S&P Dow Jones Indices

Indices

A Division of S&P Global

Dow Jones RAFI Commodity Index
Methodology

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S&P Dow Jones Indices: Index Methodology

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Introduction

Index Objective and Highlights

The Dow Jones RAFI® Commodity Index is a fundamental factor weighted, broad-market commodity index.

The fundamentally weighted approach is designed to offer an alternative beta using signals to generate alpha, but with typical indexing merits such as liquidity and transparency. The index uses momentum and roll yield to over or underweight the liquidity weighted commodities within the equally weighted sectors of the Dow Jones Commodity Index. Furthermore, the index utilizes a modified dynamic roll methodology based on liquidity and implied roll yield, includes only contracts expiring out to 24 months and requires that each eligible contract must have open interest of at least 5% of the total open interest in the most liquid contracts. The roll occurs on the first through fifth (1st - 5th) business days with the monthly rebalancing.

For more information on the Dow Jones Commodity Index and the S&P GSCI Dynamic Roll, please refer to each respective Index Methodology available on our web site at www.spdji.com.

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' GSCI Reference Guide	GSCI Reference Guide
S&P Dow Jones Indices' Index Mathematics Methodology	Index Mathematics Methodology

This methodology was jointly created by S&P Dow Jones Indices and Research Affiliates (RA) 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 the Index Committee so that the index continues to achieve its objective.

Index Constituents and Weightings

Index Eligibility

Commodity Eligibility. The Dow Jones RAFI Commodity Index includes only those commodities that are included in the Dow Jones Commodity Index. Currently, the index contains 24 commodities across three major sectors including energy, agriculture and livestock, and metals. The reconstitution of the index occurs annually during the January Roll.

Please refer to the Dow Jones Commodity Index Methodology for details on the commodity eligibility criteria.

Contract Eligibility. In order to optimize the roll yield and reduce round turns on a monthly basis, contract eligibility follows the same criteria found in the S&P GSCI Dynamic Roll with two exceptions:

1. The expiration of the contract must be less than or equal to 24 months from the nearby contract. For the 24-month timeframe, rank order selection and tables are modified from the S&P GSCI Dynamic Roll and are listed for each commodity in the *Appendix* of this document. If a contract becomes eligible for inclusion in a particular calendar month, it will remain eligible for the subsequent calendar month until its expiration.

2. Open interest must be at least 5% of the total open interest of the most liquid contract, subject to annual review and adjustment as necessary for capacity.

For more information about contract eligibility and selection, please refer to the S&P GSCI Dynamic Roll Methodology available on our web site at www.spdji.com.

Weight Determination

The weighting scheme is a modification of that used in the Dow Jones Commodity Index. In the Dow Jones Commodity Index, commodities are liquidity weighted and sectors are equal weighted. For the Dow Jones RAFI Commodity Index, the basic weights are modified with over or underweighting applied based on fundamental factors represented by a 50/50 combination of momentum and roll yield. In addition, unlike the Dow Jones Commodity Index, the Dow Jones RAFI Commodity Index does not have a capped component rule. This is to ensure that the impact of the momentum and roll yield factors is fully realized without constraints.

The weighting scheme consists of three steps. Steps 1 and 2 are performed according to the methodology of the Dow Jones Commodity Index. All three steps and a list of definitions used in describing the weighting scheme are detailed below:

Definitions

$InitialWeight_i$ The initial weight of commodity *i* based on the TDVT of the commodity relative to the sum of all the TDVTs of all the commodities in the index.

$TotalSectorInitialWeight_j$ The sum of the initial weights of all the commodities within the same sector *j*.

$AdjustedWeight_i$ The result of *$InitialWeight_i$* being adjusted either due to capping of the sector it belongs to or as the beneficiary of the redistribution of the excess weights from other commodities.

$YieldRank_i$ The ranking order of commodity *i* based on the roll yield signal.

MomentumRank$_i$ The ranking order of commodity i based on the momentum signal.

FinalWeight$_i$ The effect on the adjusted weight of each commodity due to the result of the commodity's ranking based on the composite ranking of roll yield and momentum signals.

Price$_i$ The price for commodity i in the index as of the rebalancing reference date.

DJRAFICIPrice The sum of the individual prices for all commodities in the index as of the rebalancing reference date.

CWF$_i$ The Contract Weight Factor for commodity i in the index as of the rebalancing reference date.

Total Dollar Weight (TDW) On any given Dow Jones RAFI Commodity Index business day, the sum of the Dollar Weights of all Designated Contracts.

Total Dollar Weight Invested (TDWI) On any given Dow Jones RAFI Commodity Index business day, the Total Dollar Weight of the Dow Jones RAFI Commodity Index on the preceding business day.

