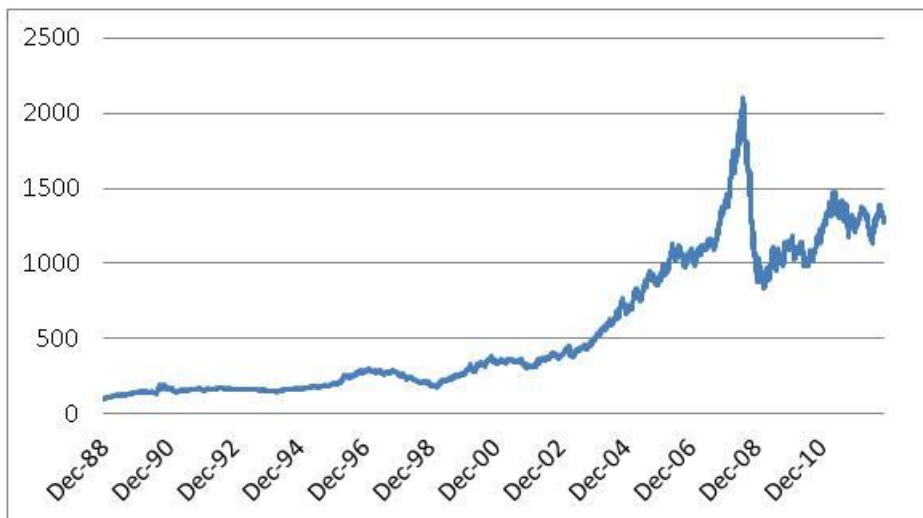


DBIQ Optimum Yield Diversified Commodity Index

Summary

- *DBIQ Optimum Yield Diversified Commodity Index is based on 14 commodities drawn from the energy, precious metals, industrial metals and agriculture sectors.*
- *The 14 sub index components of the index are Aluminum, Brent Crude, Copper, Corn, Gold, Heating Oil, Light Crude, Natural Gas, RBOB Gasoline, Silver, Soybean, Sugar, Wheat and Zinc*
- *Deutsche Bank Liquid Commodities Indices Optimum Yield (DBLCI-OY) are designed to maximize potential roll returns by selecting, for each commodity, the futures contract with the highest implied roll yield.*
- *The index aims to maximize the potential roll benefits in backwardated markets and minimize the loss from rolling down the curve in contango markets*
- *This index rebalances yearly to fixed weights on the 6th Business day of November according to the index holiday calendar*

Historical Index Performance



Source: Deutsche Bank

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Index Description

DBIQ Optimum Yield Diversified Commodity Index is based on 14 commodities drawn from the energy, precious metals, industrial metals and agriculture sectors. The 14 index components of the index are Aluminum, Brent Crude, Copper, Corn, Gold, Heating Oil, Light Crude, Natural Gas, RBOB Gasoline, Silver, Soybean, Sugar, Wheat and Zinc

The Deutsche Bank Optimum Yield Diversified Commodity Index employs a rule based approach for each of its index components when it 'rolls' from one futures contract to another for each commodity in the index. Rather than select the new future based on a predefined schedule (e.g. monthly) the index rolls to that future (from the list of tradable futures which expire in the next thirteen months) which generates the maximum implied roll yield. The index aims to maximize the potential roll benefits in backwardated markets and minimize the loss from rolling down the curve in contango markets.

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. Assuming a flat spot price, this results in the future price falling. 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 selected index future contract is rolled to a new contract, when the existing contract is close to expiry. For full details on the roll convention refer to Contract Selection section.

The benchmark DBIQ Optimum Yield Diversified Commodity Index is a yearly rebalanced to fixed weights index of the 14 individual commodity index components.

The index is calculated on each index business day using the exchange closing prices. Index business days are defined as days on which the New York Mercantile Exchange (NYMEX) is open for business.

Index Rebalancing and Weighting

The main index is rebalanced yearly on the 5th business day of November each year according to the index holiday calendar. The index rebalances its index components to fixed base weights as shown in the table below

Commodity	Base Weight
Aluminum	4.167%
Brent Crude	12.375%
Copper - Grade A	4.167%
Corn	5.625%
Gold	8.000%
Heating Oil	12.375%
Light Crude	12.375%
Natural Gas	5.500%
RBOB Gasoline	12.375%
Silver	2.000%
Soybeans	5.625%
Sugar #11	5.625%
Wheat	5.625%
Zinc	4.167%

DBIQ Optimum Yield Diversified Commodity Index Calculation

The benchmark index is re-weighted on an annual basis on the 6th business day of November. The index level calculation is the same for both excess and total returns in all currencies. It is expressed as the weighted average return of the underlying component indices.

