S&P Dow Jones Indices

A Division of S&P Global

Dow Jones Commodity Index
Methodology

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Introduction

Index Objective and Overview

The Dow Jones Commodity Index is a broad-market commodity index comprised of liquid commodities.

The index includes three major sectors: Energy, Agriculture and Livestock, and Metals. These sectors are equally weighted within the index and are rebalanced monthly. Individual commodities are weighted by relative liquidity based on the five-year average total dollar value traded (TDVT) annually. As part of the weighting scheme, the capped component 32/17 methodology (effective January 2020) is applied on a monthly basis to further diversification.

For information on the roll and contract schedule, please refer to *Appendix A*.

Supporting Documents

This methodology is meant to be read in conjunction with supporting documents providing greater detail with respect to the policies, procedures and calculations described herein. References throughout the methodology direct the reader to the relevant supporting document for further information on a specific topic. The list of the main supplemental documents for this methodology and the hyperlinks to those documents is as follows:

Supporting Document	URL
S&P Dow Jones Indices' Commodities Indices Policies & Practices Methodology	Commodities Indices Policies & Practices
S&P Dow Jones Indices' Index Mathematics Methodology	Index Mathematics Methodology

This methodology was created by S&P Dow Jones Indices to achieve the aforementioned objective of measuring the underlying interest of each index governed by this methodology document. Any changes to or deviations from this methodology are made in the sole judgment and discretion of S&P Dow Jones Indices so that the index continues to achieve its objective.

Index Constituents and Weightings

Index Eligibility

Liquidity. Each individual commodity must have a TDVT of at least $15 billion ($5 billion for current index commodities) to be eligible for index inclusion.

Country of Listing. Commodities must be traded on exchanges in developed countries. The developed country designation is based on the S&P Developed BMI index. Country classification changes are implemented in the S&P Developed BMI during that index's September rebalancing. Any country classification changes to the S&P Developed BMI are then implemented in the DJCI three months later during the index's annual rebalancing in January.

For information on the S&P Developed BMI, please refer to the S&P Global BMI, S&P/IFCI Methodology available at available at www.spdji.com.

Minimum Weight. The minimum percentage weight requirement for a commodity to be eligible for index inclusion is 0.25% (0.1% for current index commodities).

Weighting Scheme

The weighting scheme consists of three steps:

1. Weighting the individual commodities by liquidity
2. Capping the components
3. Equal weighting the sectors

Step 1 - Liquidity Weighting

The individual commodities in the Dow Jones Commodity Index are liquidity weighted. The liquidity measure used is the Total Dollar Value Traded (TDVT). A five-year simple moving average of the TDVTs is used to determine the effective TDVT for each of the commodities in the index. The TDVT, for the annual period from September through August, is the sum of the monthly volume of the eligible contracts multiplied by the average contract price for the month multiplied by the size of the contract. The individual TDVTs for each commodity are then compared to obtain the initial weights of each commodity. The initial weights of the commodities within the same component group are then added up to obtain the initial component weight for that component.

Step 2 – Component Capping

There are 19 components, with five containing more than one commodity based on their similarity. The multiple commodity components are as follows:

- **Petroleum:** WTI Crude Oil, Brent Crude Oil, RBOB Gasoline, Gasoil and Heating Oil
- **Wheat:** Chicago Wheat and Kansas Wheat
- **Soybean:** Soybeans, Soybean Oil, Soybean Meal
- **Cattle:** Feeder Cattle and Live Cattle
- **Copper:** LME Copper, North American Copper

The following table lists the components:

Commodity Contract Code	Commodity Name	Sector	Component
CL	WTI Crude Oil	Energy	Petroleum
HO	Heating Oil	Energy	Petroleum
LCO	Brent Crude Oil	Energy	Petroleum
RB	RBOB Gasoline	Energy	Petroleum
LGO	Gasoil	Energy	Petroleum
NG	Natural Gas	Energy	Natural Gas
W	Chicago Wheat	Agriculture	Wheat
KW	Kansas Wheat	Agriculture	Wheat
C	Corn	Agriculture	Corn
S	Soybeans	Agriculture	Soybeans
BO	Soybean Oil	Agriculture	Soybeans
SM	Soybean Meal	Agriculture	Soybeans
KC	Coffee	Agriculture	Coffee
SB	Sugar	Agriculture	Sugar
CC	Cocoa	Agriculture	Cocoa
CT	Cotton	Agriculture	Cotton
LC	Live Cattle	Livestock	Cattle
FC	Feeder Cattle	Livestock	Cattle
LH	Lean Hogs	Livestock	Lean Hogs
MAL	Aluminum	Industrial Metals	Aluminum
MCU	LME Copper	Industrial Metals	Copper
HG	NA Copper	Industrial Metals	Copper
MPB	Lead	Industrial Metals	Lead
MNI	Nickel	Industrial Metals	Nickel
MZN	Zinc	Industrial Metals	Zinc
SI	Silver	Precious Metals	Silver
GC	Gold	Precious Metals	Gold
PL	Platinum	Precious Metals	Platinum

The capping procedure follows two rules, in succession:

1. **No single component's weight can exceed 32%.** If any component's weight exceeds 32%, it is capped at 32% and any excess weight is distributed proportionately among the remaining components.

