

# DB Commodity Curve 6 Indices

*This Index Guide is only intended to be viewed by professional clients under the Markets in Financial Instruments Directive 2004/39/EC (MiFID) who have the knowledge and experience in financial and business matters and expertise to assess all relevant risks associated with the Index. Please see the 'Index Guide Disclaimers' section below for further information. Please refer to the Glossary section for the definition of various terms.*

*This section summarises a number of features of the Index. This section should be read as a summary introduction to the Index Guide and is no substitute for reviewing the Index Guide in full. This section is subject to the more detailed provisions set out in the remainder of this Index Guide. Capitalised terms not otherwise defined shall have the meanings given to them in the Glossary section.*

## Summary

The DB Commodity Deferred 6 Index aims to maximize potential roll returns compared to the roll returns in the DB Commodity Nearby 6 Index by selecting at least five commodity positions from a possible eight drawn from the Energy and Industrial Metal sectors. The DB Commodity Deferred 6 Index aims to maximize the potential roll benefits in backwardated markets and minimize the loss from rolling down the curve in contango markets by picking those commodities with the highest relative roll yield. The DB Commodity Deferred 6 index holds a hypothetical long position in a deferred future. The DB Commodity Nearby 6 index aims to take an equal beta position relative to DB Commodity Deferred 6 Index by holding a hypothetical long position in a nearby future.

The roll yield is a measure of how backwardated or contango a commodity is. A positive roll yield indicates a commodity that is backwardated whilst a negative roll yield indicates it is contango. If the price of a future is greater than the spot price, the market is in contango. If the price of a future is below the spot price, the market is in backwardation. In a contango market, as the futures time to expiry decreases in general, the price will tend towards the spot price. This results in the future price falling assuming a flat roll price. The opposite is true for a market in backwardation. A contango market will tend to cause a drag on an index while a market in backwardation will tend to cause a push on an index.

The DB Commodity Deferred 6 Index allocates to the DBLCI Commodity Deferred Base 6 Indices with the highest implied roll yield relative to DB Commodity Nearby 6 Index which allocates to DBLCI Commodity Nearby Base 6 Indices. To calculate the roll yield, the deferred and the nearby future contract are each compared against a specific future as given in the schedule as per Tables 7 and 8 under the Appendix. The DB Commodity Deferred 6 Index and DB Commodity Nearby 6 Index are composed of 8 commodities drawn from the Energy and Industrial Metal sectors. For further details on the allocation of the DBLCI Commodity Deferred Base 6 and DBLCI Commodity Nearby Base 6 Indices refer to Weight Calculation on page 4.

Each DBLCI Commodity Deferred Base 6 Index and DBLCI Commodity Nearby Base 6 Index 'rolls' from one commodity future to another on the 6th Index Business Day of every month. The roll schedule for each DBLCI Commodity Deferred and Nearby Base 6 Index is available in the schedule as per Tables 5 and 6 under the Appendix.

## Index Suite

The index suite covered in the guide is as follows:

**Table 1: Index Suite**

Index Name	Index Currency	Return Type	Bloomberg ticker
DB Commodity Nearby 6 Index	USD	ER	DBCOMN6
DB Commodity Deferred 6 Index	USD	ER	DBCOMD6

## Key Index Information

### Index Inception Date

8-Feb-2013

### Index Live Date

6-Sep-2017

### Index Business Day

Each day on which the New York Mercantile Exchange is open for its regular trading session

### Index Rebalancing Day

6th Index Business Day of every month

### Index Selection Day

5th Index Business Day of every month

### Index Owner and Index Administrator

The Index Owner is Deutsche Bank AG, acting through its London branch. The Index Owner owns intellectual property rights in the Index and in this Index Guide, which has been supplied by the Index Owner. The Index Administrator shall be Solactive AG. The Index Administrator controls the operation of the Index administrative process, including all stages and processes involved in the calculation and dissemination of the Index. The Index Administrator shall follow the provisions described in this Index Guide, including (but not limited to) the 'Index Rules and Calculations', 'Disruptions' and 'Calculation and Dissemination of the Index' sections.

## Index Rules and Calculations

### DB Commodity Curve 6 Indices

The DB Commodity Curve 6 Indices are calculated as per the following:

$$IL_j(t) = IL_j(t - 1) + \sum_{i \in \{X\}} (ILB_{j,t}^i - ILB_{j,t-1}^i) * N_{j,t-1}^i$$

Where:

$IL_j(t)$	=	DB Commodity Nearby/Deferred 6 Index Level on Index Business Day t;
$ILB_{j,t}^i$	=	DBLCI Commodity Base Nearby/Deferred 6 Index level for commodity i as given in Table 2 on Index Business Day t;
$N_{j,t}^i$	=	Notional Holdings in the DB Commodity Nearby/Deferred 6 Index for commodity i on Index Business Day t;
X	=	Set of 8 commodities as given in Table 2.
j	=	Deferred or Nearby Index.

