

THOMSON REUTERS/CORECOMMODITY CRB INDEX CALCULATION SUPPLEMENT

SEPTEMBER 2013



THOMSON REUTERS

Thomson Reuters/CoreCommodity CRB Index Calculation Supplement

This supplement contains the rules for calculating the Thomson Reuters/CoreCommodity CRB Index. This supplement and all information contained herein is the exclusive property of CoreCommodity Indexes, LLC or its affiliates (“CoreCommodity”) and/or Thomson Reuters (Markets) LLC or its affiliates (“Thomson Reuters”) as applicable. CoreCommodity and Thomson Reuters shall have no liability to any person or entity for the accuracy or completeness of the information contained herein.

Section 1 of this document describes how to compute each individual commodity performance series. Section 2 describes the calculation of the Thomson Reuters/CoreCommodity CRB Index, along with the rebalancing methodology. Section 3 describes the commodities and weights in the Thomson Reuters/CoreCommodity CRB Index and the included contract months for each commodity. Section 4 describes certain market disruption and emergency provisions applicable to the Thomson Reuters/CoreCommodity CRB Index. Section 5 addresses certain other issues related to ongoing index construction and calculation, including the role of the Thomson Reuters/CoreCommodity CRB Index Oversight Committee.

SEE “DISCLAIMERS” SET FORTH ON LAST PAGE OF THIS SUPPLEMENT FOR IMPORTANT RISKS AND DISCLAIMERS RELATING TO THE THOMSON REUTERS/CORECOMMODITY CRB INDEX AND THE INFORMATION CONTAINED IN THIS SUPPLEMENT.

Section 1. Computation of Individual Commodity Performance Series (“CPS”) and Percent Return Series (“PR”)

For each commodity i , a performance series (“Commodity Performance Series”) is calculated. These performance series are then used to calculate the Thomson Reuters/CoreCommodity CRB Index.

The CPS at time $t = 0$ is scaled to equal 100 while for any time t the CPS is given by:

$$CPS_{t,i} = CPS_{t-1,i} \times \left(\frac{W_{t-1,i}^F \times P_{t,i}^F + W_{t-1,i}^B \times P_{t,i}^B}{W_{t-1,i}^F \times P_{t-1,i}^F + W_{t-1,i}^B \times P_{t-1,i}^B} \right), \quad t > 0$$

for $i = 1$ to 19

where:

$CPS_{t,i}$ = Commodity Performance Series for i^{th} commodity at time t .

$W_{t,i}^F$ = Weight in the Front Month for commodity i at time t .

$W_{t,i}^B$ = Weight in the Back Month for commodity i at time t .

$P_{t,i}^F$ = Price of the Front Month Futures Contract for Commodity i at time t .

and

$P_{t,i}^B$ = Price of the Back Month Futures Contract for Commodity i at time t .

N.B.:

- 1) The performance series for each commodity reflects a constant dollar investment such that the rolling of the futures contracts requires neither the addition nor withdrawal of funds.
- 2) The Front Month, or the Active Contract, is the month closer to expiration; the Back Month becomes the Front Month when the Back Month weight reaches 100%.
- 3) All values throughout this document are rounded to six decimal places.
- 4) All commodity contracts roll over the first four Business Days of the month such that the weight in the Front Month at the end of the first rollover day is 75% and the weight in the Back Month is 25%. The weight shifts from the Front Month to the Back Month by 25% per rollover day until the Back Month reaches 100% at the end of the fourth Business Day. (See Section 4 for information regarding rollover disruption events.)

The CPS are then used to construct the Percent Return Series (“PR”) for each commodity.

Section 2. Computation of the Thomson Reuters/CoreCommodity CRB Index

The Thomson Reuters/CoreCommodity CRB Index_t, is the Thomson Reuters/CoreCommodity CRB Index at time t, which is simply the sum of all the PR, viz.,

$$\text{Thomson Reuters/CoreCommodity CRB Index}_t = \sum_{i=1}^{19} PR_{t,i}$$

At the close of business on June 17, 2005, the value of the Thomson Reuters/CoreCommodity CRB Index, the Thomson Reuters/CoreCommodity CRB Total Return Index and each PR was as follows:

Thomson Reuters/CoreCommodity CRB Index	310.982965
Thomson Reuters/CoreCommodity CRB Total Return Index	272.908736
WTI Crude Oil	74.947877
Unleaded Gas (now RBOB Gasoline)	16.239293
Heating Oil	15.775786
Natural Gas	19.613922
Corn	18.816349
Soybeans	19.456962
Live Cattle	17.079943
Gold	18.349545
Aluminum	18.247679
Copper	18.594517
Sugar	15.075189
Cotton	14.953757
Cocoa	15.743277
Coffee	13.179630
Nickel	3.031574
Wheat	3.086284
Lean Hogs	2.824855
Orange Juice	3.055826
Silver	2.910700

Subsequent values of each PR are computed as follows:

$$PR_{t,i} = PR_{t-1,i} \times (CPS_{t,i} / CPS_{t-1,i})$$

At the end of the sixth Business Day¹ of each month, the Thomson Reuters/CoreCommodity CRB Index is rebalanced and the PR for each commodity is rescaled such that:

$$PR_i = W_i \times \text{Thomson Reuters/CoreCommodity CRB Index}$$

for i = 1 to 19

where:

W_i = Index weight of commodity i, such that $0 \leq W_i \leq 1, \forall i$ and $\sum_{i=1}^{19} W_i = 1$.

and the value of each PR at the end of the seventh Business Day is equal to:

$$PR_{r,i} = \text{Thomson Reuters/CoreCommodity CRB Index}_{r-1} \times W_i \times (CPS_{r,i} / CPS_{r-1,i})$$

where r is defined as the seventh Business Day of the month.

The Thomson Reuters/CoreCommodity CRB Index Total Return includes a risk-free rate of return that is reinvested into the Index and is calculated as follows:

$$\text{Index TR}_t = \text{Index TR}_{t-1} \times \left[TB_t + \frac{\text{Index}_t}{\text{Index}_{t-1}} \right] \times (TB_t + 1)^{\text{Days}-1}$$

where:

Days = The number of calendar days between time t and time t - 1.

$$TB_t = \left[\frac{1}{1 - \frac{91}{360} \times TBR_{t-1}} \right]^{\frac{1}{91}} - 1$$

and

TBR_{t-1} = 91 day Treasury Bill rate at time t - 1.

¹ Business Day is defined as any day on which the New York Mercantile Exchange is open for business.

Section 3. Thomson Reuters/CoreCommodity CRB Index Composition

This Section presents the commodities included in the Thomson Reuters/CoreCommodity CRB Index and their respective weightings in the Index.

Commodities Included in the Thomson Reuters/CoreCommodity CRB Index

	Commodity	Index Weight	Contract Months	Exchange
Group I	WTI Crude Oil	23%	Jan - Dec	NYMEX
	Heating Oil	5%	Jan - Dec	NYMEX
	RBOB Gasoline	5%	Jan - Dec	NYMEX
	Total	33%		
Group II	Natural Gas	6%	Jan - Dec	NYMEX
	Corn	6%	Mar, May, Jul, Sep, Dec	CBOT
	Soybeans	6%	Jan, Mar, May, Jul, Nov	CBOT
	Live Cattle	6%	Feb, Apr, Jun, Aug, Oct, Dec	CME
	Gold	6%	Feb, Apr, Jun, Aug, Dec	COMEX
	Aluminum	6%	Mar, Jun, Sep, Dec	LME
	Copper	6%	Mar, May, Jul, Sep, Dec	COMEX
	Total	42%		
Group III	Sugar	5%	Mar, May, Jul, Oct	NYBOT
	Cotton	5%	Mar, May, Jul, Dec	NYBOT
	Coffee	5%	Mar, May, Jul, Sep, Dec	NYBOT
	Cocoa	5%	Mar, May, Jul, Sep, Dec	NYBOT
	Total	20%		
Group IV	Nickel	1%	Mar, Jun, Sep, Dec	LME
	Wheat	1%	Mar, May, Jul, Sep, Dec	CBOT
	Lean Hogs	1%	Feb, Apr, Jun, Jul, Aug, Oct, Dec	CME
	Orange Juice	1%	Jan, Mar, May, Jul, Sep, Nov	NYBOT
	Silver	1%	Mar, May, Jul, Sep, Dec	COMEX
	Total	5%		