   Adjusted weights are calculated at each rebalancing as follows:

   If $InitialComponentWeight_j > 32\%$, then $TargetWeight_j = 32\%$

   The individual adjusted weights of commodity *i* within the component *j* are obtained as follows:

   $$AdjustedWeight_i = \frac{TargetWeight_j * InitialWeight_i}{InitialComponentWeight_j}$$

   For all remaining components:

   $$AdjustedComponentWeight_j = \frac{68\% * InitialComponentWeight_j}{(100\% - DJCICappedWeight_c)}$$

   where:

   $DJCICappedWeight_c$ = Total weight of all capped components in the index as of the rebalancing reference date.

   $InitialComponentWeight_j$ = The sum of the initial weights of all the commodities within the same component *j* in the index as of rebalancing reference date.

2. **No remaining component's weight can exceed 17%.** Subsequent to the implementation of step 1 above, if any remaining component's weight exceeds 17%, it is capped at 17% and the excess weight is distributed proportionately among the remaining uncapped components. This process is repeated iteratively until all the capping rules are met.

   For any subsequent components:

   If $InitialComponentWeight_j$ > 17% then $TargetWeight_j$ = 17%

   The individual adjusted weights of commodity *i* within the component *j* are obtained as follows:

$$AdjustedWeight_i = \frac{TargetWeight_j * InitialWeight_i}{InitialComponentWeight_j}$$

   For all remaining components:

$$AdjustedComponentWeight_j = \frac{(100\% - TotalCappedWeight) * InitialComponentWeight_j}{(100\% - DJCICappedWeight_C)}$$

   where:

   TotalCappedWeight = the index weight of all capped components as of the rebalancing reference date.

Step 3 - Sector Equal Weighting

After the components are capped, the three sectors (Energy, Agriculture and Livestock, and All Metals) are equal-weighted. For each sector, the individual adjusted weights of the commodities in that sector are summed up. This sum is the adjusted sector weight for that sector.

The final weight of each commodity *j* in sector *i* is defined to be as follows:

$$FinalWeight(j) \text{ of Sector } (i) = 100 * AdjustedWeight_j / 3 * AdjustedSectorWeight \text{ of } Sector_i$$

Contract Weight Factor (CWF) Formula. At the annual rebalancing, the individual CWFs are calculated as follows:

$$CWF_i = FinalWeight_i / (Price_i / DJCIPrice)$$

where:

CWF_i = The CWF for commodity *i* in the index as of the rebalancing reference date.

$Price_i$ = The price for commodity *i* in the index as of the rebalancing reference date.

DJCIPrice = The sum of all individual prices of commodities in the index as of rebalancing reference date.

$FinalWeight_i$ = The weight of commodity *i*, in the index as of the rebalancing reference date.

Capping Frequency: Monthly

Rebalancing Frequency: The weights are reset to the annual weights on a monthly basis.

Rebalancing Date: The Dow Jones Commodity Index business day before the first monthly roll date.

The Dow Jones Commodity Index Values

On any given day, the value of the index is equal to the total dollar weight of the index divided by a normalizing constant, which assures the continuity of the index over time by enabling comparisons to be made between the values of the index at various times. The total dollar weight of the index is the total dollar weight of the underlying commodities. The dollar weight of the underlying commodities on any given day is equal to the product of the daily contract reference price, the appropriate contract weight factor (CWF) and, the appropriate "roll weights" needed during the roll period.

The Dow Jones Commodity Sector Indices

Four sector capped indices and nine sector indices that are not capped are also part of the index family.

Capped Component	Uncapped	
Agriculture & Livestock	Energy	All Cattle
Energy & Metals	Livestock	All Wheat
Agriculture	Grains	Precious Metals
All Metals	Softs	Industrial Metals
	Petroleum	

Index Calculation

Calculation of the Total Dollar Weight (TDW) of the Dow Jones Commodity Index on Non-Roll Days

$$TDW_d = \sum_c (CWF_d^c * DCRP_d^c)$$

where:

c = The Designated Contract.

d = The Dow Jones Commodity Index business day on which the calculation is made.

DCRP = The Daily Contract Reference Price.