Total Dollar Weight Obtained (TDWO) On any given Dow Jones RAFI Commodity Index Business Day, the amount obtained from an investment in the Dow Jones RAFI Commodity Index on the preceding business day. For a given business day, the TDWO is calculated as the Total Dollar Weight of the Dow Jones RAFI Commodity Index for such day, using the CWF's and Contract Roll Weights in effect on the preceding business day and the Daily Contract Reference Prices used to calculate the index on the business day on which the calculation is made.

Step 1 - Liquidity Weighting of Commodities

The initial weights of the individual commodities in the Dow Jones RAFI 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 sector are then added up to obtain the total sector initial weight for that sector.

Step 2 – Equal Weighting of Sectors

The Dow Jones RAFI Commodity Index includes commodities within three sectors: Energy, Agriculture and Livestock, and Metals. The commodities and their associated sector are detailed in the following table:

Commodity Contract Code	Commodity Name	Sector
CL	WTI Crude Oil	Energy
HO	Heating Oil	Energy
LCO	Brent Crude Oil	Energy
RB	RBOB Gasoline	Energy
LGO	Gasoil	Energy
NG	Natural Gas	Energy
W	Chicago Wheat	Agriculture & Livestock
KW	Kansas Wheat	Agriculture & Livestock
C	Corn	Agriculture & Livestock
S	Soybeans	Agriculture & Livestock
KC	Coffee	Agriculture & Livestock
SB	Sugar	Agriculture & Livestock
CC	Cocoa	Agriculture & Livestock
CT	Cotton	Agriculture & Livestock
LC	Live Cattle	Agriculture & Livestock
FC	Feeder Cattle	Agriculture & Livestock
LH	Lean Hogs	Agriculture & Livestock

Commodity Contract Code	Commodity Name	Sector
MAL	Aluminum	Metals
MCU	Copper	Metals
MPB	Lead	Metals
MNI	Nickel	Metals
MZN	Zinc	Metals
SI	Silver	Metals
GC	Gold	Metals

For each sector, the individual initial weights of the commodities in that sector are summed up. This sum is the total adjusted sector weight for that sector.

The adjusted weight of each commodity *i* in sector *j* is defined as follows:

AdjustedWeight(i) of Sector (j) = (100 / 3)* InitialWeight$_i$ / TotalSectorInitialWeight$_j$

Step 3 – Modifying the Adjusted Weights based on the Signals

The initial weights are over or underweighted based on the relative strength or weakness of two fundamental factor signals: roll yield and momentum.

Roll Yield. The calculation of the roll yield signal for each commodity *i* is as follows:

$$Yield_i = ln\left(\frac{C_0}{C_1}\right) \times (\frac{12}{T_1 - T_0})$$

where:

C_0 = The first nearby contract for commodity *i,* based on the subsequent '0' contract   month assigned in the contract eligibility tables located in Appendix A.

C_1 = The contract twelve months away from C_0, or the one that is closest to the twelve month time   frame from C_0.

T_0 = The maturity of C_0.

T_1 = The maturity of C_1.

The yields are then ranked in ascending order to determine the $YieldRank_i$ for each commodity *i*.

Momentum Signal. Momentum is defined as the cumulative price performance over the previous 12 months, and is determined based on the respective single commodity Dow Jones Commodity Index Price Index. For each commodity *i:*

$$Momentum_i = SR_t/SR_{t-12}$$

where:

SR_t = The index value of the Dow Jones Commodity Index Price Index of commodity *i* at the end   of month *t*.

SR_{t-12} = The index value of the Dow Jones Commodity Index Price Index of commodity *i* at the end of   month *t-12*.

The momentum signals are then ranked in ascending order to determine the $MomentumRank_i$ for each commodity *i*.

Final Weight. The final weight of each commodity *i* is calculated as follows:

$$FinalWeight_i =$$

$$\frac{YieldRank_i \times AdjustedWeight_i}{2 \times \sum_1^k YieldRank_i \times AdjustedWeight_i} + \frac{MomentumRank_i \times AdjustedWeight_i}{2 \times \sum_1^k MomentumRank_i \times AdjustedWeight_i}$$

where:

k = The number of commodities in the index.

Rebalancing

The initial weights are reset to the annual weights on a monthly basis. The rebalancing date is the last Dow Jones RAFI Commodity Index business day of each month.

At the annual rebalancing, the individual Contract Weight Factors **(**CWFs) are calculated as follows:

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

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.

$DJRAFICIPrice$ = 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.

Roll

The roll takes place over five days beginning on the first Dow Jones RAFI Commodity Index business day of each month. On each roll day, 20% of the incumbent contract is replaced with 20% of the new contract.

Please see Index Calculation for further detail.

