



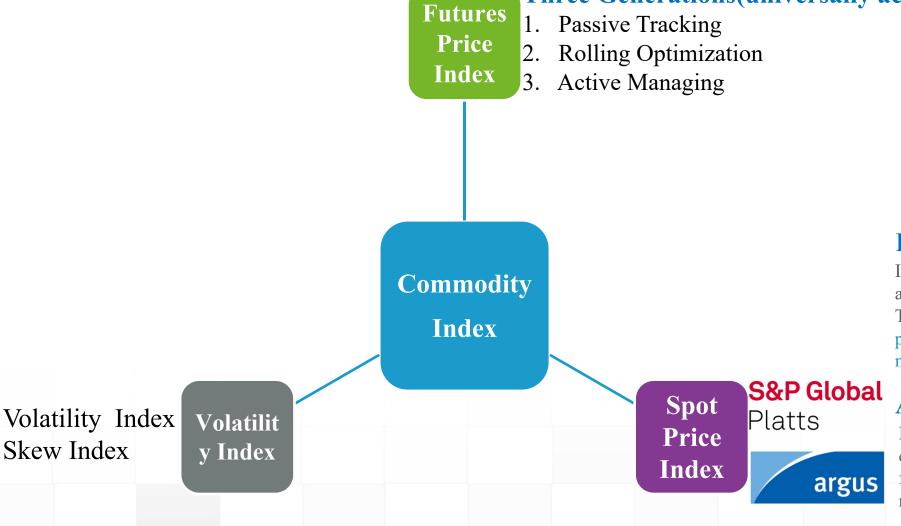
# CONTENTS



- I. The Introduction to Commodity Index
- 2. The DCE's Commodity Index
- 3. Introduction on Commodity Index Investment
- **4. The DCE's Index Products**
- 5. Commodity Index Licensing Service of DCE

# **Classification of Commodity Index**





#### **Platts**

Three Generations(universally accepted)

It originated in the United States in 1909 and then expanded to the whole world. The commodities involved extend from petroleum to all kinds of energy and materials.

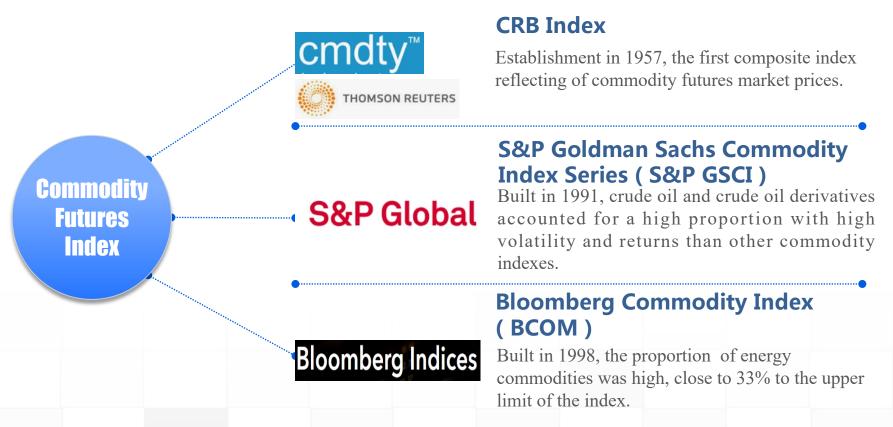
### Argus

In 1970, it originated in Europe and then expanded to the world. The commodities from petroleum to all kinds of energy and materials.

# **Commodity Futures Index**



### Composite Commodity Futures Price Index



Note Former Dow Jones UBS Commodity Index

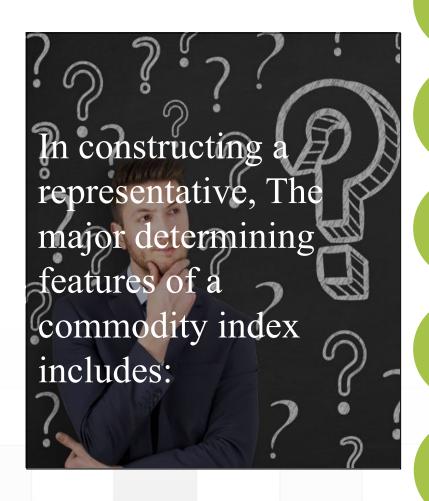
- CRB Reference Indicators for Early Macroeconomics
  - 28 Commodity prices
  - No Crude Oil, precious metals and other core Commodities
  - Equally weighted design
- Commodity Index for Investment Purpose
  - The Rising of Emerging Markets
  - Passive index investment
  - Low cost and high income

# Comparison Among Three Generation Commodity Futures Index LANCONTROLLER



# The Major Determining Features of a Futures Commodity Index





How many compositions are included and in what proportion?

What is the selection process for the inclusion and what are the criteria for the re-weighting of the commodity base?

Which specific futures contracts are used for each individual commodity?

How are these futures contracts rolled?

Are the commodities reset to base weights periodically?