### Notional Holdings in the DB Commodity Curve 6 Indices

If 't' is a Index Rebalancing Day, the Notional Holdings in the DB Commodity Deferred/Nearby 6 Indices for commodity i are calculated as follows,

$$N_{j,t}^i = \frac{IL_j(t) * W_{Base}(i, t) * W(i, j, t)}{ILB_{j,t}^i}$$

On any other Index Business Day 't' the Notional Holdings in the DB Commodity Deferred/Nearby 6 Indices for commodity i remain the same, that is:

$$N_{j,t}^i = N_{j,t-1}^i$$

$W_{Base}(i, t)$  is the Base Weight of the DBLCI Commodity Base 6 Index whose underlying commodity is i.

$W(i, j, t)$  is the Contract Weight as determined in the section "Yield Calculation" below.

The Base Weights are calculated under the section "Weight Calculation" below.

### Yield Calculation

The Yield for commodity i Yield (i,t) is the Yield computed as of Index Selection Day t as follows:

$$Yield(i, t) = yield(i, Deferred, t) + W(i, Nearby, t) * yield(i, Nearby, t)$$

$$yield(i, j, t) = \frac{PF(i, f, t) - PF(i, f', t)}{Expiry(f') - Expiry(f)} * \frac{1}{PF(i, m, t)}$$

$$m = \begin{cases} f, & \text{if } (Expiry(f) > Expiry(f')) \\ f', & \text{otherwise} \end{cases}$$

Where,

j is the Deferred or Nearby Futures contract for the commodity i;

f is the Deferred or Nearby Future contract for commodity i on Index Rebalancing Day immediately following Index Selection Day t as given in Table 5 for Deferred Futures contracts and Table 6 for Nearby Futures contracts;

f' is the Deferred or Nearby Future contract for commodity i on Index Rebalancing Day immediately following Index Selection Day t as given in Table 7 for Deferred Futures contracts and Table 8 for Nearby Futures contracts;

yield (i, j, t) is the yield of commodity i for the Deferred and Nearby Futures contracts respectively on Index Business Day t;

PF(i,f,t) is the Settlement Price for futures contract f of commodity i on Index Business Day t as published by the Relevant Exchange given in Table 2 or, if such day is not a Scheduled Trading Day in respect of the Relevant Exchange in respect of commodity i, the Settlement Price for futures contract f of commodity i on the immediately preceding Index Business Day that was a Scheduled Trading Day in respect of the Relevant Exchange in respect of commodity i;

PF(i,f',t) is the Settlement Price for futures contract f' of commodity i on Index Business Day t as published by the Relevant Exchange given in Table 2 or, if such day is not a Scheduled Trading Day in respect of the Relevant Exchange in respect of commodity i, the Settlement Price for futures contract f' of commodity i on the immediately preceding Index Business Day that was a Scheduled Trading Day in respect of the Relevant Exchange in respect of commodity i;

Expiry (f) is the expiry date of futures contract f as published by the Relevant Exchange given in Table 2;

Expiry (f') is the expiry date of futures contract f' as published by the Relevant Exchange given in Table 2; and

$W(i, \text{Nearby}, t)$  is the Nearby Contract Weight as of on Index Selection Day  $t$  for commodity  $i$ , and is calculated as per the following:

$$W(i, \text{Nearby}, t) = \min(-75\%, \max(-125\%, -\frac{\text{Stdev}(i, \text{Deferred}, t)}{\text{Stdev}(i, \text{Nearby}, t)}))$$

$W(i, \text{Deferred}, t)$  is the Deferred Contract Weight as of on Index Selection Day  $t$  for commodity  $i$ , and is always equal to 1.