Modified Dynamic Roll for Contract Selection

Based on the closing values on the Roll Determination Date (the last business day of each month), the *DRA(k)* algorithms are run for each commodity included in the Dow Jones RAFI Commodity Index, based on their respective Rank Orders for each given month.

Rank Order Description

- **Rank Order of 1.** If the number of eligible contracts is equal to or less than six, the *DRA(1)* Algorithm is used, with the Optimum Set of Contracts consisting of only the top ranked contract.

- **Rank Order of 2.** If the number of eligible contracts is greater than six but less than or equal to twelve, the *DRA(2)* Algorithm is used, with the Optimum Set of Contracts consisting of the top two ranked contracts.

- **Rank Order of 3.** If the number of eligible contracts is greater than 12, the *DRA(3)* Algorithm is used, with the Optimum Set of Contracts consisting of the top three ranked contracts.

The Dynamic Roll selections of all the Dow Jones RAFI Commodity Index commodities are assembled into the Monthly Dynamic Roll Schedule (see *Appendix*). The Monthly Dynamic Roll Schedule is applied to the Dow Jones RAFI Commodity Index Dynamic Roll calculations at the beginning of the Dow Jones RAFI Commodity Index Roll Period.

Dynamic Roll Selection for a Given Commodity

Creation of a Selected Forward Curve based on a 24-Month Dynamic Roll. For any given commodity, *C*, each component of its Dynamic Roll Matrix is:

$C(i,j)$ = The jth futures contract month for month *i*

where:

$M[C(i,j-1)]$ = The calendar month of the $(j-1)^{th}$ contract for month *i*.

$M[C(i,j)]$ = The calendar month of the jth contract for month *i*.

Interval *d* = $M[C(i,j)] - M[C(i,j-1)]$.

Thus, the selected forward curve for month *i* can be viewed as a series of eligible futures contract prices:

$C(i,1), C(i,2), C(i,3),$ … up to $C(i,j)$, where the maximum value of *j* is 24.

Calculation of the Implied Roll Yield of Each Consecutive Pair of Contracts on the Selected Forward Curve. The implied roll yield of the consecutive contracts $C(i,j-1)$ and $C(i,j)$ is computed as follows:

$$\text{Implied roll yield}\_C(i,j) = \left[\frac{C(i, j-1) - C(i, j)}{C(i, j) * d} \right]$$

Ranking the Contract Months from Best to Worst. The Contract Months are ranked based on their implied roll yields, with the best candidate for the new Rolled-in Contract Month having the highest implied roll yield, the next best candidate having the second highest implied roll yield, and so on:

$Best(1) = C(i,f),$

where $\text{Implied roll yield}\_C(i,f)$ = Highest{$\text{Implied roll yield}\_C(i,j)$, j=1, …,21},

$Best(2) = C(i,g),$

where $\text{Implied roll yield}\_C(i,g)$ = Second highest ($\text{Implied roll yield}\_C(i,j)$, j=1, …,21} and so on.

Creation of the Optimum Set of Contract Months. The creation of the Optimum Set of Contract Months is based on the Rank Order of the commodity for the given month. The process is as follows:

Select the first *k* Contract Months based on their rankings, where *k* is the Rank Order of the given commodity for the given month, and create the Optimum Set of Contracts for that commodity.

{Best(1), Best(2), … , Best(*k*)}

Applying the Dynamic Roll Parity Principle. For a given commodity, if the Rolled-out Contract is included in the Optimum Set of Contract Months, the index continues to use the same Contract Month as the Rolled-in Contract for the current month; otherwise, the first-ranked Contract Month in the Optimum Set of Contract Months becomes the new Rolled-in Contract for the current month.

Index Calculation

The Dow Jones RAFI 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.

On any given day, the daily contract reference price used in calculating the dollar weight of the commodity futures contract is the most recent daily contract reference price made available by the relevant trading facility. The daily contract reference price for the most recent prior day will be used if the trading facility is closed or otherwise fails to publish a daily contract reference price on that day. In addition, if the trading facility fails to make a daily contract reference price available or publishes a daily contract reference price that, in the reasonable judgment of S&P Dow Jones Indices reflects manifest error, the relevant calculation will be delayed until the price is made available or corrected. However, if the price is not made available or corrected by 4:00 PM ET, S&P Dow Jones Indices may determine the appropriate daily contract reference price for the applicable futures contract for purposes of the relevant calculation of the value of the index, if it deems such action to be appropriate under the circumstances.