# **Summary of World-Renowned Commodity Index**



		We	Weight Design				
Representative Index	Creation Time	Basis for Determination	Lower and Upper Limit Settings	Rebalancing Frequency	Contract Month	Rolling Frequency	Rolling Scale
RJ/CRB Index	1957	Fixed weight	No	Irregular	Front month contract	4th trading days monthly( total 4 Day)	Daily 25%
S&P GSCI Index	1991	Five-year world production	No	5th day of the first month trading days		5th -9th trading day monthly (total 5 Day)	Daily 20%
BCOM Index	1998	World production and Volume in five Years	Yes	First month annually	Front month contract	6th -10th trading days (total 5 day)	Daily 20%
DBLCI Index	2003	Volume, fixed weight	No	First week of the first month annually	The most liquid contract	The penultimate trading day of each month - The first trading day of the following month (total 3 days)	Daily 1/3
RICI Index	1998	Consumption, fixed weight	No	Annual testing	the next front	The penultimate trading day of each month - The first trading day of the following month (total 3 days)	Daily 1/3
LMEX Index	1999	World output and Volume in five years	No	12 <sup>th</sup> trading day of 7 <sup>th</sup> month annually	Three front contracts	-	-

# Diversified Commodity Futures Index



#### BLOOMBERG DIVERSIFIED COMMODITY INDEX-DESIGNING PRINCIPLE

### • Liquidity Weighted Index

An Example of Combining Liquidity and Yield

### Economic significance

Liquidity Weights Reflect the Attention of Market Participants to Futures

The Importance of Commodities to the World Economy Reflected by Production

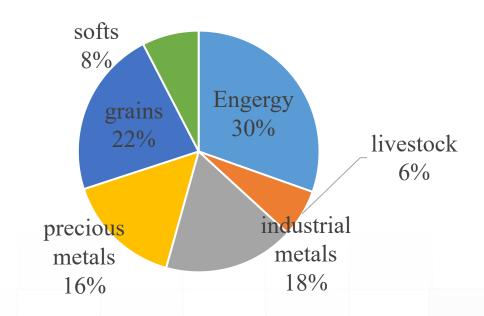
### • Diversity through the Capped Weight

The single commodity does not exceed 15%
The single derivatives (oil, diesel, gasoline) do not exceed 25%
The single sector of the futures (energy, precious metals, livestock, crops) does not exceed 33%

### Sustainability

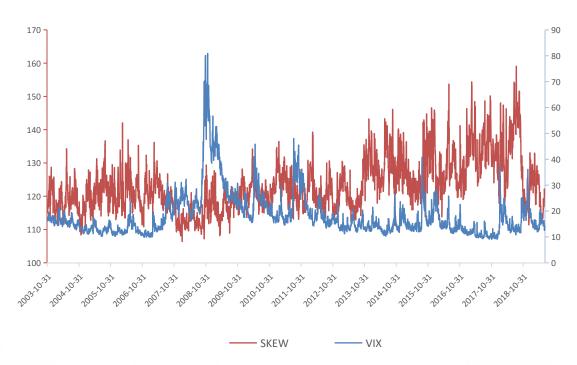
• Liquidity

# The Bloomberg Commodity Index 2018 Target Weight



## **Volatility Index-VIX & SKEW**





The Cboe Exchange ® (Cboe ®) calculates and updates the values of more than 25 indexes designed to measure the expected volatility of different products. The volatility indexes are key measures of market expectations as conveyed by Listed options Prices.

### CBOE VIX

Underlying Types	Code	Index Name	Underlying
Commodities	CIV	CBOE/CBOT Corn Volatility Index	CBOT Corn Futures
Commodities	OIV	VIX Index for CME Futures on WTI Crude Oil	CME WTI Crude Oil Futures
Commodities	SIV	CME Soybean VIX Index	CME Soybean Futures
Currencies	BPVIX	CBOE/CME FX British Pound Volatility Index <sup>SM</sup>	CME FX British pound/ Dollar Futures
Currencies	EUVIX	CBOE/CME FX Euro Volatility Index <sup>SM</sup>	CME FX Euro/British pound/ Dollar Futures
Currencies	JYVIX	CBOE/CME FX Yen Volatility Indexes <sup>SM</sup>	CME FX Yen/Dollar Futures
ETFs	GVZ	CBOE Gold ETF Volatility Index	SPDR Gold Shares (Ticker-GLD)
<b>Individual Equities</b>	VXAZN	CBOE Equity VIX on Amazon	Amazon Stock
<b>Individual Equities</b>	VXGOG	CBOE Equity VIX on Google	Google Stock
Interest Rates	TYVIX <sup>SM</sup>	CBOE/CBOT 10-year U.S.Treasury Note Volatility Index <sup>SM</sup>	10-Year Treasury Futures
Stock Indexes	RVX	CBOE Russell 2000 Volatility Index <sup>SM</sup>	Russell 2000 Stock Index
Stock Indexes	VIX3M	CBOE 3-Month Volatility Index <sup>SM</sup>	S&P 500 (SPX) Index
Stock Indexes	VVIXSM	CBOE VVIX Index <sup>SM</sup>	VIX