Active Contract Month by Calendar Month

Commodity	Exchange	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WTI Crude Oil	NYMEX	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Heating Oil	NYMEX	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
RBOB Gasoline	NYMEX	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Natural Gas	NYMEX	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Corn	CBOT	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Soybeans	CBOT	Mar	Mar	May	May	Jul	Jul	Nov	Nov	Nov	Nov	Jan	Jan
Live Cattle	CME	Feb	Apr	Apr	Jun	Jun	Aug	Aug	Oct	Oct	Dec	Dec	Feb
Gold	COMEX	Feb	Apr	Apr	Jun	Jun	Aug	Aug	Dec	Dec	Dec	Dec	Feb
Aluminum	LME	Mar	Mar	Jun	Jun	Jun	Sep	Sep	Sep	Dec	Dec	Dec	Mar
Copper	COMEX	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Sugar	NYBOT	Mar	Mar	May	May	Jul	Jul	Oct	Oct	Oct	Mar	Mar	Mar
Cotton	NYBOT	Mar	Mar	May	May	Jul	Jul	Dec	Dec	Dec	Dec	Dec	Mar
Cocoa	NYBOT	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Coffee	NYBOT	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Nickel	LME	Mar	Mar	Jun	Jun	Jun	Sep	Sep	Sep	Dec	Dec	Dec	Mar
Wheat	CBOT	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Lean Hogs	CME	Feb	Apr	Apr	Jun	Jun	Jul	Aug	Oct	Oct	Dec	Dec	Feb
Orange Juice	NYBOT	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
Silver	COMEX	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar

Section 4. Market Disruption Provisions

Rollover Disruptions

A Rollover Disruption Event (“RDE”) is defined as any day, on which a commodity is scheduled to roll, in which either: 1) the front month or back month contracts for the commodity settle at the daily maximum or minimum price as determined by the rules for the relevant exchange, or 2) the exchange fails to publish an official settlement price for the commodity, or 3) the exchange on which the commodity trades is not scheduled to be open.

If a RDE occurs for any commodity, that portion of the rollover *for that commodity only* which was scheduled to occur on that day will be deferred until the next Business Day upon which no RDE occurs for that commodity. For example, if a RDE occurred on the first day upon which corn was scheduled to roll, then the amount to be rolled on the second day would increase to 50%. If a second and third consecutive RDE occurred on the next two days upon which corn was scheduled to roll then the entire roll would take place at the end of the first Business Day in which there was no RDE. These hypothetical rollover disruptions in corn would have no impact on the rollover schedule for other commodities in the Thomson Reuters/CoreCommodity CRB Index.

Rebalancing Disruptions

If, on any date the Thomson Reuters/CoreCommodity CRB Index is scheduled to rebalance (defined above as the 6th Business Day of each month), an official settlement price for any one or more of the commodities in the Thomson Reuters/CoreCommodity CRB Index is unavailable, then the price used in rebalancing the Thomson Reuters/CoreCommodity CRB Index for those commodities will be the price on the previous Business Day upon which a price is available. In the event any one or more individual commodities settle at the daily maximum price or the daily minimum price, that price will be used for the purpose of rebalancing the Index.

Market Emergencies

A “Market Emergency” is herein defined as any unscheduled and extraordinary condition in which market liquidity is interrupted (such as an event resulting in the unscheduled closing of one or more futures exchanges). Should a Market Emergency occur, the Thomson Reuters/CoreCommodity CRB Index Oversight Committee reserves the right to take such action with respect to the Thomson Reuters/CoreCommodity CRB Index, as it deems appropriate given the circumstances. The Thomson Reuters/CoreCommodity CRB Index Oversight Committee will attempt to notify interested parties of any such actions as well in advance as is practicable. There is no assurance, however, that a Market Emergency, the actions taken in response to such Market Emergency, or any other force majeure event, will not have an adverse effect on the value of the Thomson Reuters/CoreCommodity CRB Index or the manner in which it is calculated.

Section 5. Ongoing Index Calculation and the Thomson Reuters/CoreCommodity CRB Index Oversight Committee

The role of the Thomson Reuters/CoreCommodity CRB Index Oversight Committee (the “Committee”) is to meet on an annual basis (and from time to time if necessary) in order to review and/or modify the operation and calculation of the Thomson Reuters/CoreCommodity CRB Index and procedures relating thereto, and to review proposals by CoreCommodity or Thomson Reuters to modify the Thomson Reuters/CoreCommodity CRB Index. The Committee will be comprised of 4 persons, appointed by CoreCommodity and Thomson Reuters. Committee members will be chosen in order to bring expertise from a wide variety of backgrounds. Modifications to the Thomson Reuters/CoreCommodity CRB Index shall be subject to approval by the Committee. The Committee will have a significant degree of discretion with regard to the operation and calculation of the Thomson Reuters/CoreCommodity CRB Index and may exercise its discretion, as it deems appropriate.