Where  $\text{Stdev}(i, j, t)$  is the standard deviation of the daily returns  $RD(i, j, t)$  of futures contract  $j$  for commodity  $i$  from the previous Index Selection Day (excluding the daily return as of the previous Index Selection Day) to the current Index Selection Day (including the daily return as of current Index Selection Day). The Deferred and Nearby Futures contracts are selected from Table 5 and Table 6 respectively.

$$\text{Stdev}(i, j, t) = \sqrt{\frac{\sum_{k=s}^t (RD(i, j, k) - \overline{RD(i, j, t)})^2}{t - s - 1}}$$

$$RD(i, j, t) = \frac{PF(i, j, t)}{PF(i, j, t-1)} - 1$$

$$\overline{RD(i, j, t)} = \frac{\sum_{k=s}^t RD(i, j, k)}{t - s}$$

Where variable  $k$  is the set of Index Business Days ranging from one Index Business Day after the previous Index Selection Day  $s$  to current Index Selection Day  $t$

### Weight Calculation

The Base Weights to be allocated to the DBLCI Commodity Base Nearby/Deferred 6 Indices listed in Table 2 are determined as per the following steps.

**Table 2: Exchanges for underlying commodities**

Commodity name	Corresponding DBLCI Commodity Base 6 Indices	Reuters Symbol	Relevant Exchange
WTI Crude Oil	DBLCI WTI Crude Nearby/Deferred 6 Index	CL	NYMEX
Natural Gas	DBLCI Natural Gas Nearby/Deferred 6 Index	NG	NYMEX
Heating Oil	DBLCI Heating Oil Nearby/Deferred 6 Index	HO	NYMEX
RBOB Gasoline	DBLCI RBOB Gasoline Nearby/Deferred 6 Index	RB	NYMEX
Aluminium	DBLCI Aluminium Nearby/Deferred 6 Index	MAL	LME
Copper	DBLCI Copper Nearby/Deferred 6 Index	HG	COMEX
Zinc	DBLCI Zinc Nearby/Deferred 6 Index	MZN	LME
Nickel	DBLCI Nickel Nearby/Deferred 6 Index	MNI	LME

### Step 1 – Number of Positively Yielding Futures

For each commodity the Yield ( $i, t$ ) is observed on the Index Selection Day ' $t$ ', The total number of commodities with positive Yield ( $\text{Yield}(i, t) > 0$ ) is calculated and represented as  $\text{Count\_Commod}(t)$ .

The commodities are assigned a rank  $R(i,t)$  based on the descending order of the Yields  $Yield(i,t)$  such that the highest yielding commodity ranks 1, and so on. If two or more commodities have the same Yield then such commodities shall, amongst themselves, be ranked in the same order as they were ranked on the previous Index Selection Day.

### Step 2 – Initial Weights

The Standard Weights  $w(i)$  for each commodity  $i$  are fixed as given in the table below,

**Table 3: Standard weights  $w(i)$  assigned to each commodity**

Commodity Code	Commodity	Exchange	$w(i)$
NG	Natural Gas	NYMEX	11%
CL	WTI Crude Oil	NYMEX	11%
XB	Gasoline	NYMEX	11%
HO	Heating oil	NYMEX	11%
LA	Aluminum	LME	15%
HG	Copper	COMEX	11%
LX	Zinc	LME	15%
LN	Nickel	LME	15%

The Initial Weight  $w_{init}(i, t)$  to each commodity  $i$  is assigned as follows:

$$w_{init}(i, t) = \begin{cases} 0, & \text{if } R(i, t) > Count\_Commod(i) \\ w(i), & \text{otherwise} \end{cases}$$

### Step 3 - Group Wise Adjustment

At least five Commodity Groups must have non-zero Preliminary Group Weights. The Preliminary Group Weights  $w_{init\_Group}(g, t)$  are calculated based on the Commodity Groups 'g' listed in Table 4 as follows:

$$w_{init\_Group}(g, t) = \sum_{i \in g} w_{init}(i, t)$$

Where the Commodity Groups are defined as below:

**Table 4: Commodity Groups**

Commodity Group (g)	Commodities included
Oil	WTI Crude Oil, Heating oil, Gasoline
Natural Gas	Natural Gas
Zinc	Zinc
Aluminum	Aluminum
Nickel	Nickel
Copper	Copper

The number of Commodity Groups with  $w_{init\_Group}(g, t) > 0$  is denoted as  $Count\_group(g, t)$ .

The total number of Commodity Groups  $Add\_group(g,t)$  to be added so as to have at least 5 Commodity Groups with  $w_{init\_Group}(g,t) > 0$  will be as follows:

$$Add\_group(g,t) = \begin{cases} 0, & \text{if } Count\_group(g,t) \geq 5 \\ 5 - Count\_group(g,t), & \text{otherwise} \end{cases}$$

If  $Add\_group(g,t)$  is equal to zero Step 4 is applied.

$Add\_Commod(t)$  is initialized as 0.