# **CONTENTS**



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# **DCE Index Family**



Index Category		Agricultural Products Index Series	Industrial Products Index Series
	Composite Index	DCE Agricultural Futures Composite Price Index	DCE Industrial Futures Composite Price Index
	Component Index	DCE Agricultural Futures Price Index	DCE Industrial Futures Price Index
Multi-Commodity		DCE Oils and Oilseeds Futures Price Index	DCE Ferrous Futures Price Index
Index	Thoma Inday	DCE Soybean Series Futures Price Index	DCE Iron-Making Furnace Burden Cost Index
	Theme Index	DCE Feedstuff Futures Price Index	DCE Petrochemical Futures Price Index
		_	DCE Plastic Futures Price Index
Single Commodity	Futures Price Index	7 indices, including DCE Corn Futures Price Index, etc	7 indices, including DCE LLDPE Futures Price Index, etc
Index	Dominant Contract Index	7 indices, including DCE Corn Futures Dominant Contract Price Index, etc.	7 indices, including DCE LLDPE Futures Front Month Contract Price Index, etc.
		DCE Hog Feedstuff Cost Index	<u>—</u>
Cuc	tom Index	DCE Corn Starch Processing Profit Index	_
Cus	tom maex	DCE Laying Hen Breeding Profit Index	<u>—</u>
		DCE Hen Feedstuff Cost Index	



### **DCE Index Attributes**



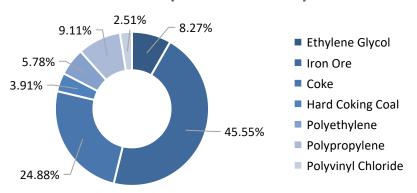


- •The innovative contract rolling design avoids the problem of profit and loss due to the term structure of the futures market(contango or backwardation), making the index returns consistent with the funds return.
- •The design of weigh methodology is scientific, making the weight and capital keep the same.
- •The design of the weight cap is reasonable, ensuring the investability and diversity of the index.
- •Introducing the principle of forced rolling to contracts which is in line with the operational features of investment products.

## **Overview of DCE Main Index-Composite Index**



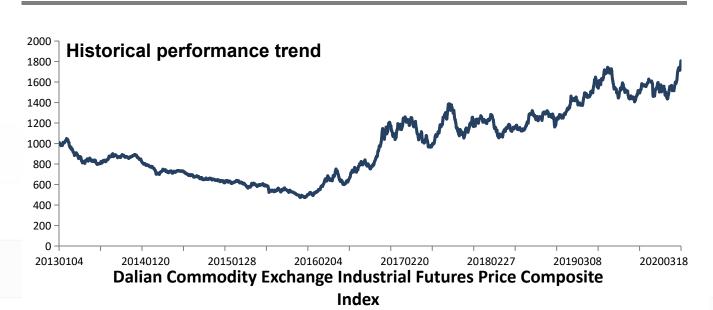
# Dalian Commodity Exchange Industrial Futures Price Composite Index compositon

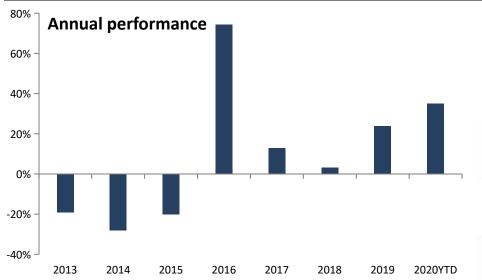


Performance p.a.(%)	8.29%
Volatility p.a.	18.96%
Sharpe Ratio	0.36

Based on daily settlement prices from Apr. 2013 to Jan. 2020.

Based on Dalian Commodity Exchange Industrial Futures Price Composite Index.Past performance does not indicate future results.



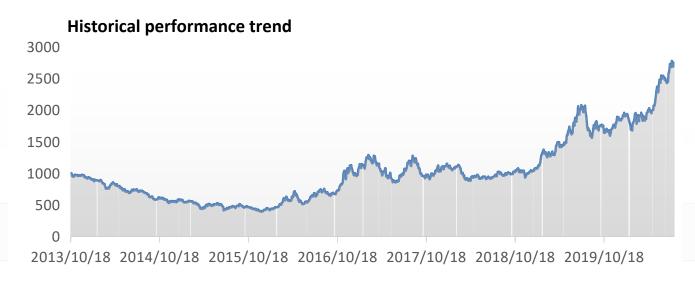


# Overview of DCE Main Index-Single Commodity Index



Dalian Commodity Exchange Iron Ore Futures Price Index compositon



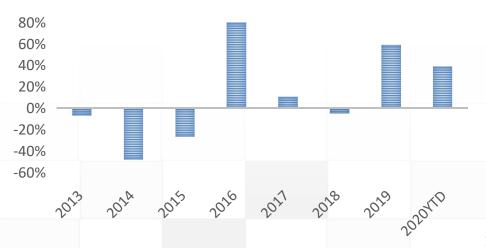


Performance p.a.(%)	15.33%
Volatility p.a.	27.61%
Sharpe Ratio	0.50

Based on daily settlement prices from Oct. 2013 to Jul. 2020.