Calculation of the Index

The value of the index on any Dow Jones RAFI Commodity Index business day is equal to the product of (i) the value of the index on the immediately preceding Dow Jones RAFI Commodity Index business day, (ii) one plus the sum of the contract daily return and the Treasury bill return on the hypothetical investment in the index on the Dow Jones RAFI Commodity Index business day on which the calculation is made, and (iii) one plus the Treasury bill return on the hypothetical investment in the index for each non-Dow Jones RAFI Commodity Index business day since the immediately preceding Dow Jones RAFI Commodity Index business day. We use the term Dow Jones RAFI Commodity Index business day to mean each day on which S&P Dow Jones Indices offices in New York City are open for business. The value of the index has been normalized such that its hypothetical level on January 20, 1999 is 100.

Calculation of the Total Dollar Weight (TDW) of the Dow Jones RAFI 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 RAFI 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 RAFI 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 RAFI Commodity Index period.
CWF_{old}	=	The CWFs for the prior Dow Jones RAFI Commodity Index period.
$DCRP$	=	The Daily Contract Reference Price.

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

$$DJRAFICI_{d} = \frac{TDW_{d}}{NC}$$

Calculation of Total Dollar Weight During a Roll Period

In calculating the Total Dollar Weight (TDW) of the Dow Jones RAFI 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 RAFI 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 second Dow Jones RAFI 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 RAFI 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 RAFI 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 RAFI Commodity Index

$$\text{TDW}_d = \frac{NC_{new}}{NC_{ol}} \times \sum_c \left[CWF1^c \times CRW1_d^c \times DCRP1_d^c \right] + \sum_c \left[CWF2^c \times CRW2_d^c \times DCRP2_d^c \right]$$

where:

  c = Each Designated Contract.

  d = The Dow Jones RAFI 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

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

Calculation of the Dow Jones RAFI Commodity Index Excess Return (DJRAFICI ER)

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

Calculation of the Treasury Bill Return

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

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

where:

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

Calculation of the Dow Jones RAFI Commodity Index Total Return (DJRAFICI TR)

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

where:

days = Number of non-Dow Jones RAFI Commodity Index business days since the preceding Dow Jones RAFI Commodity Index business day.

Index Governance

Index Committee

S&P Dow Jones Indices and RA have established an Index Committee to oversee the daily management and operations of the Dow Jones RAFI Commodity Index. The Committee is comprised of three representatives from S&P Dow Jones Indices and two representatives from RA. The Index Committee is chaired by a member designated by S&P Dow Jones Indices.

The Committee is responsible for all analytical methods and calculation of the indices. 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.

S&P Dow Jones Indices and RA consider information about changes to their 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 document.

Index Policy

Holiday Schedule

The Dow Jones RAFI Commodity Index is calculated daily based on the NYSE holiday schedule.

Rebalancing

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.

Contact Information

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

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 document.

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 currency, currency hedged, risk control, and return type versions of the below indices that may exist are also covered by this document. Please contact index_services@spglobal.com for a complete list of indices covered by this document.

Index Name	Bloomberg
Dow Jones RAFI Commodity Index	DJRCI
Dow Jones RAFI Commodity Index ER	DJRCIP
Dow Jones RAFI Commodity Index TR	DJRCIT
Dow Jones RAFI Commodity Index Capped Component	DJRCIUC
Dow Jones RAFI Commodity Index Capped Component ER	DJRCIUCP
Dow Jones RAFI Commodity Index Capped Component TR	DJRCIUCT

FTP

Daily index level data is available via FTP by 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 – Dynamic Roll Schedule

Monthly Dynamic Roll Schedule

A Monthly Dynamic Roll Schedule is created for the Dow Jones RAFI Commodity Index by assembling all the new Rolled-in Contract Months for all Dow Jones Commodity Index Commodities up to 24 months (Optimum Set of Contracts). This set of Contract Months is effective for the upcoming monthly Roll Period, from the first (1st) to the fifth (5th) Dow Jones RAFI Commodity Index business day.

The Dynamic Roll Matrices of the Dow Jones RAFI Commodity Index Contracts Included

Tables 1-24 on the following pages identify the eligible contracts included in the 2017 Dow Jones RAFI Commodity Index. Eligible contracts are those with historical open interest of at least US$ 100 million in average daily market value and are greater than 5% of the front-end contract. Contract maturity must also be less than 24 months. For each roll month, if the number of eligible contracts is less than or equal to six, the Rank Order equals one; if the number of eligible contracts is more than or equal to seven and less than or equal to 12, the Rank Order equals two; and, if the number of eligible contracts is greater than 12, then the Rank Order equals three. The Rank Order for each commodity for each given month is listed at the bottom of the list of eligible contracts. Contracts comprising Contract Order 0 are ineligible for index inclusion, but are used to provide the anchor points with which the implied roll yields of the contracts comprising Contract Order 1 are calculated.

Month Letter Codes

The table below details the month letter codes used in Tables 1-24 on the following pages.