Else if  $Add\_group(g,t)$  on any Index Selection Day is greater than zero and the weight of Commodity Group, with respect to commodity  $i$  with rank  $Count\_Commod(t) + Add\_Commod(t) + 1$ , is equal to 0, then  $w(i)$  weight is assigned to Commodity  $i$  with the rank  $Count\_Commod(t) + Add\_Commod(t) + 1$ .

Following the above step  $Count\_group(g,t)$  and  $Add\_Commod(t)$  are increased by 1;

$$Count\_group(g,t) = Count\_group(g,t) + 1$$

$$Add\_Commod(t) = Add\_Commod(t) + 1$$

Else if  $Add\_group(g,t)$  on any Index Selection Day is greater than zero and the weight of Commodity group, with respect to commodity  $i$  with rank  $Count\_Commod(t) + Add\_Commod(t) + 1$ , is not 0, then the  $Add\_Commod(t)$  is increased by one and the process is repeated to capture the next highest yielding commodity among those that were assigned a zero Initial Weight ( $w_{init}(i,t) = 0$ ) for the respective Commodity Group.

The above process is repeated until  $Add\_group(g,t)$  turns out to be zero, that is until there are five Commodity Groups with non-zero Preliminary Group Weights.

The Raw Weights of each commodity after the above is completed are denoted by  $w_{initial}(i,t)$ .

#### Step 4 - Normalized Raw Weights

The Raw Weights  $w_{initial}(i,t)$  derived in Step 3 are normalized and the Normalized Raw Weights are calculated as follows:

$$w_{raw}(i,t) = w_{initial}(i,t) / \sum_i w_{initial}(i,t)$$

The Normalized Raw Weights are added for each Commodity Group as listed in Table 4 and these Normalized Raw Group Weights are denoted as  $W_{Norm\_raw\_group}(g,t)$  for each Commodity Group 'g' and are determined as given below

$$W_{Norm\_raw\_Group}(g,t) = \sum_{i \in g} w_{raw}(i,t)$$

The Normalized Group Weights  $W_{Norm\_raw\_init}(g,t)$  determined above are used as the initial Normalized Raw Group Weights  $w_{prev\_iter}(g,t)$  as denoted in Step 5.

#### Step 5 - Weight Constraint Check

The Normalized Raw Group Weights  $w_{prev\_iter}(g,t)$  are readjusted in Step 6 below to ensure:

- 1) The Commodity Group with maximum of the Normalized Raw Group Weights  $w_{prev\_iter}(g, t)$  is less than or equal to 32%, and
- 2) remaining Commodity Groups excluding the one with maximum of  $w_{prev\_iter}(g, t)$  will have a maximum Normalized Raw Group Weight of 18%

A Commodity Group Rank  $R_G(g, t)$  is assigned to each Commodity Group such that rank 1 is assigned to the group with maximum Normalized Raw Group Weights, that is

$$\text{For, } \max(w_{prev\_iter}(g, t)), R(g, t) = 1.$$

Where,  $\max(w_{prev\_iter}(g, t))$  is the maximum of the Normalized Raw Group Weights.

If two or more Commodity Groups have the highest Normalized Raw Group Weight, then we cap the Commodity Group with maximum Yield(i,t) at 32% and all other Commodity Groups are capped at 18% pursuant to Step 6 below.

For example, if Nickel and Zinc have the highest Normalized Raw Group Weight and the Yield(i,t) with respect to the selection day t is higher for Nickel, then the Commodity Group 'Nickel' is capped at 32% and Zinc is capped at 18%.

If the Normalized Raw Group Weights  $w_{prev\_iter}(g, t)$  adhere to the constraints outlined in this step, then Step 6 is skipped and Step 7 is followed, otherwise, these weights are redistributed as per Step 6 and are subsequently revalidated against the constraints in Step 5.

### Step 6 - Group Weight Redistribution

If the Normalized Raw Group Weights do not comply with any of the constraints defined in Step 5, the Normalized Raw Group Weights are readjusted as follows:

- 1) The Normalized Raw Group Weight that could be redistributed is the sum of the Normalized Raw Group Weights that are within the range of the caps as determined in the following:

$$\alpha_{iter}(t) = \mathbf{1}_{\{max(w_{prev\_iter}(g, t)) < 32\%\}} * max(w_{prev\_iter}(g, t)) + \sum_{g: w_{prev\_iter}(g, t) \neq max(w_{prev\_iter}(g, t))} \mathbf{1}_{\{w_{prev\_iter}(g, t) < 18\%\}} * w_{prev\_iter}(g, t)$$