Based on Dalian Commodity Exchange Iron Ore Futures Price Index.Past performance does not indicate future results.

#### **Annual performance**



### **Quick Facts of the DCE Index**



# **Determine the Composition**

- Liquidity
- New Products listing for one year, at least half a year.
- Good Investability

### **Weight Design**

- Real & Calc. weight
- Real weight using turnover represents the liquidity
- The Calc. weight mitigate the affection of the price
- Set cap for real weight

#### **Rolling Scheme**

- Dynamic rolling
- Smooth price
- Forced rolling
- Non-rollback

### Weight Adjustment

- Semi-Annually
- Special operation when coincide with rolling

### **Index Calc.**

- Chain rule
- Divisor correction method

# The Calculation of the Weight



Average Daily Turnover

$$\overline{VA_i^n} = \frac{\sum_{j,d} S_{j,d}^n \cdot Vol_{j,d}^n \cdot TU^n}{TD_i}, i = 1, 2.$$

Liquidity Indicator

$$\overline{VA_i^n} = \frac{\sum_{j,d} S_{j,d}^n \cdot Vol_{j,d}^n \cdot TU^n}{TD_i}, i = 1, 2.$$

$$\frac{liq^n}{0.4\overline{VA_1^n}} = \frac{0.4\overline{VA_1^n}}{1.00} + 0.6\overline{VA_2^n}$$

Real Weights

$$c^{n} = \frac{liq^{n}}{\sum_{n=1}^{n=m} liq^{n}},$$

$$n=1,2,...,m$$

Calculation Weights

$$c^{n} = \frac{liq^{n}}{\sum_{n=1}^{n=m} liq^{n'}},$$

$$m=1,2,...,m$$

$$w^{n} = \frac{\frac{c^{n}}{S_{T}^{n}}}{\sum_{i=1}^{m} \frac{c^{i}}{S_{T}^{i}}}, n=1,2,...,m.$$

- (1) Upper and lower limits of the real weight: If the real weight of a product is less than 3%, then the product is eliminated from the composite products and the remaining products are recalculated; If the true weight of a product is greater than 60%, the remaining weight is distributed to other component products.
- (2) Calculate Calculation Weights: Using the real weight and the settlement price of the component contract before and after the weight adjustment.

## Weight Adjustment



### Fixed Date Weight Adjustment:



The weights are adjusted semi-annually.

The adjustment date is the first trading day of Jan. & Jul. each year

Time sequence relationship between weight adjustment and rolling:



The weights adjustment will not be conducted at the same time during the rolling period.

- ① If there are products that need to be rolled during the weight adjustment period, the rolling will not be conducted for the time being, and the rolling will be extended after the weight adjustment is completed.
- ② If the rolling period coincides with the weights adjustment period, the adjustment will not be conducted for the time being and would be extended after the rolling is completed.
- ③ If it is determined that both the rolling and the weights adjustment will be started on the next trading day, the weights adjustment will be started after the rolling is completed.

# Rolling



**Component Contract:** Each products' component contract is the dominant contract, that is, the contract with the largest open interest.

**Rolling Method:** Confirmation period for X days, Rolling for 5 days, The rolling shall follow the principle of non-rollback.

Each rolling confirmation period of products X will re-estimated once a year, based on the previous three years of market data:

Listing	Rolling Back Frequency	Cumulative Back Days	Confirmation Period
3 Year	≥ 3	≥ 10	3
2 Year	$\geq 2$	$\geq 6$	3
1 Year	≥ 1	≥ 3	3

# **Forced Rolling**



### **Forced Rolling:**

If in the **last trading day of two months before the delivery month** it is still impossible to determine the dominant contract, the rolling will automatically begin from the next trading day, The dominant contract will be rolled to the second forward contract.

By default, the contract of the forward month refer to the dominant contract which has been made in the previous cycle in the forward-month.

### **Index Calculation**



Latest Price Index: Daily real-time calculation and using Smooth Price of dominant Contracts, 5 day weight adjustment process:

Formulation
$\sum \frac{P_1 w_{old}}{NC_{old}}$
$0.8 \times \sum \frac{P_1 w_{old}}{NC_{old}} + 0.2 \times \frac{P_1 w_{new}}{NC_{new}}$
$0.6 \times \sum \frac{P_1 w_{old}}{NC_{old}} + 0.4 \times \frac{P_1 w_{new}}{NC_{new}}$
$0.4 \times \sum \frac{P_1 w_{old}}{NC_{old}} + 0.6 \times \frac{P_1 w_{new}}{NC_{new}}$
$0.2 \times \sum \frac{P_1 w_{old}}{NC_{old}} + 0.8 \times \frac{P_1 w_{new}}{NC_{new}}$
$\sum \frac{P_1 w_{new}}{NC_{new}}$