Disclaimers

Thomson Reuters/CoreCommodity CRB Index ("TR/CC-CRB")

This information, including the Thomson Reuters/CoreCommodity CRB Index and related indices and sub-indices (collectively the "TR/CC-CRB") and materials relating thereto, is the property of Thomson Reuters (Markets) LLC, or its affiliates ("Thomson Reuters") and/or CoreCommodity Indexes, LLC, or its affiliates ("CoreCommodity"). It may not be used to create, offer, trade, market or promote any financial products without the express written consent of CoreCommodity and Thomson Reuters. All historical data for the TR/CC-CRB before June 17, 2005 are simulated by applying the index construction and methodology as of June 17, 2005 to available historical futures values. The simulated data do not reflect the actual performance of the index as it was constructed at the time of reporting index values. Instead, the simulated historical values reflect the index construction and methodology as of June 17, 2005 which were designed with the benefit of hindsight. None of CoreCommodity, Thomson Reuters or any other of their subsidiaries or affiliates makes any representations as to their accuracy or completeness. Certain techniques such as interpolation and estimation were employed where data was unavailable. Simulated historical returns do not reflect the impact (if any) of market disruption or market emergency events. Simulated historical returns do not reflect the impact that material changes in the underlying markets might have had on the decisions to use or continue using certain commodities and weightings in the TR/CC-CRB. All simulated historic data for the TR/CC-CRB is based on fixed weights and rollover and rebalancing schedules. The historical data used for simulated returns for sub-indices was not in all cases the same data used for the full index or indices. None of CoreCommodity, Thomson Reuters or any of their subsidiaries or affiliates shall have any liability, contingent or otherwise, to any person or entity for the quality, accuracy, timeliness and/or completeness of the information contained herein, the TR/CC-CRB, or for delays, errors, omissions or interruptions in the publication of the TR/CC-CRB or any related data. CoreCommodity and Thomson Reuters may discontinue operation of the TR/CC-CRB and may discontinue disseminating information about the TR/CC-CRB at any time without prior notice. Thomson Reuters and CoreCommodity may, but are not required to, use agents to perform some or all of the functions relating to operating the TR/CC-CRB, such as but not limited to the functions of calculating and disseminating index values. CoreCommodity may operate and market other indices that may compete with the TR/CC-CRB. CoreCommodity and its affiliates and their respective directors, officers and employees may buy or sell securities or commodities mentioned or contemplated herein as agent or as principal for their own account and may have positions or engage in transactions based on or indexed to the TR/CC-CRB. It is possible that CoreCommodity's trading activity will affect the value of the TR/CC-CRB. CoreCommodity, Thomson Reuters and their subsidiaries and affiliates do not guarantee the accuracy, timeliness or completeness of the TR/CC-CRB or any information, material or data related thereto. CoreCommodity, Thomson Reuters and their subsidiaries and affiliates including directors, officers and employees, with respect to use of this material or the TR/CC-CRB, including but not limited to the trading of or investments in products based on or related to the TR/CC-CRB, (a) make no warranty, express or implied, as to the results to be obtained by any person or entity, (b) make no warranty, express or implied, and expressly disclaim any warranty or merchantability or fitness for a particular purpose, and (c) without limiting any of the foregoing, shall have no liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits), even if notified of the possibility of such damages. Certain third parties, pursuant to license agreements with CoreCommodity and Thomson Reuters, may create, offer, trade, market and promote financial products or transactions based on, indexed to, or calculated with regard to, the TR/CC-CRB (the "Third Party Products"). CoreCommodity, Thomson Reuters and their subsidiaries and affiliates do not sponsor or endorse any Third Party Products, except as expressly and duly acknowledged by the applicable CoreCommodity or Thomson Reuters entity, and may operate the TR/CC-CRB without regard to the possible effects on such Third Party Products. This is not an offer or solicitation of an offer to buy or sell any security or investment. Past performance of the TR/CC-CRB is not necessarily indicative of future results. For a more complete description of the TR/CC-CRB, reference is made to the TR/CC-CRB Calculation Supplement. For more information, please contact Thomson Reuters (care of index_queries@thomsonreuters.com) or CoreCommodity Indexes at Indexes@CoreCommodityllc.com.

© 2013, CoreCommodity Indexes, LLC and Thomson Reuters (Markets) LLC