Calculation of the Normalizing Constant

The Total Dollar Weight Ratio. The Total Dollar Weight Ratio (TDWR) is calculated according to the following formula:

$$TDWR = \frac{\sum_c (CWF_{new}^c * DCRP_d^c)}{\sum_c (CWF_{old}^c * DCRP_d^c)}$$

where:

c = The Designated Contract.

d = The Dow Jones Commodity Index business day on which the calculation is made.

CWF_{new} = CWFs that take effect on the first day of the new Dow Jones Commodity Index period.

CWF_{old} = The CWFs for the prior Dow Jones Commodity Index period.

DCRP = The Daily Contract Reference Price.

The Normalizing Constant. With respect to a given Dow Jones Commodity Index period, the Normalizing Constant (NC_{new}) is calculated on the last Dow Jones Commodity Index business day of the previous Dow Jones Commodity Index period.

The formula for calculating the Normalizing Constant is the following:

$$NC_{new} = NC_{old} * TDWR$$

Contract Daily Return

On any given day, the contract daily return is equal to the applicable daily contract reference price on the specific commodity contract multiplied by the CWF and the appropriate "roll weight," (Total Dollar Weight Obtained) divided by the total dollar weight of the contract on the preceding day (Total Dollar Weight Invested), minus one.

Calculation of the Dow Jones Commodity Index (DJCI) Spot:

$$DJCI_d = \frac{TDW_d}{NC}$$

Calculation of Total Dollar Weight During a Roll Period

In calculating the Total Dollar Weight (TDW) of the Dow Jones Commodity Index during a Roll Period, the Contract Roll Weights (CRW) of the First Nearby Contract Expiration and the Roll Contract Expiration of each Dow Jones Commodity are equal to: (i) on the first day of the Roll Period with respect to such Commodity, 0.8 and 0.2, respectively; (ii) on the second day of the Roll Period, 0.6 and 0.4, respectively; (iii) on the third day of the Roll Period, 0.4 and 0.6 respectively; (iv) on the fourth day of the Roll Period, 0.2 and 0.8, respectively; and (v) on the fifth day of the Roll Period, 0.0 and 1.0, respectively. The Roll Period commences on the fifth Dow Jones Commodity Index business day of each month.

$$TDW_d = \sum_c CWF^c * (CRW1_d^c * DCRP1_d^c + CRW2_d^c * DCRP2_d^c)$$

where:

c = Each Designated Contract.

d = The Dow Jones Commodity Index business day on which the calculation is made.

CRW1 = The Contract Roll Weight of the First Nearby Contract Expiration.

CRW2 = The Contract Roll Weight of the Roll Contract Expiration.

DCRP = The Daily Contract Reference Price of each respective Contract Expiration.

Dow Jones Commodity Index Excess and Total Return Indices are calculated based on the Contract Expiration that would be in the regular index one month from the current date.

Calculation of TDW in Connection with Changes in the Composition of the Dow Jones Commodity Index

$$\mathrm{TDW_d} = \frac{\mathrm{NC_{new}}}{\mathrm{NC_{old}}} \times \sum_c \left[\mathrm{CWF1^c} \times \mathrm{CRW1_d^c} \times \mathrm{DCRP1_d^c}\right] + \sum_c \left[\mathrm{CWF2^c} \times \mathrm{CRW2_d^c} \times \mathrm{DCRP2_d^c}\right]$$

where:

c = Each Designated Contract.

d = The Dow Jones Commodity Index business day on which the calculation is made.

CRW1 = The Contract Roll Weight of the First Nearby Contract Expiration.

CRW2 = The Contract Roll Weight of the Roll Contract Expiration.

CWF1 = The CWF of the First Nearby Contract Expiration.

CWF2 = The CWF of the Roll Contract Expiration.

DCRP = The Daily Contract Reference Price of each respective Contract Expiration.

Contract Daily Return (CDR) in Formulaic Terms

$$CDR_d = \frac{TDWO_d}{TDWI_{d-1}} - 1$$

Daily Calculation of the Dow Jones Commodity Index ER (DJCI ER)

$$DJCI\ ER_d = DJCI\ ER_{d-1} * (1 + CDR_d)$$

Calculation of the Treasury Bill Return

On any given calendar day, the Treasury Bill Return (TBR) is equal to:

$$\mathrm{TBR}_d = \left[\frac{1}{1 - \frac{91}{360} \times \mathrm{TBAR}_{d-1}} \right]^{\frac{1}{91}} - 1$$

where:

$TBAR_{d-1}$ = The Treasury Bill Rate available on the preceding Dow Jones Commodity Index business day.

Calculation of the Dow Jones Commodity Index TR (DJCI TR)

$$DJCI\ TR_d = DJCI\ TR_{d-1} * (1 + CDR_d + TBR_d) * (1 + TBR_d)^{days}$$

where:

days = Number of non-Dow Jones Commodity Index business days since the preceding Dow Jones Commodity Index Business Day.