**Index Calculation** 

- Calculation Formula
- Composite index method: Stock and futures indexes;

$$I_t = \frac{\sum P_t \cdot w}{\sum P_0 \cdot w}$$

- Continuity
- Divisor correction method, introducing normalization factor ( NC )

**Smooth Price** 

$$P_{d,t}^n = P_{1,d,t}^n \cdot AF_j^n$$

Adjustment Coef after Rolling Period

$$AF_{j}^{n} = \begin{cases} 1, j = 0 \\ 0.2 \times AF_{j-1}^{n} \cdot \sum_{i=0}^{4} \frac{S_{1,T_{j}+i}^{n}}{S_{2,T_{j}+i}^{n}}, j \ge 1 \end{cases}$$

Adjustment Coef. during the Rolling Period

$$P_{T_j+i,t}^n = (1-i\times 0.2)\cdot P_{1,T_j+i,t}^n \cdot AF_{j-1}^n + 0.2\times P_{2,T_j+i,t}^n \cdot AF_{j-1}^n \cdot \sum_{k=0}^{i-1} \frac{S_{1,T_j+k}^n}{S_{2,T_j+k}^n}, i = 1, 2, ..., 5$$

# **CONTENTS**



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- **2. The DCE's Commodity Index**
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### **Development and Evolution of Index Derivatives**



22

#### **Exploratory**

- □ 1986 listing in the New York
  Futures Exchange, CRB index
  futures contracts became the
  world's first commodity index
  exchange trading derivatives.
- ☐ CRB index pioneered the commodity index and index investment, and also laid the foundation for the establishment of the commodity index fund.

#### Germination

□ Due to the need for international investment banks to differentiate their global commodity asset allocation, in the 1990s Goldman Sachs, Dow Jones UBS launched their own commodity price indexes one after another. On the basis of the CRB index, innovations have been made in the methodology details including weight calculation, rolling method.

### **Development**

☐ Enter 21th century, the rapid development of emerging markets brought a large amount of demands for raw materials, gravely pushing up commodity prices, commodity index investment is booming.

#### Consolidation

☐ In recent years, commodity index investment growth rate slows down, the overall scale presents a situation of steady oscillation.

1991 2000

# **Benefits of Commodity Index Investment**



### Weak or negative correlation to traditional asset classes

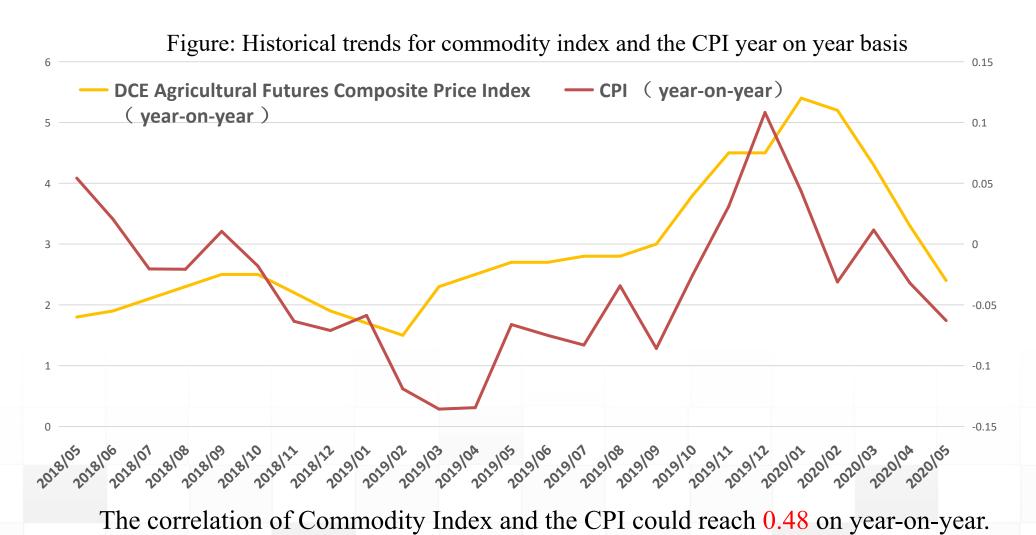
Figure: Correlation between different asset classes

	CSI 300	SSE T-Bond	CPI ( year-on-year )	PPI (year-on-year)
Agricultural	-0.10	-0.36	0.48	0.18
Energy	0.04	-0.30	0.03	-0.27
Black Series	-0.03	-0.25	0.07	-0.36
Non-ferrous Metals	0.27	-0.29	-0.24	0.52

# **Benefits of Commodity Index Investment**



### A Hedge Against Inflation



# **Benefits of Commodity Index Investment**



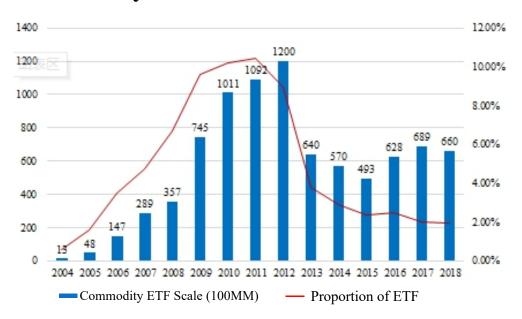
### The Benefits of Commodities in A Portfolio

