

dbIQ Standard Index of Indices Calculations

Introduction

This document outlines standard DB index calculations applied to distinct index methods. It supplements the index guide or description, providing transparency on the exact calculations used.

The standard index calculations cover methods that combine or convert one or more input indices into a new index.

Index Administrator

The Index will be governed by the Index Administrator. The initial Index Administrator shall be Deutsche Bank AG, London Branch operating through Deutsche Bank Index Quant (DBIQ), an independent research unit within Deutsche Bank. The Index Administrator controls the creation and operation of the Index administrative process, including all stages and processes involved in the production and dissemination of the Index.

The initial Index Administrator has implemented and maintains the DBIQ User Guidance and Administrator Handbook Overview, which sets out a summary of the policies, procedures and controls implemented by the management of the Index Administrator to promote sound business practices for the lifecycle management of the index owner's (Deutsche Bank AG, London Branch) proprietary benchmarks by the Index Administrator. The Overview also includes the Index Administrator's policy related to quality of benchmarks and input data management. Additional issues related to governance, controls, benchmark classification and risk controls, periodic reviews and conflicts of interest are also addressed.

The DBIQ User Guidance and Administrator Handbook Overview is available on the DBIQ homepage under the following URL:

<https://index.db.com>

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Excess to Total Return Index Method 1

The aim of the Excess to Total Return Index is to convert an excess return index into a total return index. This is achieved by combining the excess return performance with a total return leg. The total return leg is typically an index reflecting the performance of a money market rate.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Excess Return Index – See index specific document

Input Total Return Index – See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t, the Total Return Index level is expressed as

$$ILTR(t) = IL(ITR, t) * U(ITR, r) + [IL(IER, t) - IL(IER, r)] * U(IER, r)$$

On a rebalancing date the unit holdings are expressed as

$$U(ITR, t) = \frac{ILTR(t)}{IL(ITR, t)}$$

$$U(IER, t) = \frac{ILTR(t)}{IL(IER, t)}$$

Where:

ILTR(t) = Index Level of Total Return Index on day t

IL(ITR, t) = Index Level of Input Total Return Index ITR on day t

IL(IER, t) = Index Level of Input Excess Return Index IER on day t

U(ITR, t) = Unit holding of Input Total Return Index ITR on day t

U(IER, t) = Unit holding of Input Excess Return Index IER on day t

t = Index calculation day t

r = Last index rebalancing day r

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Total Return Running Cost Method 1

The aim of the Total Return Running Cost Index is to apply a cost that accrues on a daily basis against the performance of a total return index.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Total Return Index – See index specific document

Run Cost – See index specific document, expressed as a negative number

Day Count – See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t, the Total Return Index level is expressed as

$$ILTR(t) = IL(ITR, t) * U(ITR, r) * \left(1 + \frac{RC * d(r, t)}{DC}\right)$$

On a rebalancing date the unit holdings are expressed as

$$U(ITR, t) = \frac{ILTR(t)}{IL(ITR, t)}$$

Where:

ILTR(t) = Index Level of Total Return Index on day t

IL(ITR, t) = Index Level of Input Total Return Index ITR on day t

U(ITR, t) = Unit holding of Input Total Return Index ITR on day t

RC = Run cost

d(r,t) = Number of calendar days from but excluding last index rebalancing date r and to index calculation day t

DC = Day count

t = Index calculation day t

r = Last index rebalancing day r

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Total Return Running Cost Method 2

The aim of the Total Return Running Cost Index is to apply a cost that accrues on a daily basis against the performance of a total return index.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Total Return Index – See index specific document

Run Cost – See index specific document, expressed as a negative number

Day Count – See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t, the Total Return Index level is expressed as

$$ILTR(t) = IL(ITR, t) * U(ITR, r) + ILTR(r) * \left(\frac{RC * d(r, t)}{DC} \right)$$

On a rebalancing date the unit holdings are expressed as

$$U(ITR, t) = \frac{ILTR(t)}{IL(ITR, t)}$$

Where:

ILTR(t) = Index Level of Total Return Index on day t

IL(ITR, t) = Index Level of Input Total Return Index ITR on day t

U(ITR, t) = Unit holding of Input Total Return Index ITR on day t

RC = Run cost

d(r,t) = Number of calendar days from but excluding last index rebalancing date r and to index calculation day t