Forward Indices

S&P Dow Jones Indices calculates forward month versions of the Dow Jones Commodity Index. The forward indices measure the index components based on First Nearby Contract Expirations that would be included the index on the specified forward dates.

For example, on December 11, 2013 the Designated Contracts in the Dow Jones Commodity Index 3 Month Forward include those Designated Contract Expirations which would be in the main Dow Jones Commodity Index on March 11, 2014 (i.e. the First Nearby Contract Expiration is moved forward three months).

The forward indices follow the same rules, and calculation methodology as the main Dow Jones Commodity Index, with the exception of weights and the Designated Contract Expirations. The weights differ because they are capped using the capping method specified in *Step 2 – Component Capping* of *Index Constituents and Weightings*. There are seven forward month versions of the Dow Jones Commodity Index: one-month forward, two-month forward, three-month forward, four-month forward, five-month forward, six-month forward, and 12-month forward. Designated Contract Expirations (see *Appendix A*) are advanced by the number of months identified by the specific forward index version.

The Dow Jones Commodity Index 12 Month Forward uses slightly different Designated Contract Expirations for Feeder Cattle (commodity code: FC). Designated Contract Expirations are the same as that in the main Dow Jones Commodity Index.

Currency of Calculation and Additional Index Return Series

S&P Dow Jones Indices calculates a number of non-US dollar denominated versions of the Dow Jones Commodity Index. Currently, versions for the seven following currencies are calculated: Australian Dollar (AUD), Canadian Dollar (CAD), Euro (EUR), Japanese Yen (JPY), Singapore Dollar (SGD), Swiss Franc (CHF) and British Pounds (GBP). Based on the specific currency involved, Hedged and Unhedged versions of the index are calculated. The Euro and Yen Unhedged versions of the index represent the value of the Dow Jones Commodity Index translated into the specific currency. They are calculated by multiplying the previous day's currency index by the ratio of the current underlying index level to the previous session's underlying index level, multiplied by the ratio of the current FX rate to the previous session's FX rate. The FX rates are obtained from WM/Reuters using the 11:00 am NY (ET) rate.

The currency hedged versions of the Dow Jones Commodity Index measure the performance of the index components based on the specific non-U.S. dollar currency, but with minimal exchange rate risk. The hedged indices are calculated by hedging the beginning-of-period balances using rolling one-month forward rates. This shields the hypothetical value of the index at the start of each month from exchange rate fluctuations.

In addition to the indices detailed in this methodology, additional return series versions of the indices may be available, including, but not limited to: currency, currency hedged, decrement, fair value, inverse, leveraged, and risk control versions. For a list of available indices, please refer to *S&P DJI's All Indices by Methodology Report*.

For information on index calculation, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

For the inputs necessary to calculate certain types of indices, including decrement, dynamic hedged, fair value, and risk control indices, please refer to the Parameters documents available at www.spdji.com.

Index Governance

Index Committee

An S&P Dow Jones Indices' Index Committee maintains the index and oversees the daily management and operations of the Dow Jones Commodity Index. The Index Committee is responsible for all analytical methods and calculation of the indices. The Committee meets regularly. At each meeting, the Committee reviews any issues that may affect index constituents, statistics comparing the composition of the indices to the market, commodities that are being considered as candidates for addition to an index, and any significant market events. In addition, the Index Committee may revise the methodology covering rules for selecting commodities, or other matters.

The Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on or around the scheduled rebalancing date. Any such change will be announced with proper advance notice where possible.

S&P Dow Jones Indices considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

S&P Dow Jones Indices' Index Committees reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

For information on Quality Assurance and Internal Reviews of Methodology, please refer to S&P Dow Jones Indices' Commodities Indices Policies & Practices Methodology.

Index Policy

Holiday Schedule

The index is calculated daily based on the NYSE holiday schedule.

For information on Calculations and Pricing Disruptions, Market Disruption Events and Holidays During Roll Period, Expert Judgment, Data Hierarchy, Unexpected Exchange Closures and Error Corrections, please refer to S&P Dow Jones Indices' Commodities Indices Policies & Practices Methodology.

Contact Information

For questions regarding an index, please contact: index_services@spglobal.com.

Index Dissemination

Index levels are available through S&P Dow Jones Indices' Web site at *www.spdji.com*, major quote vendors (see codes below), numerous investment-oriented Web sites, and various print and electronic media.

Tickers

The table below lists headline indices covered by this document. All versions of the below indices that may exist are also covered by this document. Please refer to *S&P DJI's All Indices by Methodology Report* for a complete list of indices covered by this document.