Figure: Adding index to a representative portfolio 14% 0.45 Returns and Std Deviation 12% 0.40 10% 8% 0.35 6% 4% 0.30 2% 0% 0.25 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% % of Index In portfolio ────Standard Deviation Sharpe Ratio Returns

### **Futures Index and its Derivatives**



### **US Commodity Index Funds Market**



**U.S. Commodity Index Scale and Proportion** 

- Total market Cap: \$1.18 Billion+, accounting for 9% of the total ETF
- Number of funds: Over 100
- Precious metal takes over the majority of the market with 88% share, followed by energy with 8%
- Weighted average expense ratio:0.43%
- 98% is ETF with 2% of ETN

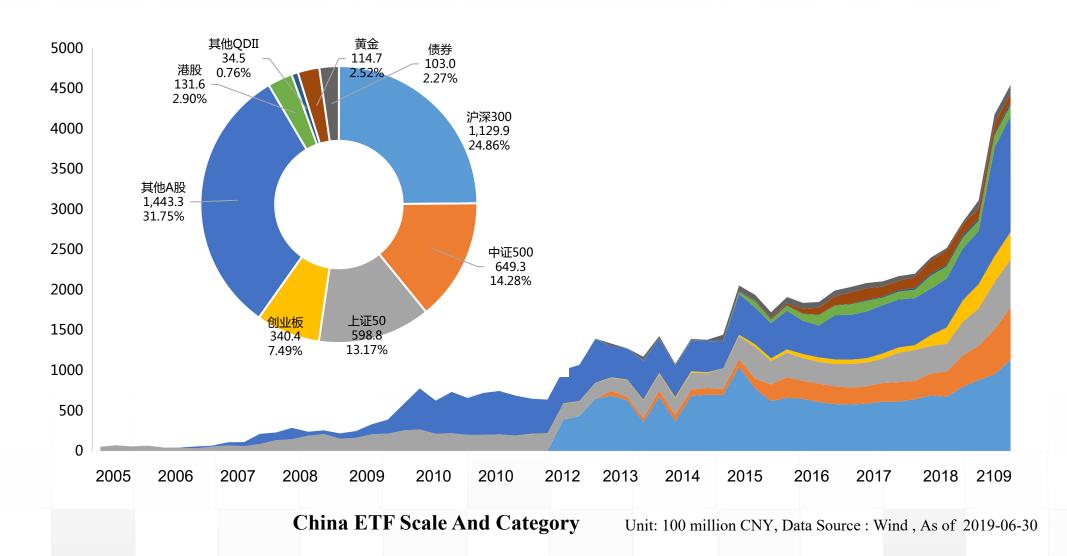
#### **U.S. Agricultural Products Futures Position Structure**

Year/Category	Comn prop	nercial ortion	Index trader proportion		Non-Commercial proportion	
	Long	Short	Long	Short	Long	Short
2014	25.60%	48.64%	24.45%	2.21%	41.91%	36.81%
2015	30.27%	46.00%	22.24%	2.76%	38.33%	41.97%
2016	26.37%	48.72%	22.80%	3.28%	41.82%	37.56%
2017	29.93%	42.78%	22.83%	3.57%	38.31%	44.43%
2018	29.91%	45.17%	26.09%	6.08%	35.24%	39.46

- Features of Index Funds Position
  - The long positions exceeds 20%, short positions are relatively low.
- ETF Index Investment
  - Long-term passive trading of futures contracts
  - Attracting Funds in Securities Market and Improving Liquidity in Futures Market

## **Domestic ETF Market is Developing Rapidly**





• As of Jun. 2019, the whole market ETF Total Scale Exceeds 450 billion CNY.

### **Futures Index and its Derivatives**



### Derivatives Based On Commodity Futures Index

Target Index	Derivatives	Listed Exchange	Lunched Time	Daily Average Position
CRB Index	Futures	NYFE	1986	-
	Futures	ICE	2005-2012	-
S&P Goldman Sachs Commodity Index	Futures	CME	1992	About 70 Thousand Trades
	Swap	CME	2002	About 4 Thousand Trades
Bloomberg Commodity Index *	Futures	CME	2001	About 33 Thousand Trades
	Swap	CME	2009	-
	Futures	Eurex	2009	-
* Former name: Dow Jones UBS (	Options Commodity Index, Dow.	Eurex Jones UBS Commodit	y Index	-

- ☐ Commodity Futures Index with Exchange Traded Derivatives
  - CRB: NYFE, ICE
    - ➤ In 2005 Improving Methodology
    - ➤ Include ICE Major agricultural products, providing liquidity
    - Delisted Reasons: competition, market environment
  - GSCI, BCI: CME, Eurex
    - Stable Position
    - ➤ Monthly Rolling
    - ➤ Passive Index products, ETF Etc