DC = Day count

t = Index calculation day t

r = Last index rebalancing day r

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Total Return FX Un-Hedged Method 1

The aim of the Total Return FX Un-Hedged Index is to convert a total return index from its base currency to the currency of the Total Return FX Un-Hedged Index.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Total Return Index – See index specific document

Input Index Currency – See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t, the Total Return Index level is expressed as

$$ILTR(t) = IL(ITR, t) * U(ITR, r) * FX(IIC, IC, t)$$

On a rebalancing date the unit holdings are expressed as

$$U(ITR, t) = \frac{ILTR(t)}{IL(ITR, t) * FX(IIC, IC, t)}$$

Where:

ILTR(t) = Index Level of Total Return Index on day t

IL(ITR, t) = Index Level of Input Total Return Index ITR on day t

U(ITR, t) = Unit holding of Input Total Return Index ITR on day t

FX(IIC, IC, t) = Mid FX rate quoted as units of Index currency IC per unit of Input Index Currency on day t. FX sourcing data is available in DBIQ FX Source and Process Section

t = Index calculation day t

r = Last index rebalancing day r

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Total Return FX Hedged Method 1

The aim of the Total Return FX Hedged Index is use an FX forward to hedge the index value at the rebalancing date whilst converting a total return index from its base currency to the currency of the Total Return FX Hedged Index. A position in the FX Forward is purchased on each rebalancing date with the expiry of the FX forward being the preceding rebalancing date.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Total Return Index – See index specific document

Input Index Currency – See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

FX settlement convention - See index specific document

For a calculation day t, the Total Return Index level is expressed as

$$ILTR(t) = IL(ITR, t) * U(ITR, r) * FX(IIC, IC, t) + FXH(t) * UFXH(r)$$

On a rebalancing date the unit holdings are expressed as

$$U(ITR, t) = \frac{ILTR(t)}{IL(ITR, t) * FX(IIC, IC, t)}$$

$$UFXH(t) = \frac{ILTR(t)}{100}$$

The FX Hedge is marked-to-market with the underlying hedge performance being accrued

$$FXH(t) = \left[\frac{FXF(IIC, IC, r, r') - FX(IIC, IC, r)}{FX(IIC, IC, t)} * \frac{d(s(r), s(t))}{d(s(r), s(r'))} - \frac{FX(IIC, IC, t) - FX(IIC, IC, r)}{FX(IIC, IC, r)} \right] * 100$$

Where:

ILTR(t) = Index Level of Total Return Index on day t

IL(ITR, t) = Index Level of Input Total Return Index ITR on day t

U(ITR, t)	= Unit holding of Input Total Return Index ITR on day t
FX(IIC,IC,t)	= Mid FX rate quoted as units of Index currency IC per unit of Input Index Currency on day t. FX sourcing data is available in DBIQ FX Source and Process Section
FXH(t)	= FX Forward mark-to-market on day t
UFXH(t)	= Unit holding of FX Forward on day t
FXF(IIC,IC,r,r')	= Mid FX forward rate quoted as units of Index currency IC per unit of Input Index Currency on rebalancing day r for period to next rebalancing day r'. FX sourcing data is available in DBIQ FX Source and Process Section
d(s(r),s(t))	= Number of calendar days from but excluding last index rebalancing FX settlement date s(r) and to index calculation FX settlement day s(t)
s(t)	= Settlement date for calculation day t based on FX settlement convention
t	= Index calculation day t
r	= Last index rebalancing day r
r'	= Rebalancing date preceding last index rebalancing day r

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Total Return Index of Indices Method 1

The aim of the Total Return Index of Indices is to represent the aggregate performance of a combination of a number of input total return indices. The allocations to these indices are defined in the specific index documentation.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Total Return Index i – See index specific document

Target Weight for Input Total Return Index i on date s - See index specific document

Number of input indices - See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t, the Total Return Index level is expressed as

$$ILTR(t) = \sum_{i=1}^n IL(i, t) * U(i, r)$$

On a rebalancing date the unit holdings are expressed as

$$U(i, t) = \frac{TW(i, s) * ILTR(t)}{IL(i, t)}$$

Where:

ILTR(t) = Index Level of Total Return Index on day t

IL(ITR, t, i) = Index Level of Input Total Return Index i on day t

$U(ITR, t, i)$	= Unit holding of Input Total Return Index i on day t
$TW(i,s)$	= Target weight for Input Total Return Index i on selection date s
t	= Index calculation day t
r	= Last index rebalancing day r
s	= Selection date
n	= Number of input indices

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Total to Excess Return Index Method 1

The aim of the Total to Excess Return Index is to convert a total return index into an excess return index. This is achieved by taking a long position in the total return index and an offsetting short position in a total return funding leg. The total return funding leg is typically an index reflecting the performance of a money market rate.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Total Return Index – See index specific document

Input Funding Total Return Index - See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t , the Total Return Index level is expressed as

$$ILER(t) = IL(ITR, t) * U(ITR, r) + IL(FITR, t) * U(FITR, r) + ILER(r)$$

On a rebalancing date the unit holdings are expressed as

$$U(ITR, t) = \frac{ILER(t)}{IL(ITR, t)}$$

$$U(FITR, t) = -\frac{ILER(t)}{IL(FITR, t)}$$

Where:

$ILER(t)$	= Index Level of Excess Return Index on day t
$IL(ITR, t)$	= Index Level of Input Total Return Index ITR on day t
$IL(FITR, t)$	= Index Level of Input Funding Total Return Index FITR on day t
$U(ITR, t)$	= Unit holding of Input Total Return Index ITR on day t
$U(FITR, t)$	= Unit holding of Input Funding Total Return Index FITR on day t
t	= Index calculation day t
r	= Last index rebalancing day r

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Excess Return Running Cost Method 1

The aim of the Excess Return Running Cost Index is to apply a cost that accrues on a daily basis against the performance of an excess return index.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Excess Return Index – See index specific document

Run Cost – See index specific document, expressed as a negative number

Day Count – See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t, the Excess Return Index level is expressed as

$$ILER(t) = [ILER(r) + (IL(IER, t) - IL(IER, r)) * U(IER, r)] * \left(1 + \frac{RC * d(r, t)}{DC}\right)$$

On a rebalancing date the unit holdings are expressed as

$$U(IER, t) = \frac{ILER(t)}{IL(IER, t)}$$

Where:

ILER(t) = Index Level of Excess Return Index on day t

IL(IER, t) = Index Level of Input Excess Return Index IER on day t

U(IER, t) = Unit holding of Input Excess Return Index IER on day t

RC = Run cost

d(r,t) = Number of calendar days from but excluding last index rebalancing date r and to index calculation day t

DC = Day count

t = Index calculation day t

r = Last index rebalancing day r

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Excess Return Running Cost Method 2

The aim of the Excess Return Running Cost Index is to apply a cost that accrues on a daily basis against the performance of an excess return index.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Excess Return Index – See index specific document

Run Cost – See index specific document, expressed as a negative number

Day Count – See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t, the Excess Return Index level is expressed as

$$ILER(t) = (IL(IER, t) - IL(IER, r)) * U(IER, r) + ILER(r) * \left(1 + \frac{RC * d(r, t)}{DC}\right)$$

On a rebalancing date the unit holdings are expressed as

$$U(IER, t) = \frac{ILER(t)}{IL(IER, t)}$$

Where:

ILER(t) = Index Level of Excess Return Index on day t

IL(IER, t) = Index Level of Input Excess Return Index IER on day t

U(IER, t) = Unit holding of Input Excess Return Index IER on day t

RC = Run cost

d(r,t) = Number of calendar days from but excluding last index rebalancing date r and to index calculation day t

DC = Day count

t = Index calculation day t

r = Last index rebalancing day r

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Excess Return FX Hedged Method 1

The aim of the Excess Return FX Hedged Index is to convert an excess return index from its base currency to the currency of the Excess Return FX Un-Hedged Index. This is achieved by converting the performance of the excess return index since the last rebalancing date into the target index currency. As this is an excess return index no notional investment is made and is not subject to FX risk.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Excess Return Index – See index specific document

Input Index Currency – See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t, the Excess Return Index level is expressed as

$$ILER(t) = (IL(IER, t) - IL(IER, r)) * U(IER, r) * FX(IIC, IC, t) + ILER(r)$$

On a rebalancing date the unit holdings are expressed as

$$U(IER, t) = \frac{ILER(t)}{IL(IER, t) * FX(IIC, IC, t)}$$

Where:

ILER(t) = Index Level of Excess Return Index on day t

IL(IER, t) = Index Level of Input Excess Return Index IER on day t

U(IER, t) = Unit holding of Input Excess Return Index IER on day t

FX(IIC, IC, t) = Mid FX rate quoted as units of Index currency IC per unit of Input Index Currency on day t. FX sourcing data is available in DBIQ FX Source and Process Section

t = Index calculation day t

r = Last index rebalancing day r

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Excess Return Leveraged Method 1

The aim of the Excess Return Leveraged Index is to apply leverage against the performance of an excess return index. This is achieved by adjusting the notional investment in the excess return index to achieve the desired leverage percentage. If the leverage percentage is negative the Excess Return Leveraged Index reflects a short position.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Excess Return Index – See index specific document

Leverage Percentage – See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t, the Excess Return Index level is expressed as

$$ILER(t) = (IL(IER, t) - IL(IER, r)) * U(IER, r) + ILER(r)$$

On a rebalancing date the unit holdings are expressed as

$$U(IER, t) = \frac{LP * ILER(t)}{IL(IER, t)}$$

Where:

ILER(t)	= Index Level of Excess Return Index on day t
IL(IER, t)	= Index Level of Input Excess Return Index IER on day t
U(IER, t)	= Unit holding of Input Excess Return Index IER on day t
LP	= Leverage percentage LP
t	= Index calculation day t
r	= Last index rebalancing day r

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Excess Return Target Volatility Method 1

The aim of the Excess Return Target Volatility Index is to apply leverage or de-leverage against the performance of an excess return index to achieve a target volatility level. The investment ratio is set on each selection date by observing the historic realised volatility and comparing this to the desired volatility. If the desired volatility is higher than the realised volatility a leveraged position is applied. If the desired volatility is lower than the realised volatility a de-leveraged position is applied. The leverage or de-leverage position is subject to a minimum and maximum value as defined in the specific index rules.

This is achieved by adjusting the notional investment in the excess return index to achieve the desired leverage percentage. If the leverage percentage is negative the Excess Return Leveraged Index reflects a short position.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Excess Return Index – See index specific document

Target Volatility – See index specific document

Maximum Allocation – See index specific document

Minimum Allocation – See index specific document

Volatility Rounding Precision – See index specific document

Lookback Method – See index specific document

Lookback Value n - See index specific document

Return Method - See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t, the Excess Return Index level is expressed as

$$ILER(t) = (IL(IER, t) - IL(IER, r)) * U(IER, r) + ILER(r)$$

On a rebalancing date the unit holdings are expressed as

$$U(IER, t) = \frac{TW(s) * ILER(t)}{IL(IER, t)}$$

On a selection date the target weight is calculated as

$$TW(s) = Max \left[Min \left[\frac{TV}{RV(s)}, MaxA \right], MinA \right]$$

The realised volatility RV(s) is calculated as

$$RV(s) = Round(STDEV(s) * \sqrt{252}, rn)$$

The standard deviation is calculated as

$$STDEV(s) = \sqrt{\frac{\sum_{i=d}^s (IR(i) - IRM(s))^2}{n - 1}}$$

The mean is calculated as

$$IRM(s) = \frac{\sum_{i=d}^s IR(i)}{n}$$

Where the Return Method is standard the index return is calculated as

$$IR(i) = \frac{ILER(i)}{ILER(i - 1)} - 1$$

Where the Return Method is lognormal the index return is calculated as

$$IR(i) = \ln \left(\frac{ILER(i)}{ILER(i - 1)} \right)$$

Where the Lookback Method is selection dates the sample start date d is defined as the index business day immediately following the selection date falling n selection dates period to the current selection date.

Where the Lookback Method is index business day the sample start date d is defined as the index business date immediately following the selection date minus n index business days.