- 2) The Normalized Raw Group Weights that require redistribution are defined as:

$$\beta_{iter}(t) = 100\% - \mathbf{1}_{\{max(w_{prev\_iter}(g, t)) \geq 32\%\}} * 32\% - \sum_{g: w_{prev\_iter}(g, t) \neq max(w_{prev\_iter}(g, t))} \mathbf{1}_{\{w_{prev\_iter}(g, t) \geq 18\%\}} * 18\%$$

The Iterated Normalized Raw Group Weights  $w_{iter}(g, t)$  are calculated as follows; :

- a) For the Commodity Group with maximum Normalized Raw Group Weight,

$$w_{iter}(g, t) = \begin{cases} w_{prev\_iter} * \frac{\beta_{iter}(g, t)}{\alpha_{iter}(g, t)}, & \text{if } w_{prev\_iter} < 32\% \\ 32\%, & \text{otherwise} \end{cases}$$

- B) For the remaining Commodity Groups,

$$w_{iter}(g, t) = \begin{cases} w_{prev\_iter} * \frac{\beta_{iter}(g,t)}{\alpha_{iter}(g,t)}, & \text{if } w_{prev\_iter} < 18\% \\ 18\%, & \text{otherwise} \end{cases}$$

The newly iterated Normalized Raw Group Weights  $w_{iter}(g, t)$  are revalidated against the constraints by following Step 5. The weights  $w_{prev\_iter}(g, t)$  for each iteration will be the newly iterated Normalized Raw Group Weights obtained from the previous iteration with the Normalized Raw Group Weights as  $w_{iter}(g, t)$ . Following this, the iterated Normalized Raw Group Weights are run through Step 5.

### Step 7 – Final Commodity Group weights after redistribution

In Step 5 – Weight Constraint Check, once it has determined that the Normalized Raw Group Weights  $w_{prev\_iter}(g, t)$  adhere to the Constraints in Step 5, we consider these to the set of Final Commodity Group Weights  $w_{final}(g, t)$ .

### Step 8 - Commodity weights after redistribution

Once the Final Commodity Group Weights comply with the constraints outlined in Step 5, the Base Weights of the DBLCI Commodity Base Indices are calculated as per the following:

$$w_{Base}(i, t) = w_{final}(g, t) * \frac{w_{raw}(i, t)}{w_{Norm\_raw\_init}(g, t)}; i \in g$$

Where, the sets of Normalized Raw Weights  $w_{raw}(i, t)$  and the Normalized Raw Group Weights  $w_{Norm\_raw\_init}(g, t)$  are obtained from Step 4. The set of Final Commodity Group Weights  $w_{final}(g, t)$  is as obtained from Step 8.

The Base Weights  $w_{Base}(i, t)$ , as defined in the Glossary, are the inputs to determine the Notional Holdings in the DB Commodity Nearby/Deferred 6 Indices as described in the Section Index Rules and Calculations under the sub section DB Commodity Curve 6 Indices.

## DBLCI Commodity Base 6 Indices

The DBLCI Commodity Base Deferred/Nearby 6 Index levels for commodity  $i$  on Index Business Day 't' are calculated as below:

$$ILB_{j,t}^i = ILB_{j,t-1}^i + N(i, j, t - 1) * (PF(i, j, t) - PF(i, j, t - 1))$$

Where:

$ILB_t^i$	=	DBLCI Commodity Base Nearby/Deferred 6 Index level for commodity $i$ on Index Business Day 't';
$j$	=	Nearby or Deferred;
$i$	=	Corresponds to any of the set of 8 commodities listed in Table 2;
$PF(i, j, t)$	=	Settlement Price of commodity $i$ 's futures contract $j$ (either Deferred or Nearby Futures contract) on Index Business Day $t$ as published by the Relevant Exchange given in Table 2 or, if such day is not a Scheduled Trading Day in respect of the Relevant Exchange in respect of commodity $i$ , the Settlement Price for futures contract $j$ of commodity $i$ on the immediately preceding Index Business Day that was a Scheduled Trading Day in respect of the Relevant Exchange in respect of commodity $i$ ;
$N(i, j, t-1)$	=	Notional Holdings in the DBLCI Commodity Base Nearby/Deferred 6 Index of commodity $i$ 's futures contract on Index Business Day $t-1$

### Notional Holdings in the DBLCI Commodity Base 6 Indices



Futures contracts are reweighted based on a fixed roll schedule occurring on the 3rd Index Business Day of each month. . During the monthly roll the exiting contract is unwound and the index enters a hypothetical position in the new contract.