# The Sources of Returns within A Commodity index



### **Total Returns = Spot Return + Roll Return + Collateral Yield**

Exhibit 1: Contango and Backwardation Futures Curves Compared

Long-only investor "rolls" from higher priced nearby to lower priced distant contract

Low inventory / tight supply

Backwardation

More normal inventory

J F M A M J J A S O N D J F M A M J J A S O N D

• Contango will put pressure on long term ETF Performance

FORWARD MONTH

How to avoid or mitigate the impact or Contango?
 Fundamentally — Very Hard
 Technically:

Allow a more flexible roll schedule
Roll into different contracts(roll optimization)
Active Trading

Futures Rolling——
Contango will put
pressure on long term
ETF Performance

## **Development of Chinese Commodity ETF**



2013 Spot Gold ETF First Lunched.

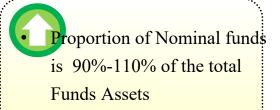
### **Domestic Commodity ETF**

Products	Time of Establishment	Current Scale
Hua'an Gold ETF	2013/07/18	85.98 Billion Yuan
BOSERA Gold ETF	2014/08/13	49.43 Billion Yuan
CHINAAMC Fodder Soybean Meal ETF	2019/09/06	421MM CNY
DACHENG Non- ferrous Metal ETF	2019/12/24	320MM CNY
CCB E&C ETF	2020/01/17	253MM CNY

#### Sep. 2014 Commodity Futures ETF Guideline was Introduced

Announcement of CSRC [2014] No.51

"Operation of Public
Offering Securities
Investment Funds Guideline
No. 1 -- Guidelines for
Commodity Futures Open
Exchange Trading Funds "



- Passive investment
- Long Only



- Non-leveraged trading
- No active investment
- No short selling
- 2015 UBS SDIC Silver LOF Established.
- Target: Shanghai Futures Exchange Silver Futures Dominant Contract
- Size: 9.50 \$100 million (2019-9-30)

Since then, no commodity futures funds have been listed. Until Sep. of 2019

# **CONTENTS**



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## **DCE Licensing Index Derivatives-Overview**



Commodity Index
Mutual Funds/ETF

Business Entity:
Mutual Fund Company

Bank Wealth Management/ Structural Deposit

Business Entity: Bank

Brokerage Income Certificate

Business Entity: Securities
Company

Futures Asset Management Plan

Business Entity: Futures Company

**Commodity Index Swap** 

Business Entity: Swap Dealer

Commodity Index Insurance

Business Entity: Insurance Company

## DCE Licensing Commodity Futures ETF – Mainland China



### Progress of Commodity Futures ETF of DCE

- A number of Mutual Fund companies have applied to DCE to develop commodity futures index ETF
- 25/9, CHINAAMC Soybean Meal ETF Established as the first commodity futures ETF in domestic, initial offering scale 2.66 MM CNY

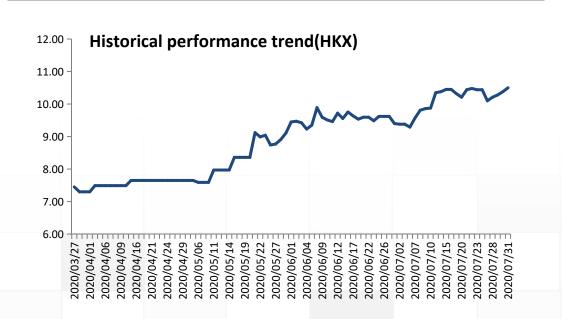
#### **Focus**

- The unique supervision characteristics of futures market: limited positions, trading limits and force liquidation
- ☐ Guide Investors to Understand Futures and Commodity
  Futures ETF for asset allocation

# **DCE Licensing Commodity Futures ETF-HK**



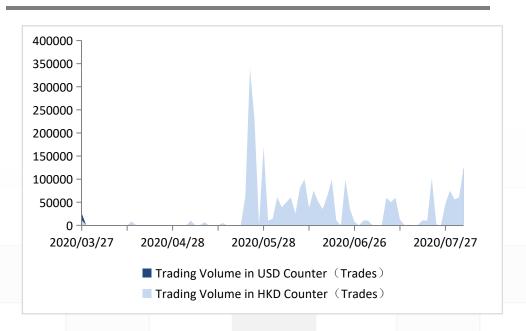
- SSIF DCE Iron Ore Futures Index (3047.HK) (9047.HK)
- March 27, 2020 launched in SEHK
- Up to August 7, 2020 , the asset under management scale is \$125.66MM in HKD Counter and , \$16.21MM in USD Counter



Performance (%)	34.32%
Volatility	29.93%
Sharp Ratio	1.15

Based on daily settlement prices from Mar. 2020 to Jul. 2020.

Based on Dalian Commodity Exchange Iron Ore Futures Price Index.Past performance does not indicate future results.