Index Name	Launch Date	Base Date	Index Code
Dow Jones Commodity Index	07/01/2014	01/08/1999	DJCI
Dow Jones Commodity Index ER	07/01/2014	01/08/1999	DJCIP
Dow Jones Commodity Index TR	07/01/2014	01/08/1999	DJCIT
Dow Jones Commodity Index Enhanced	10/24/2016	01/20/1999	DJCIE
Dow Jones Commodity Index Enhanced ER	10/24/2016	01/20/1999	DJCIEP
Dow Jones Commodity Index Enhanced TR	10/24/2016	01/20/1999	DJCIET

Index Data

Daily index level data is available via subscription.

For product information, please contact S&P Dow Jones Indices, www.spdji.com/contact-us.

Web Site

For further information, please refer to S&P Dow Jones Indices' Web site at www.spdji.com.

Appendix A

Contracts Included

The table below identifies the current contracts included in the Dow Jones Commodity Index and their respective designated contract roll schedule.

Trading Facility	Commodity	Ticker	2021 TDVT (USD bn)[1]	Designated Contract Expirations at Month Begin											
				1	2	3	4	5	6	7	8	9	10	11	12
CBT	Chicago Wheat	W	786.8	H	H	K	K	N	N	U	U	Z	Z	Z	H
KBT	Kansas Wheat	KW	300.8	H	H	K	K	N	N	U	U	Z	Z	Z	H
CBT	Corn	C	1695.7	H	H	K	K	N	N	U	U	Z	Z	Z	H
CBT	Soybeans	S	2653.2	H	H	K	K	N	N	X	X	X	X	F	F
CBT	Soybean Meal	SM	892.5	H	H	K	K	N	N	Z	Z	Z	Z	Z	F
CBT	Soybean Oil	BO	574.4	H	H	K	K	N	N	Z	Z	Z	Z	Z	F
ICE - US	Coffee	KC	523.4	H	H	K	K	N	N	U	U	Z	Z	Z	H
ICE - US	Sugar #11	SB	570.2	H	H	K	K	N	N	V	V	V	H	H	H
ICE - US	Cocoa	CC	267.7	H	H	K	K	N	N	U	U	Z	Z	Z	H
ICE - US	Cotton #2	CT	285.8	H	H	K	K	N	N	Z	Z	Z	Z	Z	H
CME	Lean Hogs	LH	326.3	G	J	J	M	M	N	Q	V	V	Z	Z	G
CME	Live Cattle	LC	723.6	G	J	J	M	M	Q	Q	V	V	Z	Z	G
CME	Feeder Cattle	FC	234	H	H	J	K	Q	Q	Q	U	V	X	F	F
NYM / ICE	Crude Oil	CL	17853.4	G	H	J	K	M	N	Q	U	V	X	Z	F
NYM	Heating Oil	HO	3047.7	G	H	J	K	M	N	Q	U	V	X	Z	F
NYM	RBOB Gasoline	RB	3211.4	G	H	J	K	M	N	Q	U	V	X	Z	F
ICE - UK	Brent Crude Oil	LCO	12746.7	H	J	K	M	N	Q	U	V	X	Z	F	G
ICE - UK	Gasoil	LGO	3908	G	H	J	K	M	N	Q	U	V	X	Z	F
NYM / ICE	Natural Gas	NG	3569.5	G	H	J	K	M	N	Q	U	V	X	Z	F
LME	Aluminum	MAL	2735.1	G	H	J	K	M	N	Q	U	V	X	Z	F
LME	LME Copper	MCU	5245.4	G	H	J	K	M	N	Q	U	V	X	Z	F
CMX	NA Copper	HG	1712	H	H	K	K	N	N	U	U	Z	Z	Z	H
LME	Lead	MPB	601.2	G	H	J	K	M	N	Q	U	V	X	Z	F
LME	Nickel	MNI	1552.7	G	H	J	K	M	N	Q	U	V	X	Z	F
LME	Zinc	MZN	1849.1	G	H	J	K	M	N	Q	U	V	X	Z	F
CMX	Gold	GC	10026.1	G	J	J	M	M	Q	Q	Z	Z	Z	Z	G
CMX	Silver	SI	1891.1	H	H	K	K	N	N	U	U	Z	Z	Z	H
CMX	Platinum	PL	224.7	J	J	J	N	N	N	V	V	V	F	F	F

Month Letter Codes

Month	Code	Month	Code	Month	Code
January	F	May	K	September	U
February	G	June	M	October	V
March	H	July	N	November	X
April	J	August	Q	December	Z

[1] The TDVT's (Total Dollar Value Traded) are calculated by using a simple average of the Total Dollar Value Traded for each individual commodity for the last five years within the Dow Jones Commodity Index.

Appendix B

Dow Jones Commodity Index Dynamic Roll

The Dow Jones Commodity Index Dynamic Roll is a version of the Dow Jones Commodity Index that utilizes a more flexible monthly futures contract rolling strategy to determine the new futures contract months for the underlying commodities. The Dynamic Roll Algorithm follows that of the S&P GSCI Dynamic Roll.

