian Commodity Exchange               | 30,120,942       | 17,809,235       | 69.1%        | 385,373          | 435,531          | -11.5%      |
| 20   | Soybean Meal Futures, Chicago Board of Trade                  | 29,914,836       | 29,403,484       | 1.7%         | 415,506          | 429,168          | -3.2%       |
| 21   | Corn Starch Futures, Dalian Commodity Exchange                | 28,299,982       | 16,563,847       | 70.9%        | 174,441          | 89,025           | 95.9%       |
| 22   | Corn Options, Chicago Board of Trade                          | 24,395,038       | 31,319,520       | -22.1%       | 1,363,439        | 883,813          | 54.3%       |
| 23   | No. 2 Soybean Futures, Dalian Commodity Exchange              | 18,359,635       | 17,791,929       | 3.2%         | 50,875           | 46,013           | 10.6%       |
| 24   | Soybean Options, Chicago Board of Trade                       | 16,954,195       | 13,507,813       | 25.5%        | 831,106          | 440,572          | 88.6%       |
| 25   | Live Cattle Futures, Chicago Mercantile Exchange              | 16,138,757       | 16,718,841       | -3.5%        | 292,595          | 378,965          | -22.8%      |

# Appendix B: FIA Contract Ranking Data

| Rank | Contract                                                               | Jan-Dec 2020 Vol | Jan-Dec 2019 Vol | Vol % Change | 2020 December OI | 2019 December OI | OI % Change |
|------|------------------------------------------------------------------------|------------------|------------------|--------------|------------------|------------------|-------------|
| 26   | Crude Palm Oil (FCPO) Futures, Malaysia Derivatives Exchange           | 14,606,684       | 10,704,273       | 36.5%        | 165,594          | 228,997          | -27.7%      |
| 27   | KC Hard Red Winter Wheat Futures, Chicago Board of Trade               | 13,761,590       | 15,455,728       | -11.0%       | 217,162          | 265,274          | -18.1%      |
| 28   | Milling Wheat Futures, Euronext Derivatives Market                     | 12,969,205       | 10,128,337       | 28.0%        | 457,451          | 344,035          | 33.0%       |
| 29   | Coffee C Futures, ICE Futures U.S.                                     | 12,557,541       | 15,020,918       | -16.4%       | 259,120          | 277,161          | -6.5%       |
| 30   | Lean Hog Futures, Chicago Mercantile Exchange                          | 12,396,409       | 15,621,844       | -20.6%       | 193,877          | 282,389          | -31.3%      |
| 31   | Corn Options, Dalian Commodity Exchange                                | 10,444,550       | 6,760,187        | 54.5%        | 228,640          | 410,482          | -44.3%      |
| 32   | Cocoa Futures, ICE Futures U.S.                                        | 10,352,108       | 12,249,905       | -15.5%       | 219,387          | 281,569          | -22.1%      |
| 33   | Cotton #2 Futures, ICE Futures U.S.                                    | 8,324,233        | 8,461,449        | -1.6%        | 228,235          | 221,797          | 2.9%        |
| 34   | Chicago Soft Red Winter Wheat Options, Chicago Board of Trade          | 7,692,329        | 7,346,623        | 4.7%         | 270,496          | 321,108          | -15.8%      |
| 35   | Crude RBD Palm Olein Futures, Asia Pacific Exchange <sup>1</sup>       | 7,667,088        | 4,354,188        | 76.1%        | 22,439           | 14,904           | 50.6%       |
| 36   | Chinese Jujube (CJ) Futures, Zhengzhou Commodity Exchange <sup>1</sup> | 6,526,230        | 27,734,015       | -76.5%       | 26,883           | 34,769           | -22.7%      |
| 37   | Cocoa Futures, ICE Futures Europe                                      | 6,509,645        | 8,240,073        | -21.0%       | 219,501          | 307,138          | -28.5%      |
| 38   | White Sugar (SR) Options, Zhengzhou Commodity Exchange                 | 6,254,314        | 6,772,677        | -7.7%        | 107,141          | 90,684           | 18.1%       |
| 39   | Canola Futures, ICE Futures U.S.                                       | 6,219,990        | 5,611,656        | 10.8%        | 201,638          | 174,632          | 15.5%       |
| 40   | Sugar No. 11 Options, ICE Futures U.S.                                 | 6,156,858        | 5,646,890        | 9.0%         | 492,536          | 549,881          | -10.4%      |