The Notional Holdings in the DBLCI Commodity Base Deferred/Nearby 6 Indices of the Futures contract of commodity i calculated on Index Rebalancing Day t is expressed as per the following:

$$N(i, j, t) = \frac{ILB_{j,t}^i}{PF(i, j, t)}$$

If the Index Rebalancing Day is not a Scheduled Trading Day in respect of the Relevant Exchange in respect of commodity i, the Settlement Price of the Deferred and Nearby Futures contract from next Index Business Day that is a Scheduled Trading Day in respect of the Relevant Exchange in respect of commodity i are used for the calculation of the Notional Holdings.

On any other Index Business Day 't' the Notional Holdings in the DBLCI Commodity Base Deferred/Nearby 6 Indices remain the same, that is:

$$N(i, j, t) = N(i, j, t - 1)$$

In respect of the Index Inception Date, the Notional Holdings in respect of the DBLCI Commodity Base Deferred 6 Index in respect of each commodity i are:

Natural Gas	28.32058907
WTI Crude Oil	1.027538019
Gasoline	31.98464737
Heating Oil	31.04818679
Aluminum	0.046734432
Copper	0.262536099
Zinc	0.044938771
Nickel	0.005422258

In respect of the Index Inception Date, the Notional Holdings in respect of the DBLCI Commodity Base Nearby 6 Index in respect of each commodity i are:

Natural Gas	29.342723
WTI Crude Oil	1.038745196
Gasoline	30.9645456
Heating Oil	31.09936246
Aluminum	0.047119802
Copper	0.264900662
Zinc	0.045284728
Nickel	0.005456728

## Disruption Events

### (a) General

Disruption Event, in respect of an Index Business Day, means an event that would require the Index Administrator to calculate an Index Level on an alternative basis were such event to occur or exist on such day, all as determined by the Index Administrator in accordance with its Disruption Policy which is available online on the Index Administrator's website (<https://www.solactive.com>) and, as at the date of this Index Guide, can be accessed under the following link ([https://www.solactive.com/wp-content/uploads/2017/07/Solactive\\_Disruption\\_Policy\\_3.0.pdf](https://www.solactive.com/wp-content/uploads/2017/07/Solactive_Disruption_Policy_3.0.pdf)). For such purposes, any reference to the word "securities" in the Index Administrator's Disruption Policy shall be deemed to include futures contracts.

### (b) Force Majeure Event

An event or circumstance (including, without limitation, a systems failure, natural or man-made disaster, act of God, armed conflict, act of terrorism, riot or labour disruption or any similar intervening circumstance) that is beyond the reasonable control of the Index Administrator and that the Index Administrator determines affects the Index, the Index Commodity in respect of such Index, any DBLCI Commodity Base Nearby/Deferred 6 Index or an exchange instrument in respect of any such DBLCI Commodity Base Nearby/Deferred 6 Index.

If a Force Majeure Event occurs on an Index Business Day, the Index Administrator may, in its sole and absolute discretion:

- (i) make such determinations and/or adjustments to the terms contained in this Index Guide as it considers appropriate to determine the relevant Index Level in respect of such Index Business Day; and/or
- (ii) defer publication of the relevant Index Level in respect of such Index Business Day until the next Index Business Day on which it determines that no Force Majeure Event exists; and/or
- (iii) permanently cancel publication of the relevant Index Level.

### Calculation and Dissemination of the Index

The Index Administrator will employ the methodology described in this Index Guide to calculate and disseminate the level of the Index on its website (<https://www.solactive.com>), which as the date of this Index Guide can be accessed under the following links (<https://www.solactive.com/?index=DE000SLA4AW9>, <https://www.solactive.com/?index=DE000SLA4AV1>). The Index Administrator's application of such methodology shall be conclusive and binding.

While the Index Administrator currently employs the above described methodology to calculate the Index, no assurance can be given that market, regulatory, judicial, financial, fiscal or other circumstances (including, but not limited to, any changes to or any suspension or termination of any constituent of the Index or any other events affecting transactions on the same or similar terms to any described in this Index Guide) will not arise that would, in the view of the Index Administrator render the calculation of the Index impossible, or necessitate a modification of or change to such methodology.

Further, the Index Administrator shall review the methodology of the Index on an annual basis.

Upon occurrence at any time of any such circumstances above which would, in the view of the Index Administrator, render impossible the calculation of the Index, or necessitate a modification of or change to such methodology, or upon annual review, if in the view of the Index Administrator in consideration of the above circumstances, there is a necessity to modify or change the methodology, then the Index Administrator may, in its discretion, at any time and without notice, terminate the calculation and publication of the Index.

### Glossary

**"Add\_commod"** means the mathematical expression as described in "Step 3 – Group Wise Adjustments" of "Weight Calculation".