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

W	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan																									
Feb	1	H0	K0	N0	U0	Z0																			
Mar																									
Apr	1	K0	N0	U0	Z0	H1																			
May																									
Jun	1	N0	U0	Z0	H1	K1	N1																		
Jul																									
Aug	1	U0	Z0	H1	K1	N1																			
Sep																									
Oct																									
Nov	1	Z0	H1	K1	N1	U1	Z1																		
Dec																									

KW	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan																									
Feb	1	H0	K0	N0	U0	Z0																			
Mar																									
Apr	1	K0	N0	U0	Z0	H1																			
May																									
Jun	1	N0	U0	Z0	H1	K1	N1																		
Jul																									
Aug	1	U0	Z0	H1	K1	N1																			
Sep																									
Oct																									
Nov	1	Z0	H1	K1	N1	U1	Z1																		
Dec																									

C	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan																									
Feb	1	H0	K0	N0	U0	Z0	H1																		
Mar																									
Apr	1	K0	N0	U0	Z0	H1																			
May																									
Jun	1	N0	U0	Z0	H1	N1	Z1																		
Jul																									
Aug	1	U0	Z0	H1	K1	N1	Z1																		
Sep																									
Oct																									
Nov	1	Z0	H1	K1	N1	U1	Z1																		
Dec																									

S	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan																									
Feb	1	H0	K0	N0	X0																				
Mar																									
Apr	1	K0	N0	Q0	X0																				
May																									
Jun	1	N0	X0	F1	H1	N1																			
Jul																									
Aug																									
Sep																									
Oct	1	X0	F1	H1	K1	N1	X1																		
Nov																									
Dec	1	F1	H1	K1	N1	X1																			

KC	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan																									
Feb	1	H0	K0	N0	U0	Z0	H1																		
Mar																									
Apr	1	K0	N0	U0	Z0	H1	K1																		
May																									
Jun	1	N0	U0	Z0	H1	K1																			
Jul																									
Aug	1	U0	Z0	H1	K1	N1	U1	Z1																	
Sep																									
Oct																									
Nov	1	Z0	H1	K1	N1	U1	Z1																		
Dec																									

SB	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan																									
Feb	2	H0	K0	N0	V0	H1	K1	N1	V1																
Mar																									
Apr	1	K0	N0	V0	H1	K1	N1	V1																	
May																									
Jun	1	N0	V0	H1	K1	N1	V1																		
Jul																									
Aug																									
Sep	1	V0	H1	K1	N1	V1																			
Oct																									
Nov																									
Dec																									

CC	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan																									
Feb	1	H0	K0	N0	U0	Z0	H1	N1																	
Mar																									
Apr	1	K0	N0	U0	Z0	H1	K1	N1																	
May																									
Jun	2	N0	U0	Z0	H1	K1	N1	U1	Z1																
Jul																									
Aug	2	U0	Z0	H1	K1	N1	U1	Z1	H2																
Sep																									
Oct																									
Nov	1	Z0	H1	K1	N1	U1	Z1	H2																	
Dec																									

CT	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan																									
Feb	1	H0	K0	N0	Z0																				
Mar																									
Apr	1	K0	N0	Z0	H1																				
May																									
Jun	1	N0	Z0	H1																					
Jul																									
Aug																									
Sep																									
Oct																									
Nov	1	Z0	H1	K1	N1	Z1																			
Dec																									

LH	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	1	G0	J0	M0	N0	Q0	V0	Z0																	
Feb																									
Mar	1	J0	M0	N0	Q0	V0	Z0																		
Apr																									
May	1	M0	N0	Q0	V0	Z0	G1	J1																	
Jun	1	N0	Q0	V0	Z0	G1	J1	M1																	
Jul	1	Q0	V0	Z0	G1	J1	M1																		
Aug																									
Sep	1	V0	Z0	G1	J1	M1																			
Oct																									
Nov	1	Z0	G1	J1	M1	N1	Q1																		
Dec																									

LC	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	1	G0	J0	M0	Q0	V0																			
Feb																									
Mar	1	J0	M0	Q0	V0	Z0																			
Apr																									
May	1	M0	Q0	V0	Z0	G1																			
Jun																									
Jul	1	Q0	V0	Z0	G1	J1																			
Aug																									
Sep	1	V0	Z0	G1	J1	M1	Q1																		
Oct																									
Nov	1	Z0	G1	J1	M1	Q1	V1																		
Dec																									

FC	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan																									
Feb	1	H0	J0	K0	Q0																				
Mar	1	J0	K0	Q0	U0																				
Apr	1	K0	Q0	U0	V0																				
May																										
Jun																										
Jul	1	Q0	U0	V0	X0	F1																			
Aug	1	U0	V0	X0	F1	H1																			
Sep	1	V0	X0	F1	H1																				
Oct	1	X0	F1	H1																					
Nov																										
Dec	1	F1	H1	J1	K1	Q1																			