<sup>1</sup> Began trading in April 2019

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# Appendix B: FIA Contract Ranking Data

## Top 40 Metal Futures and Options Contracts

| Rank | Contract                                                     | Jan-Dec 2020 Vol | Jan-Dec 2019 Vol | Vol % Change | 2020 December OI | 2019 December OI | OI % Change |
|------|--------------------------------------------------------------|------------------|------------------|--------------|------------------|------------------|-------------|
| 1    | Steel Rebar Futures, Shanghai Futures Exchange               | 366,043,408      | 465,171,782      | -21.3%       | 1,575,426        | 1,788,940        | -11.9%      |
| 2    | Silver Futures, Shanghai Futures Exchange                    | 357,232,087      | 142,823,743      | 150.1%       | 722,744          | 767,026          | -5.8%       |
| 3    | Iron Ore Futures, Dalian Commodity Exchange                  | 284,630,172      | 296,538,011      | -4.0%        | 606,889          | 702,827          | -13.7%      |
| 4    | Nickel Futures, Shanghai Futures Exchange                    | 179,764,100      | 160,444,120      | 12.0%        | 311,876          | 399,364          | -21.9%      |
| 5    | Gold Futures, Borsa Istanbul                                 | 137,639,246      | 50,953,484       | 170.1%       | 1,732,818        | 420,012          | 312.6%      |
| 6    | iShares Silver Trust ETF Options *                           | 95,306,641       | 29,929,129       | 218.4%       | 8,162,330        | 3,813,373        | 114.0%      |
| 7    | Hot Rolled Coil Futures, Shanghai Futures Exchange           | 82,346,338       | 70,411,675       | 16.9%        | 665,561          | 363,698          | 83.0%       |
| 8    | Gold (GC) Futures, Commodity Exchange (COMEX)                | 78,127,531       | 86,508,741       | -9.7%        | 560,059          | 786,422          | -28.8%      |
| 9    | Refined Silver Futures, Moscow Exchange                      | 67,041,637       | 16,981,009       | 294.8%       | 394,320          | 194,788          | 102.4%      |
| 10   | SPDR Gold Shares ETF Options *                               | 65,202,071       | 38,791,969       | 68.1%        | 3,810,475        | 3,058,954        | 24.6%       |
| 11   | Aluminium Futures, London Metal Exchange                     | 62,019,871       | 66,046,920       | -6.1%        | 928,596          | 921,459          | 0.8%        |
| 12   | Zinc Futures, Shanghai Futures Exchange                      | 60,330,404       | 71,066,468       | -15.1%       | 184,762          | 228,204          | -19.0%      |
| 13   | Copper Futures, Shanghai Futures Exchange                    | 57,164,215       | 36,520,132       | 56.5%        | 314,841          | 314,802          | 0.0%        |
| 14   | Aluminum Futures, Shanghai Futures Exchange                  | 52,864,722       | 32,757,569       | 61.4%        | 321,761          | 348,890          | -7.8%       |
| 15   | Gold Futures, Shanghai Futures Exchange                      | 52,405,455       | 46,208,567       | 13.4%        | 187,949          | 219,392          | -14.3%      |
| 16   | Silver Micro Futures, Multi Commodity Exchange of India      | 47,970,120       | 15,239,830       | 214.8%       | 41,161           | 25,673           | 60.3%       |
| 17   | Silicon Manganese (SM) Futures, Zhengzhou Commodity Exchange | 45,290,175       | 11,171,963       | 305.4%       | 150,401          | 85,407           | 76.1%       |
| 18   | Gold Futures, Moscow Exchange                                | 32,846,380       | 19,577,553       | 67.8%        | 161,926          | 151,782          | 6.7%        |
| 19   | Copper Grade A Futures, London Metal Exchange                | 32,606,077       | 35,622,832       | -8.5%        | 379,393          | 400,446          | -5.3%       |
| 20   | Ferrosilicon (SF) Futures, Zhengzhou Commodity Exchange      | 31,344,180       | 9,316,202        | 236.4%       | 100,657          | 57,147           | 76.1%       |
| 21   | Silver (5,000 oz) (SI) Futures, Commodity Exchange (COMEX)   | 26,126,771       | 24,149,148       | 8.2%         | 171,426          | 229,725          | -25.4%      |
| 22   | Diamond (1 Carat) Futures, Indian Commodity Exchange         | 25,337,391       | 86,164,857       | -70.6%       | 0                | 5,094            | -100.0%     |
| 23   | Copper (HG) Futures, Commodity Exchange (COMEX)              | 24,317,772       | 24,008,860       | 1.3%         | 247,597          | 266,891          | -7.2%       |
| 24   | Special High Grade Zinc Futures, London Metal Exchange       | 23,542,072       | 29,648,051       | -20.6%       | 298,390          | 291,623          | 2.3%        |
| 25   | Silver Mini Futures, Multi Commodity Exchange of India       | 22,244,885       | 8,573,815        | 159.5%       | 12,309           | 9,735            | 26.4%       |