Dynamic Roll Matrices of the DJCI Commodities. The Dynamic Roll Matrix of a given commodity is a listing of all eligible contract months for that commodity, on a month by month basis. The eligible contract months are determined based on the liquidity profile measured by open interest and volume, which are verified annually.

The following tables represent the DJCI Dynamic Roll Matrices for the current year, with column headers as follows: The column "0" is the "front futures" contract. The eligible contracts for each month are listed from column "1" onward. Contract months listed under "1" are the same as the DJCI Roll Schedule for that commodity. Rows excluding contract months indicate non-roll months.

SM	Month	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Jan	1																						
Feb	2	H0	K0	N0	Z0																		
Mar	3																						
Apr	4	K0	N0	Q0	Z0																		
May	5																						
Jun	6	N0	Z0																				
Jul	7																						
Aug	8																						
Sep	9																						
Oct	10																						
Nov	11	Z0	F1	H1	K1	N1																	
Dec	12	F1	H1	K1	N1																		

BO	Month	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Jan	1																						
Feb	2	H0	K0	N0	Z0																		
Mar	3																						
Apr	4	K0	N0	Z0																			
May	5																						
Jun	6	N0	Z0																				
Jul	7																						
Aug	8																						
Sep	9																						
Oct	10																						
Nov	11	Z0	F1	H1	K1	N1																	
Dec	12	F1	H1	K1	N1																		

HG	Month	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Jan	1																						
Feb	2	H0	K0	N0	U0	Z0																	
Mar	3																						
Apr	4	K0	N0	U0	Z0																		
May	5																						
Jun	6	N0	U0	Z0	H1																		
Jul	7																						
Aug	8	U0	Z0	H1																			
Sep	9																						
Oct	10																						
Nov	11	Z0	H1	K1	N1																		
Dec	12																						

PL	Month	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Jan	1																						
Feb	2																						
Mar	3	J0	N0																				
Apr	4																						
May	5																						
Jun	6	N0	V0																				
Jul	7																						
Aug	8																						
Sep	9	V0	F1																				
Oct	10																						
Nov	11																						
Dec	12	F1	J1																				

For more information on the Dynamic Roll Algorithm, please refer to the S&P GSCI Dynamic Roll Index Methodology available at www.spdji.com.

Appendix C

Dow Jones Commodity Index Single Commodity Capped Component

The Dow Jones Commodity Index Single Commodity Capped Component version of the Dow Jones Commodity Index (DJCI) maintains the diversification of the DJCI component weights while allocating 15% to the namesake commodity and equally distributing the remaining 85% among the eligible commodities, subject to the Rule of Exclusion. In addition, all components are capped at 17%.

The namesake commodity is the commodity bearing the name of the DJCI Single Commodity Capped Component index. For example, Gold is the namesake commodity for the DJCI Gold Capped Component. In general, any DJCI Single Commodity Capped Component index consists of the namesake commodity as well as most of the rest of the DJCI commodities, subject to the Rule of Exclusion regarding commodities that belong to a given component.

The Rule of Exclusion states that when any commodity that belongs to a component is the namesake commodity of the index, all other commodities of that same component are excluded in that particular single commodity index. Thus for the DJCI Heating Oil Capped Component, the four remaining commodities (WTI Crude Oil, Brent Crude Oil, Gasoil, and RBOB Gasoline) of the Petroleum component are excluded from the index.

Weights are rebalanced on a monthly basis. In essence, each single commodity index consists of a basket of individual DJCI single commodities, not just one single individual commodity. However, if a market disruption event takes place on the day of the rebalancing, the rebalancing is held off one business day, or until there is no further market disruption event.

Rebalancing Frequency: Monthly.

Determination Date: One DJCI business day before each monthly roll date.

Components: Please refer to the *Weighting Scheme* section of the *Index Constituents and Weightings* chapter for component details.

Spot index levels are calculated as follows:

$$Spot_d = Spot_{d_R} * \sum_{i=1}^{N} \left(Weight_{i\,d_R} * \frac{SingleSpot_{i\,d}}{SingleSpot_{i\,d_R}} \right)$$

where:

$Spot_d$ = DJCI Single Capped Component spot level.

d_R = Rebalancing date (i.e. fifth business day of the month).

$Weight_i$ = Monthly reset weight.

$SingleSpot_i$ = DJCI Single Commodity spot level for the i^{th} component.

N = Total number of components in the index.

Excess return index levels are calculated as follows:

$$ER_d = ER_{d_R} * \sum_{i=1}^{N} \left(Weight_{i\,d_R} * \frac{SingleER_{i\,d}}{SingleER_{i\,d_R}} \right)$$

where:

ER_d = DJCI Single Capped Component ER level.

$SingleER_i$ = DJCI Single Commodity ER level for the i^{th} component.