**"Add\_group"** means the mathematical expression as described in "Step 3 – Group Wise Adjustments" of "Weight Calculation".

**"Base Weight"** means the weights applied to the underlying DBLCI Commodity Base Indices of the DB Commodity Nearby/Deferred 6 Indices as of an Index Selection Day.

**"Commodity Group"** means a group of Commodities clubbed together as listed down in Table 4.

**"Commodity Group Rank"** means the ranking of a Commodity Group on the basis of the Normalized Raw Group Weights as described in "Step 5 – Weight Constraint Check" of "Weight Calculation".

**"Count\_commod"** means the mathematical expression as described in "Step 1 – Number of Positively Yielding Futures" of "Weight Calculation".

**"Count\_group"** means the mathematical expression as described in "Step 3 – Group Wise Adjustments" of "Weight Calculation".

**"DBLCI Commodity Base Deferred 6 Index"** means each commodity index which is one of the constituents of the "DB Commodity Deferred 6 Index".

**"DBLCI Commodity Base Deferred 6 Index level"** means the index level of the "DBLCI Commodity Base Deferred 6 Index" for commodity i as mathematically formulated in the section "DBLCI Commodity Base 6 Indices".

**"DBLCI Commodity Base Nearby 6 Index"** means each commodity index which is one of the constituents of the "DB Commodity Nearby 6 Index".

**"DBLCI Commodity Base Nearby 6 Index level"** means the index level of the "DBLCI Commodity Base Nearby 6 Index" for commodity i as mathematically formulated in the section "DBLCI Commodity Base 6 Indices".

**"Deferred Futures contract"** means, in respect of commodity i, the futures contract whose schedule is set out in Table 5.

**“Deferred Contract Weight”** means, in respect of commodity i, the weight of the Deferred Futures contract as of the relevant Index Rebalancing Day in the relevant underlying DBCLI Commodity Base Deferred 6 Index, which is always 100%.

**“Final Commodity Group Weight”** means the weight of each Commodity Group as described by the mathematical expression in “Step 7 – Final Commodity Group Weights” of “Weight Calculation” after redistribution.

**“Initial Weight”** means the initial weight of each commodity i as described by the mathematical expression in “Step 2 – Initial Weights” of “Weight Calculation”.

**“Iterated Normalized Raw Group Weight”** means the Iterated Normalized Weight of each Commodity Group as described by the mathematical expression in “Step 6 – Group Weight Redistribution” of “Weight Calculation”.

**“Nearby Contract Weight”** means the weight of the Deferred Futures contract as of Index Rebalancing Day in the underlying DBCLI Commodity Base Nearby 6 Indices as calculated under the section “Yield Calculation”.

**“Nearby Futures contract”** means, in respect of commodity i, the Futures Contract whose schedule is set out in Table 6.

**“Normalized Raw Group Weight”** means the Normalized Raw Group Weight of each Commodity Group as described by the mathematical expression in “Step 4 – Normalized Raw Weights” of “Weight Calculation”.

**“Normalized Raw Weight”** means the Normalized Raw Weight of each commodity i as described by the mathematical expression in “Step 4 – Normalized Raw Weights” of “Weight Calculation”.

**“Notional Holdings in the DB Commodity Deferred 6 Index”** means the Notional Holdings of the underlying constituents of the DB Commodity Deferred 6 Index as mathematically formulated under the sub section “Notional Holdings in the DB Commodity Curve 6 Indices”.

**“Notional Holdings in the DBCLI Commodity Base Deferred 6 Index”** means the Notional Holdings of the underlying constituents of the DBCLI Commodity Base Deferred 6 Index as mathematically formulated under the sub section “Notional Holdings in the DBCLI Commodity Base 6 Indices”.

**“Notional Holdings in the DB Commodity Nearby 6 Index”** means the Notional Holdings of the underlying constituents of the DB Commodity Nearby 6 Index as mathematically formulated under the sub section “Notional Holdings in the DB Commodity Curve 6 Indices”.

**“Notional Holdings in the DBCLI Commodity Base Nearby 6 Index”** means the Notional Holdings of the underlying constituents of the DBCLI Commodity Base Nearby 6 Index as mathematically formulated under the sub section “Notional Holdings in the DBCLI Commodity Base 6 Indices”.

**“Preliminary Group Weight”** means the Preliminary Group Weight of each Commodity Group as described by the mathematical expression in “Step 3 – Group Wise Adjustments” of “Weight Calculation”.

**“Raw Weight”** means, in respect of commodity i, the weight of commodity i obtained after completing “Step 3 – Group Wise Adjustments” of “Weight Calculation”.