HO	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	2	G0	H0	J0	K0	M0	N0	Q0	U0	Z0	M1														
Feb	2	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	M1	Z1											
Mar	2	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	M1	Z1												
Apr	2	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	M1	Z1													
May	2	M0	N0	Q0	U0	V0	X0	Z0	F1	H1	M1	Z1													
Jun	2	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	M1	Z1												
Jul	2	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	M1	Z1													
Aug	2	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	Z1													
Sep	2	V0	X0	Z0	F1	G1	H1	J1	K1	M1	Z1														
Oct	2	X0	Z0	F1	G1	H1	J1	K1	M1	Z1															
Nov	2	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	Z1													
Dec	2	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	Z1	M2	Z2											

LCO	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	3	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	Z1									
Feb	3	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	Z1										
Mar	2	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	Z1											
Apr	3	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	U1	Z1	M2										
May	2	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	U1	Z1	M2											
Jun	3	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	U1	Z1	M2									
Jul	3	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	Z1	H2	M2								
Aug	3	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	Z1	H2	M2									
Sep	3	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	Z1	H2	M2										
Oct	3	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	H2	M2	Z2							
Nov	3	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	G2	H2	M2	Z2							
Dec	3	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	G2	H2	M2	Z2								

RB	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	2	G0	H0	J0	K0	M0	N0	Q0	U0	Z0															
Feb	2	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	M1													
Mar	2	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	M1														
Apr	2	K0	M0	N0	Q0	U0	V0	X0	Z0	M1															
May	2	M0	N0	Q0	U0	V0	X0	Z0	F1	M1															
Jun	2	N0	Q0	U0	V0	X0	Z0	F1	G1	J1	M1														
Jul	2	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	M1														
Aug	2	U0	V0	X0	Z0	F1	G1	H1	J1	M1															
Sep	2	V0	X0	Z0	F1	G1	H1	J1	K1	M1	U1	Z1													
Oct	2	X0	Z0	F1	G1	H1	J1	K1	M1	U1	Z1														
Nov	2	Z0	F1	G1	H1	J1	K1	M1	N1	U1	Z1														
Dec	2	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	Z1													

CL	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	3	G0	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	H1	M1	Z1									
Feb	3	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	U1	Z1								
Mar	3	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	U1	Z1									
Apr	3	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	U1	Z1										
May	2	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	U1	Z1											
Jun	3	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	U1	Z1	M2									
Jul	3	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	U1	Z1	M2										
Aug	3	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	M2						
Sep	3	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	M2							
Oct	3	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	M2								
Nov	3	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	M2	Z2								
Dec	3	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	H2	M2	Z2								

LGO	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	3	G0	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	H1	M1	Z1									
Feb	3	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	Z1									
Mar	3	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	M1	Z1									
Apr	3	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	M1	Z1										
May	3	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	M1	Z1	M2										
Jun	3	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	U1	V1	Z1	M2							
Jul	3	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	U1	V1	Z1	M2								
Aug	3	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	U1	V1	Z1	M2									
Sep	3	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	Z1	M2									
Oct	3	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	Z1	M2										
Nov	3	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	M2	Z2								
Dec	3	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	H2	M2	Z2								

NG	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	3	G0	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	V1								
Feb	3	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	U1	V1	X1	Z1			
Mar	3	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	U1	V1	X1	Z1				
Apr	3	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1				
May	3	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1					
Jun	3	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2					
Jul	3	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2						
Aug	3	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2							
Sep	3	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	H2	J2						
Oct	3	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	H2	J2							
Nov	3	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	H2	J2								
Dec	3	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	G2	H2	J2	V2							

MAL	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	3	G0	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	M1	Z1									
Feb	3	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	M1	U1	Z1							
Mar	3	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	M1	U1	Z1								
Apr	3	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	M1	U1	Z1									
May	3	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	U1	Z1									
Jun	3	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	U1	Z1										
Jul	2	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	U1	Z1											
Aug	3	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2							
Sep	3	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	G2	M2						
Oct	3	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	G2	M2							
Nov	3	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	G2	M2	Z2							
Dec	3	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	X1	Z1	F2	G2	M2	Z2								

MCU	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	2	G0	H0	J0	K0	M0	N0	Q0	U0	V0	Z0	F1	G1	Z1											
Feb	3	H0	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	Z1									
Mar	3	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	Z1										
Apr	3	K0	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	M1	Z1										
May	3	M0	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	Z1										
Jun	2	N0	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	Z1											
Jul	2	Q0	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Z1											
Aug	2	U0	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	Z1											
Sep	2	V0	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	Z1												
Oct	2	X0	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	Z1												
Nov	2	Z0	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	Z1	Z2											
Dec	2	F1	G1	H1	J1	K1	M1	N1	Q1	U1	V1	Z1	Z2												