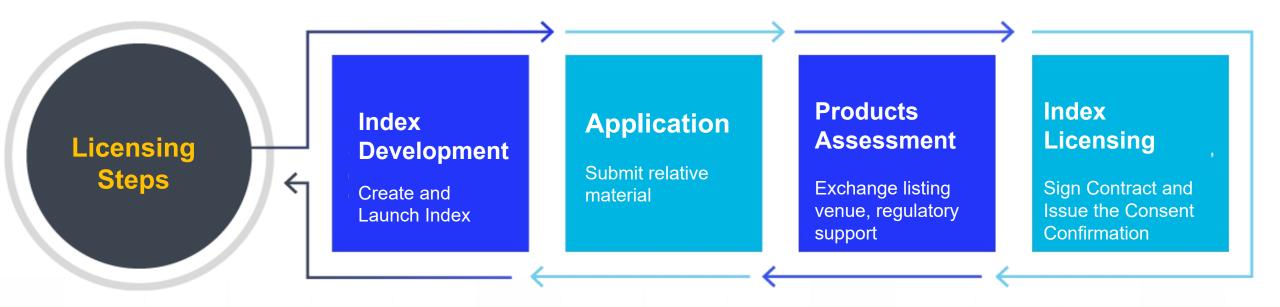
# **CONTENTS**



- I. The Introduction to Commodity Index
- 2. The DCE's Commodity Index
- 3. Introduction on Commodity Index Investment
- 4. The DCE's Index Products of
- 5. Commodity Index Licensing Service of DCE

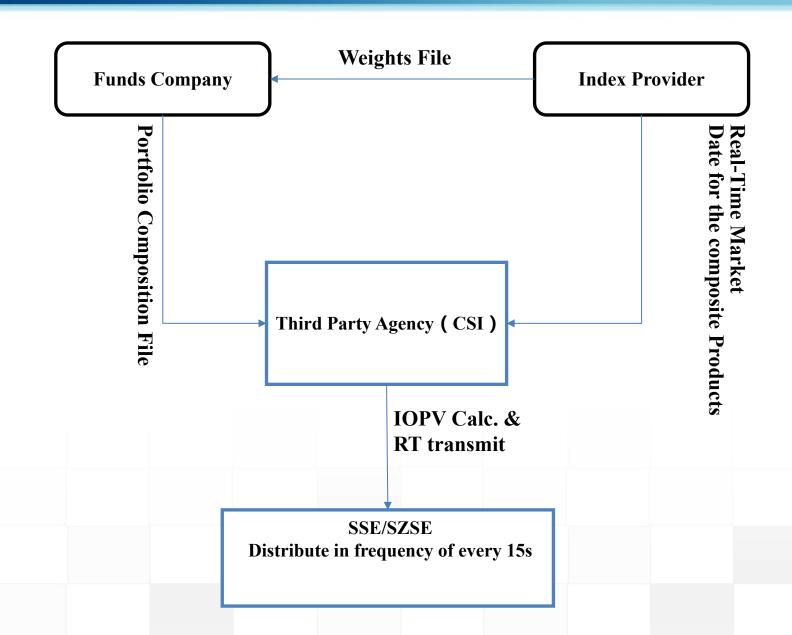
### **Index Derivative Solutions Procedure**





# **IOPV Calc. for Funds Licensing**





# **Index Data Licensing**



	Category	Mode	
Information Data	Frequecy	Intraday in Real-time , 0.5s/snapshot	
	Venue	Leased Line to the Data Front	
	Fee	Free of Charge(Temporary)	
Investment Institutions	File	Weight File(.xlsx)	
	Frequency	EOD	
	Venue	FTP Server	
	Fee	Free of Charge(Temporary)	
Website	Venue	Website Page	
	Fee	Free of Charge	



### Website of DCE

序号	代码	名称	现价	涨跌	涨跌幅
1	DCEAFCI	大商所农产品期货价格综合指数			-0.18%
2	DCEBMSF	大商所黑色系期货价格指数	1013.19	4.09	0.41%
3	DCECCFD	、大商所焦煤期货主力合约价格指数	1272.00	12.00	0.95%
4	DCECCFI	大商所焦煤期货价格指数	1209.45	11.41	0.95%
5	DCECFDCI	大商所焦炭期货主力合约价格指数	2605.00	80.50	3.19%
6	DCECFI	大商所焦炭期货价格指数	1642.06	50.75	3.19%
7	DCECRFD	、大商所玉米期货主力合约价格指数	1869.00	-16.00	-0.85%
8	DCECRFI	大商所玉米期货价格指数	1107.73	-9.49	-0.85%
9	DCECSFDO	大商所玉米淀粉期货主力合约价格指数	2341.00	-31.00	-1.31%
10	DCECSFI	大商所玉米淀粉期货价格指数	1005.81	-13.32	-1.31%
11	DCEEFDCI	大商所鸡蛋期货主力合约价格指数	3876.00	-26.00	-0.67%
12	DCEEFI	大商所鸡蛋期货价格指数	905.79	-6.07	-0.67%

Wind Terminal

# **Thank You For Your Attention**

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