Total return index levels are calculated as follows:

$$TR_d = TR_{d-1} * \left(1 + \frac{ER_d}{ER_{d-1}} + TBR_d\right) * (1 + TBR_d)^{days}$$

where:

TR_d = DJCI Single Capped Component TR level.

TBR_d = The Treasury Bill Return as described in the *Index Calculation* chapter.

days = Number of non-DJCI business days since the preceding DJCI business day.

Appendix D

Dow Jones Commodity Index Forward Spread

The Dow Jones Commodity Index Forward Spread measures a long position in the Dow Jones Commodity Index Forward ER and a short position in the Dow Jones Commodity Index Front Month ER to capture the calendar spread. There are five forward month versions of the Dow Jones Commodity Index Forward Spread: one-month, two-month, three-month, four-month and five-month. Index calculation is as follows:

$$Index_t = Index_R * \left[1 + Weight_F * \frac{DJCIFwd_t}{DJCIFwd_R} + Weight_D * \frac{DJCI_t}{DJCI_R}\right]$$

where:

$Index_t$ = DJCI Forward Spread ER on date *t*.

$Index_R$ = DJCI Forward Spread ER on date *R*.

$DJCIFwd_t$ = DJCI x-Month Forward ER on date *t* (e.g. DJCI 2-Month Forward ER).

$DJCIFwd_R$ = DJCI x-Month Forward ER on date *R*.

$DJCI_t$ = DJCI ER on date *t*.

$DJCI_R$ = DJCI ER on date *R*.

R = Last rebalancing date preceding date *t*.

$Weight_F$ = 100%

$Weight_D$ = -100%

Handling of Market Disruption Events

If a market disruption event (MDE) takes place on a rebalancing date, an MDE offset adjustment is calculated and added to the index on the following business day. This process is repeated until there are no further market disruption events.

MDE offset adjustments are calculated for both contracts of the MDE-impacted commodity to maintain a balanced spread even if only one of the commodity's contracts within the spread index is disrupted. For example, if LCQ5 in the DJCI is disrupted and LCZ5 in the DJCI 3-Month Forward is not, S&P Dow Jones Indices will calculate MDE adjustment for both contracts and the index calculation is as follows:

$$Index_t = Index_R * \left[1 + Weight_F * \frac{DJCIFwd_t}{DJCIFwd_R} + Weight_D * \frac{DJCI_t}{DJCI_R}\right] + MDE_{Adj}$$

where:

MDE_{Adj} = The sum of the MDE Offset Adjustments for the pair of MDE-impacted contracts. In formulaic terms:

$$MDE_{Adj} = \sum (AHP - THP) * (Price_t - Price_R)$$

The actual hedged position (*AHP*) of the MDE-impacted contract is determined as follows:

$$AHP_c = \frac{CWeight * Index_{R-1}}{CIndex_{R-1}} * HP_{t-1}$$

where:

AHP_c = Actual hedged position of the MDE-impacted contract *c*.

CWeight = Weight of the component index (DJCI or DJCI Forward) within the Forward Spread Index (100% for the long position and -100% for the short position).

$Index_{R-1}$ = DJCI Forward Spread on previous rebalance date.

$CIndex_{R-1}$ = Component index within the Forward Spread Index on the previous rebalancing date.

HP_{t-1} = Hedged position of the MDE-impacted contract *c* as of the previous business day.

The theoretical hedged position (*THP*) of the MDE-impacted contract is determined as follows:

$$THP_c = \frac{CWeight * Index_{t-1}}{CIndex_{t-1}} * HP_{t-1}$$

where:

THP_c = Theoretical hedged position of the MDE-impacted contract *c*.

$Index_{t-1}$ = DJCI Forward Spread on the previous business day.

$CIndex_{t-1}$ = Component index (DJCI or DJCI Forward) within the Forward Spread Index on the previous business day.

HP_{t-1} = Hedged position of the MDE-impacted contract *c* as of the previous business day.

The hedged position (*HP*) of the MDE-impacted contract is determined as follows:

$$HP_c = \frac{CIndex_{t-1}}{TDW_{t-1}} * CRW_t * CWF_t$$

where:

HP_c = Hedged position of the MDE-impacted contract *c*.

$CIndex_{t-1}$ = Component index (DJCI or DJCI Forward) within the Forward Spread index on date *t-1*.

TDW_{t-1} = Total Dollar Weight of the component index (DJCI or DJCI Forward) which includes the MDE-impacted contract.

CRW_t = Contract Roll Weight on date *t*.

CWF_t = Contract Weight Factor on date *t*.

Appendix E

Dow Jones Commodity Index Enhanced

The Dow Jones Commodity Index Enhanced applies certain dynamic and seasonal rolling rules. Although the Dow Jones Commodity Index Enhanced includes the same futures contracts as the DJCI, the contract months will vary and the returns and values will differ from the DJCI. The five day roll begins on the first business day of the month, and the closing futures prices on the third to last business day of the prior month are used to determine the dynamic roll check for WTI Crude Oil and Brent Crude Oil.