MPB	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	1	G0	H0	J0	K0	M0	N0	Z0																	
Feb	1	H0	J0	K0	M0	N0	Z0																		
Mar	1	J0	K0	M0	N0	Q0	U0	Z0																	
Apr	1	K0	M0	N0	Q0	U0	Z0																		
May	1	M0	N0	Q0	U0	V0	Z0																		
Jun	1	N0	Q0	U0	V0	X0	Z0																		
Jul	1	Q0	U0	V0	X0	Z0	F1																		
Aug	1	U0	V0	X0	Z0	F1	G1	M1																	
Sep	2	V0	X0	Z0	F1	G1	H1	M1	Z1																
Oct	2	X0	Z0	F1	G1	H1	J1	K1	M1	Z1															
Nov	2	Z0	F1	G1	H1	J1	K1	M1	Z1																
Dec	1	F1	G1	H1	J1	K1	M1	Z1																	

MNI	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	2	G0	H0	J0	K0	M0	N0	Q0	U0	Z0	Z1														
Feb	2	H0	J0	K0	M0	N0	Q0	U0	V0	Z0	M1	Z1													
Mar	2	J0	K0	M0	N0	Q0	U0	V0	X0	Z0	M1	Z1													
Apr	2	K0	M0	N0	Q0	U0	V0	X0	Z0	M1	Z1														
May	2	M0	N0	Q0	U0	V0	X0	Z0	F1	M1	Z1														
Jun	2	N0	Q0	U0	V0	X0	Z0	F1	M1	Z1															
Jul	2	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	Z1														
Aug	2	U0	V0	X0	Z0	F1	G1	H1	M1	Z1															
Sep	2	V0	X0	Z0	F1	G1	H1	J1	K1	M1	Z1														
Oct	2	X0	Z0	F1	G1	H1	J1	K1	M1	Z1															
Nov	2	Z0	F1	G1	H1	J1	K1	M1	Z1	Z2															
Dec	2	F1	G1	H1	J1	K1	M1	N1	Z1	Z2															

MZN	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	2	G0	H0	J0	K0	M0	N0	U0	Z0	Z1															
Feb	2	H0	J0	K0	M0	N0	Q0	U0	Z0	H1	Z1														
Mar	2	J0	K0	M0	N0	Q0	U0	X0	Z0	H1	Z1														
Apr	2	K0	M0	N0	Q0	U0	V0	X0	Z0	H1	M1	Z1													
May	2	M0	N0	Q0	U0	V0	X0	Z0	F1	H1	M1	Z1													
Jun	2	N0	Q0	U0	V0	X0	Z0	F1	H1	M1	Z1														
Jul	2	Q0	U0	V0	X0	Z0	F1	G1	H1	M1	Z1														
Aug	2	U0	V0	X0	Z0	F1	G1	H1	K1	M1	Z1														
Sep	2	V0	X0	Z0	F1	G1	H1	J1	K1	M1	Z1														
Oct	2	X0	Z0	F1	G1	H1	J1	K1	M1	Z1															
Nov	2	Z0	F1	G1	H1	J1	K1	M1	N1	U1	Z1	Z2													
Dec	2	F1	G1	H1	J1	K1	M1	N1	U1	Z1	Z2														

GC	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	1	G0	J0	M0	Q0	Z0																			
Feb																									
Mar	1	J0	M0	Q0	Z0																				
Apr																									
May	1	M0	Q0	V0	Z0	G1																			
Jun																									
Jul	1	Q0	Z0	G1																					
Aug																									
Sep																									
Oct																									
Nov	1	Z0	G1	J1	M1	Q1	Z1																		
Dec																									

SI	Rank Order	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan																									
Feb	1	H0	K0	N0	U0	Z0																			
Mar																									
Apr	1	K0	N0	U0	Z0																				
May																									
Jun	1	N0	U0	Z0																					
Jul																									
Aug	1	U0	Z0	H1																					
Sep																									
Oct																									
Nov	1	Z0	H1	K1	N1	Z1																			
Dec																									

Appendix B – Dow Jones RAFI Commodity Index Capped Component

The Dow Jones RAFI Commodity Index Capped Component is a version of the Dow Jones RAFI Commodity Index that maintains continuity and proportion to the Dow Jones RAFI Commodity Index component weights.

The capping procedure follows two rules[1] in succession:

1. **Only one component can reach a maximum weight of 35%.** Any excess weight is distributed proportionately among the remaining components.

2. **No remaining component's weight can exceed 20%.** Any excess weight is distributed proportionately among the remaining components.

Capping Frequency. Monthly.

Determination Date. One Dow Jones RAFI Commodity Index business day before the first monthly roll date.