# Appendix B: FIA Contract Ranking Data

| Rank | Contract                                                        | Jan-Dec 2020 Vol | Jan-Dec 2019 Vol | Vol % Change | 2020 December OI | 2019 December OI | OI % Change |
|------|-----------------------------------------------------------------|------------------|------------------|--------------|------------------|------------------|-------------|
| 26   | E-Micro Gold (MGC) Futures, Commodity Exchange (COMEX)          | 21,783,469       | 5,707,849        | 281.6%       | 35,333           | 25,779           | 37.1%       |
| 27   | US Dollar/Ounce Gold Futures, Borsa Istanbul                    | 18,630,727       | 6,522,961        | 185.6%       | 105,568          | 53,385           | 97.7%       |
| 28   | Primary Nickel Futures, London Metal Exchange                   | 17,583,717       | 24,468,858       | -28.1%       | 270,192          | 364,576          | -25.9%      |
| 29   | Iron Ore 62% Futures, Singapore Exchange                        | 16,719,723       | 14,582,987       | 14.7%        | 635,087          | 500,586          | 26.9%       |
| 30   | Tin Futures, Shanghai Futures Exchange                          | 13,314,333       | 3,246,074        | 310.2%       | 52,508           | 45,008           | 16.7%       |
| 31   | Gold (OG) Options, Commodity Exchange (COMEX)                   | 13,213,356       | 15,043,949       | -12.2%       | 881,118          | 1,259,675        | -30.1%      |
| 32   | Gold Petal Futures, Multi Commodity Exchange of India           | 11,750,944       | 1,906,926        | 516.2%       | 52,369           | 9,009            | 481.3%      |
| 33   | Iron Ore Options, Dalian Commodity Exchange <sup>1</sup>        | 11,599,097       | 363,865          | 3087.7%      | 184,118          | 91,523           | 101.2%      |
| 34   | Lead Futures, Shanghai Futures Exchange                         | 11,211,637       | 7,710,171        | 45.4%        | 65,445           | 60,226           | 8.7%        |
| 35   | Standard Lead Futures, London Metal Exchange                    | 11,190,170       | 11,864,206       | -5.7%        | 127,758          | 129,511          | -1.4%       |
| 36   | Stainless Steel Futures, Shanghai Futures Exchange <sup>2</sup> | 10,831,251       | 590,753          | 1733.5%      | 171,626          | 21,249           | 707.7%      |
| 37   | Gold Mini Futures, Multi Commodity Exchange of India            | 10,133,629       | 5,369,406        | 88.7%        | 13,672           | 12,065           | 13.3%       |
| 38   | Gold Online Futures, Thailand Futures Exchange                  | 8,108,010        | 3,974,556        | 104.0%       | 18,739           | 36,373           | -48.5%      |
| 39   | Silver Futures, Multi Commodity Exchange of India               | 7,839,040        | 5,489,992        | 42.8%        | 14,442           | 10,437           | 38.4%       |
| 40   | Gold Futures, Tokyo Commodity Exchange                          | 5,006,284        | 8,430,249        | -40.6%       | 0                | 87,781           | -100.0%     |

\* Traded on multiple U.S. options exchanges

<sup>1</sup> Began trading in December 2019

<sup>2</sup> Began trading in September 2019

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