Most of the DJCI futures contracts in the Enhanced Index follow the normal schedule with the following exceptions:

- For WTI Crude Oil, during the roll in the contract determination months of January through June, if the contango between the first and second contact month is more than 0.50%, the contracts will roll to the current year's December contracts. During the roll in the contract determination months of July through December, if the contango between the first and second contract month is more than 0.50%, the contracts will roll to the next year's December contracts.
- For Brent Crude Oil, during the roll in the contract determination months of January through June, if the contango between the second and third contract month is more than 0.50%, the contracts will roll to the current year's December contracts. During the roll in the contract determination months of July through December, if the contango between the second and third contract month is more than 0.50%, the contracts will roll to the next year's December contracts.

  The contango percentage is determined as follows:

  $$C = \frac{Price_{\ m+1}}{Price_{\ m}} - 1$$

  where:

  C = Contango percentage.

  $Price_{\ m+1}$ = Settlement price for WTI Crude Oil (2nd contract month) or Brent Crude Oil (3rd contract month).

  $Price_{\ m}$ = Settlement price for WTI Crude Oil (1st contract month) or Brent Crude Oil (2nd contract month).
- Heating Oil is rolled only to the December contract annually (during the November roll period).
- Natural Gas is rolled only to the January contract annually (during the December roll period).
- Chicago Wheat is rolled only to the December contract annually (during the November roll period).
- Corn is rolled only to the July contract annually (during the May roll period).
- Lean Hogs are rolled only to the April and August contracts semi-annually (April during the July roll, and August during the March roll).
- Live Cattle is rolled only to the April and October contracts semi-annually (April during the September roll and October during the March roll).

The following table identifies the contracts included in the Dow Jones Commodity Index Enhanced that have specifically different Designated Contract Expirations than the DJCI.

Facility	Commodity	Ticker	Designated Contract Expirations at Month Begin											
			1	2	3	4	5	6	7	8	9	10	11	12
CBT	Chicago Wheat	W	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z+1
CBT	Corn	C	N	N	N	N	N	N+1	N+1	N+1	N+1	N+1	N+1	N+1
CME	Lean Hogs	LH	J	J	J	Q	Q	Q	Q	J+1	J+1	J+1	J+1	J+1
CME	Live Cattle	LC	J	J	J	V	V	V	V	V	V	J+1	J+1	J+1
NYM	Heating Oil	HO	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z+1
NYM / ICE	Natural Gas	NG	F+1	F+1	F+1	F+1	F+1	F+1	F+1	F+1	F+1	F+1	F+1	F+1

Appendix F

Methodology Changes

Methodology changes since January 1, 2015 are as follows:

Change	Effective Date (After Close)	Methodology	
		Previous	Updated
Capping Rules for Capped Indices	01/07/2020	**Rule 1: Only one commodity component can reach a maximum weight of 35%.** If any component's weight exceeds **35%**, it is capped at **32%** and any excess weight is distributed proportionately among the remaining components. *Once Rule 1 is implemented,* **Rule 2: No remaining commodity component's weight can exceed 20%.** If any remaining component's weight exceeds **20%**, it is capped at **17%** and Any excess weight is distributed proportionately among the remaining components. **Capping Frequency:** Quarterly	**Rule 1: Only one commodity component can reach a maximum weight of 32%.** Any excess weight is distributed proportionately among the remaining components. *Once Rule 1 is implemented,* **Rule 2: No remaining commodity component's weight can exceed 17%.** Any excess weight is distributed proportionately among the remaining components. **Capping Frequency:** Monthly
Liquidity Criteria	01/07/2019	Similar commodities are grouped into "components" (e.g. Petroleum). Each component must have a Total Dollar Value Traded (TDVT) of at least $30 billion in order to be eligible for index inclusion. Additionally, commodity components must have a Total Quantity Traded of at least 25% of the total component for index inclusion.	Each commodity (e.g. WTI Crude Oil) must have a TDVT of at least $15 billion ($5 billion for current index commodities) in order to be eligible for index inclusion. Capped component indices could still be created, but the component inclusion concept no longer applies.
Country Criteria	01/07/2019	Country eligibility is based on OECD membership.	Country eligibility is based on the S&P Developed BMI index with any country classification changes implemented in the DJCI during the index's annual rebalancing in January.
Minimum Weight Criteria	01/07/2019	The percentage weight requirement for a commodity to be eligible for index inclusion is 1% (0.1% for current index commodities).	The percentage weight requirement for a commodity to be eligible for index inclusion is 0.25%. The exclusion percentage for current commodities will remain at 0.1%.

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