$$IL(t,rt) = \left(\sum_{cf} \frac{CIL(t,rt,cf)}{CIL(d,rt,cf)} * w(d,cf) \right) * IL(d,rt)$$

Where

IL (t,rt)	= Index level on day t with return type rt
IL(d,rt)	= Index level on last rebalancing day d with return type rt
CIL(t,rt)	= Component index level for commodity cf on day t with return type rt
CIL(d,rt)	= Component index level for commodity cf on last rebalancing day d with return type rt
W(d,rt)	= Base Weight of commodity cf on last rebalancing day d

Component Index Calculation

For each component index the excess return is equal to the percentage change of the underlying commodity futures market values. The indices have two contracts throughout roll periods and one contract on other days. The index return is equal to the change in current atoms index levels multiplied by the relevant holdings.

The excess return index level is expressed as

$$CIL(t,er) = \frac{\sum_i PC(t,i) * N(t-1,i)}{\sum_i PC(t-1,i) * N(t-1,i)} * CIL(t-1,er)$$

Where

CIL (t,er)	= Component Excess Return Index level on day t
CIL (t-1,er)	= Component Excess Return Index level on day t-1
PC(t,i)	= Close price of commodity future i on day t
PC(t-1,i)	= Close price of commodity future i on index calculation day t-1
N(t-1,i)	= Notional holdings of commodity future i on index calculation day t-1

The total return index level is expressed as

$$CIL(t,tr) = \left(\frac{CIL(t,er)}{CIL(t-1,er)} + Rt(t) \right) * (1 + Rt(t))^{d(t,t-1)} * CIL(t-1,tr)$$

$$Rt(t) = \left(1 - \frac{91}{360} y(t-1) \right)^{-\left(\frac{1}{91}\right)} - 1$$

Where

CIL(t,tr)	= Total Return Index level on day t
CIL(t-1,tr)	= Total Return Index level on day t-1
Rt(t)	= T-bill return on day t
d(t,t-1)	= Number of calendar days between day t and index calculation day t-1 excluding day t
y(t-1)	= 3-month benchmark T-bill yield on index calculation day t-1

Contract Selection

For each component index on the first index business day of each month (the "Verification Date") each commodity futures contract currently in the index is tested for continued inclusion in the index based on the month in which the contract delivery of the underlying commodity can start (the "Delivery Month"). If, on the Verification Date, the Delivery Month is the next month, a new contract is selected.

For each component index, the new commodity futures contract selected will be the contract with the maximum "implied roll yield" based on the closing price for each eligible contract. Eligible contracts are any contracts having a Delivery Month (i) no sooner than the month after the Delivery Month of the commodity future currently in the index, and (ii) no later than the 13th month after the Verification Date. The contract with the maximum roll yield is selected. If two contracts have the same roll yield the contract with the minimum number of months to the exchange expiry month is selected.

The implied roll yield is expressed as:

$$Y(t, i) = \left(\frac{PC(t, b)}{PC(t, i)} \right)^{\left(\frac{1}{F(t, i, b)} \right)} - 1$$

Where

- Y(t,i) = On any day t, the implied roll yield for entering into the commodity futures contract with expiration month i
- PC(t,b) = Closing price of the base commodity future b
- PC(t,i) = Closing price of any eligible futures contract i
- F(t,i,b) = Fraction of year between the base futures contract b and the futures contract with expiration month i. Calculated as number of calendar days between dates divided by 365

Monthly Index Roll Period

For each component index if the current index holding no longer meets the inclusion criteria the monthly index roll unwinds the old contact holding and enters a position in the new contract. This takes place between the 2nd and 6th business day of the month.

On each day during the roll period the new notional holdings are calculated. The calculations for the old commodities that are leaving the index and the new commodities that are entering are different.

The notional of the old commodity contract i is expressed as:

$$N(t, i) = N(t - 1, i) * \frac{6 - db(t)}{7 - db(t)}$$

The notional of the new commodity contract j is expressed as:

$$N(t, j) = N(t - 1, j) + \frac{PC(t, i) * N(t - 1, i)}{PC(t, j) * (7 - db(t))}$$

Where

- N(t-1,i) = Notional holding of old commodity future i on index calculation day t-1
- N(t,i) = Notional holding of old commodity future i on index calculation day t
- N(t-1,j) = Notional holding of new commodity future j on index calculation day t-1
- N(t,j) = Notional holding of new commodity future j on index calculation day t
- db(t) = Number of index business days in the month up to and including day t

If the current index holding continues to meet the inclusion criteria, no roll occurs and the notional holding is kept constant. Similarly on all days that are not monthly index roll days the notional holding of each commodity future remains constant.

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

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