**“Raw Group Weight”** means the weight of each Commodity Group as described by the mathematical expression in “Step 4 – Normalized Raw Weights” of “Weight Calculation”.

**“Relevant Exchange”** means, in respect of commodity i, the commodity futures exchange that publishes the Settlement Prices as specified under the heading “Relevant Exchange” in Table 2 or any successor to such exchange or any substitute exchange to which trading in the relevant futures contract has temporarily relocated.

**“Reuters Symbol”** means the RIC against which the Settlement Prices are published on Reuters.

**“Scheduled Trading Day”** means, in respect of commodity i and the Relevant Exchange in respect of such commodity i, a day on which the Relevant Exchange is scheduled to be open for trading.

**“Settlement Price”** means the official settlement price of a futures contract in respect of commodity i as published by the Relevant Exchange.

**“Standard Weight”** means the standard weight of each commodity i as set out in Table 3.

**“Yield”** means the yield for commodity i as calculated pursuant to the section “Yield Calculation”.

## Appendix

### Selection of Exchange Traded Instruments

The Tables 5 and 6 specify the Contract Month of the futures contract into which the DBLCI Commodity Base 6 Index for each commodity will roll (or remain invested) in the relevant month. For example, the DBLCI Commodity Base 6 Index for Natural Gas is invested in the N (July) contract at the start of April of each year and rolls into the Q (August) contract on Index Selection Day in April of each year. If the contract month code is followed by a '+' sign, then the Futures contract expires in the year following the year of the considered Index Selection Day.

Table 5: Deferred futures contract schedule

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WTI Crude	N	Q	U	V	X	Z	F+	G+	H+	J+	K+	M+
Copper	U	Z	Z	Z	H+	H+	H+	K+	K+	N+	N+	U+
Heating Oil	M	M	N	V	X	X	X	F+	F+	J+	M+	M+
Aluminum	U	X	X	F+	F+	H+	H+	K+	K+	N+	N+	U+
Nickel	U	X	X	F+	F+	H+	H+	K+	K+	N+	N+	U+
Zinc	U	X	X	F+	F+	H+	H+	K+	K+	N+	N+	U+
Natural Gas	N	N	N	Q	U	V	X	H+	H+	H+	H+	H+
Gasoline	M	N	Q	U	U	Z	Z	Z	Z	G+	H+	H+

Table 6: Nearby futures contract schedule

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WTI Crude	K	M	N	Q	U	V	X	Z	F+	G+	H+	J+
Copper	H	K	K	N	N	U	U	Z	Z	H+	H+	H+
Heating Oil	J	J	M	Q	U	U	U	Z	Z	G+	J+	J+
Aluminum	H	K	K	N	N	U	U	X	X	F+	F+	H+
Nickel	H	K	K	N	N	U	U	X	X	F+	F+	H+
Zinc	H	K	K	N	N	U	U	X	X	F+	F+	H+
Natural Gas	K	K	K	M	N	Q	U	F+	F+	G+	G+	G+
Gasoline	J	K	M	M	N	V	V	V	X	F+	F+	G+

Table 7: Deferred futures contract schedule for yield comparison

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WTI Crude	M	N	Q	U	V	X	Z	F+	G+	H+	J+	K+
Copper	N	U	U	U	Z	Z	Z	H+	H+	K+	K+	N+
Heating Oil	K	K	M	U	V	V	V	Z	Z	H+	K+	K+
Aluminum	N	U	U	X	X	F+	F+	H+	H+	K+	K+	N+
Nickel	N	U	U	X	X	F+	F+	H+	H+	K+	K+	N+
Zinc	N	U	U	X	X	F+	F+	H+	H+	K+	K+	N+
Natural Gas	M	M	M	N	Q	U	V	G+	G+	G+	G+	G+
Gasoline	K	M	N	Q	Q	X	X	X	X	F+	G+	G+

Table 8: Nearby futures contract schedule for yield comparison

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WTI Crude	J	K	M	N	Q	U	V	X	Z	F+	G+	H+
Copper	F	H	H	K	K	N	N	U	U	Z	Z	Z
Heating Oil	K	K	K	N	Q	Q	Q	X	X	H+	K+	K+
Aluminum	F	G	H	J	K	M	N	Q	U	V	X	Z
Nickel	F	G	H	J	K	M	N	Q	U	V	X	Z
Zinc	F	G	H	J	K	M	N	Q	U	V	X	Z
Natural Gas	M	M	M	K	M	N	Q	G+	G+	F+	F+	F+
Gasoline	K	J	K	K	Q	X	X	X	V	Z	Z	F+

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