Capping Excess Distribution. Distributed proportionately among the remaining components.

Components. There are 18 components, with three containing more than one commodity based on their similarity. The Dow Jones RAFI Commodity Index and its corresponding world production group are used for initial weighting purposes. The multiple commodity components are as follows:

- **Petroleum.** WTI Crude Oil, Brent Crude Oil, Gasoil, Unleaded Gasoline and Heating Oil

- **Wheat.** Chicago Wheat and Kansas Wheat

- **Cattle.** Feeder Cattle and Live Cattle

The following table lists the components:

Dow Jones RAFI Commodity Index Capped Components
Wheat (Chicago, Kansas)   Corn   Soybeans   Coffee   Sugar   Cocoa   Cotton
Lean Hogs   Cattle (Live, Feeder)
Oil (WTI Crude Oil, Brent Crude Oil, Gasoil, Heating Oil, Unleaded Gasoline)
Natural Gas
Aluminum   Copper   Lead   Nickel   Zinc
Gold   Silver

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[1] 35/20 is a means of identifying a two tiered capping model. It does not connote compliance with any regulatory regime or guideline.

Implementation

Any excess weight from a violation of rule 1 is distributed proportionally among the remaining index components.

After rule 1 is implemented, if there are any violations of rule 2 then the violating components are adjusted and the balance is distributed proportionately among the remaining index components.

In order to ensure proper implementation, CWFs are adjusted to arrive at the assigned weights for each commodity. This adjustment process takes place monthly and every time the Dow Jones RAFI Commodity Index is rebalanced, adjusted, and/or new commodities are added to or deleted from the index, in order to remain proportional with the Dow Jones RAFI Commodity Index components.

The adjustment process takes place at the beginning of each quarter.

1. On the Dow Jones RAFI Commodity Index business day before each monthly first roll date, the latest Dow Jones RAFI Commodity Index CWFs are multiplied by the commodity prices to determine the Dow Jones RAFI Commodity Index weights.

2. The commodities are aggregated into components and the components are sorted in descending order by their sector weights.

3. Any component with a weight exceeding 35% (historically the case for petroleum) is capped at 35% and the excess weight is distributed among the remaining index components.

4. Any additional component with a weight exceeding 20% is capped at 20% and the excess weight is distributed among the remaining index components. This process is repeated iteratively until all the capping rules are met.

5. The percentage weights of all commodities are converted to CWF-equivalents, based on the prices from the business day one day prior to the first roll date, using the initial Dow Jones RAFI Commodity Index weights implied by those prices and the latest Dow Jones RAFI Commodity Index CWFs.

6. This capping adjustment process takes place every month and utilizes any CWF component changes to the base index, additions, subtractions, substitutions, etc. in order to maintain continuity and proportion with the base Dow Jones RAFI Commodity Index.

Capping Formulas

At each rebalancing, CWFs are calculated as follows:

$$CWF_{capped,i} = CWF_{DJRAFI,i} * TargetWeight_j / DJRAFIWeight_j$$

where:

$CWF_{capped,i}$ = CWF for commodity i in the Dow Jones RAFI Commodity Index Capped Component as of the upcoming rebalancing.

$CWF_{DJRAFI,i}$ = CWF for commodity i in the Dow Jones RAFI Commodity Index as of the upcoming rebalancing.

$DJRAFIWeight_j$ = Weight of component j, of which commodity i is a part, in the Dow Jones RAFI Commodity Index as of the upcoming rebalancing.

$TargetWeight_j$ = Weight of component j, of which commodity i is a part, in the Dow Jones RAFI Commodity Index Capped Component as of the upcoming rebalancing.

At each rebalancing target weights are calculated as follows:

If $DJRAFIWeight_j > 35\%$, then set $TargetWeight_j = 35\%$ for the component with the highest $DJRAFIWeight_j$

For all remaining components:

$TargetWeight_j = (100\% - Capped\ Weight) * DJRAFIWeight_j / (100\% - DJRAFIWeight)$

where:

$Capped\ Weight$ = Total post-cap weight of components that have been capped.

$DJRAFIWeight$ = Total weight of the capped components in the Dow Jones RAFI Commodity Index as of the upcoming rebalancing.

For any subsequent commodities:

If $DJRAFIWeight_j > 20\%$ then $TargetWeight_j = 20\%$

For all remaining components:

$TargetWeight_j = (100\% - Capped\ Weight) * DJRAFIWeight_j / (100\% - DJRAFIWeight)$

where:

$Capped\ Weight$ = Total post-cap weight of components that have been capped.

$DJRAFIWeight$ = Total weight of the capped components in the Dow Jones RAFI Commodity Index as of the upcoming rebalancing.

This process is repeated iteratively until no more than one component has a weight greater than 20% in the index.

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