Where:

ILER(t)	= Index Level of Excess Return Index on day t
IL(IER, t)	= Index Level of Input Excess Return Index IER on day t
U(IER, t)	= Unit holding of Input Excess Return Index IER on day t
TW(s)	= Target weight on selection date s
TV	= Target Volatility
RV(s)	= Realised Volatility on s
rn	= Volatility Rounding Precision
STDEV(s)	= Standard deviation of returns on s
IR(i)	= Index return on i
IRM(s)	= Mean of index returns for sample period
t	= Index calculation day t
r	= Last index rebalancing day r
s	= Selection date

i = Sample date i

i-1 = Index business day immediately preceding Sample date i

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Excess Return Index of Indices Method 1

The aim of the Excess Return Index of Indices is to represent the aggregate performance of a combination of a number of input excess return indices. The allocations to these indices are defined in the specific index documentation.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Excess Return Index i – See index specific document

Target Weight for Input Excess Return Index i on date s - See index specific document

Number of input indices - See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t, the Total Return Index level is expressed as

$$ILER(t) = ILER(r) + \sum_{i=1}^n (IL(i, t) - IL(i, r)) * U(i, r)$$

On a rebalancing date the unit holdings are expressed as

$$U(i, t) = \frac{TW(i, s) * ILER(t)}{IL(i, t)}$$

Where:

ILER(t) = Index Level of Excess Return Index on day t

IL(IER, t, i) = Index Level of Input Excess Return Index i on day t

U(IER, t, i) = Unit holding of Input Excess Return Index i on day t

TW(i,s) = Target weight for Input Excess Return Index i on selection date s

t = Index calculation day t

r = Last index rebalancing day r

s = Selection date

n = Number of input indices

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Excess Return Index of Indices Method 2

The aim of the Excess Return Index of Indices is to represent the aggregate performance of a combination of a number of input excess return indices. The allocations to these indices are defined in the specific index documentation. The index includes a rebalancing cost based on the change in allocation on the rebalancing date.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Excess Return Index *i* – See index specific document

Target Weight for Input Excess Return Index *i* on date *s* - See index specific document

Percentage Rebalancing Cost for Input Excess Return Index *i* on date *s* - See index specific document

Number of input indices - See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day *t*, the Total Return Index level is expressed as

$$ILER(t) = ILER(r) + \sum_{i=1}^n (IL(i, t) - IL(i, r)) * U(i, r) - RC(r)$$

On a rebalancing date the unit holdings are expressed as

$$U(i, t) = \frac{TW(i, s) * ILER(t)}{IL(i, t)}$$

The rebalancing cost is calculated as

$$RC(t) = ILER(t) * \sum_{i=1}^n ABS(TW(i, s) - CW(i, t)) * PRC(i, s)$$

The current weight for an input index is expressed as

$$CW(i, t) = \frac{U(i, r) * IL(i, t)}{ILER(t)}$$

Where:

ILER(*t*) = Index Level of Excess Return Index on day *t*

IL(*IER*, *t*, *i*) = Index Level of Input Excess Return Index *i* on day *t*

U(*IER*, *t*, *i*) = Unit holding of Input Excess Return Index *i* on day *t*

TW(*i*,*s*) = Target weight for Input Excess Return Index *i* on selection date *s*

RC(*t*) = Rebalancing cost on day *t*

CW(*i*,*t*) = Current weight of Input Excess Return Index *i* on day *t*

PRC(*i*,*s*) = Percentage rebalance cost for Input Excess Return Index *i* on selection date *s*

t = Index calculation day *t*

r = Last index rebalancing day *r*

s = Selection date

n = Number of input indices

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Excess Return Index of Indices Method 3

The aim of the Excess Return Index of Indices is to represent the aggregate performance of a combination of a number of input excess return indices. The unit holdings are fixed on the selection date to provide certainty for the holdings on the rebalancing date. The allocations to these indices are defined in the specific index documentation.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Excess Return Index i – See index specific document

Target Weight for Input Excess Return Index i on date s - See index specific document

Number of input indices - See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t , the Total Return Index level is expressed as

$$ILER(t) = ILER(r) + \sum_{i=1}^n (IL(i, t) - IL(i, r)) * U(i, r)$$

On a selection date the unit holdings are expressed as

$$U(i, r) = \frac{TW(i, s) * ILER(s)}{IL(i, s)}$$

Where:

$ILER(t)$ = Index Level of Excess Return Index on day t

$IL(IER, t, i)$ = Index Level of Input Excess Return Index i on day t

$U(IER, t, i)$ = Unit holding of Input Excess Return Index i on day t

$TW(i, s)$ = Target weight for Input Excess Return Index i on selection date s

t = Index calculation day t

r = Last index rebalancing day r

s = Selection date

n = Number of input indices

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

Excess Return Index of Indices Method 4

The aim of the Excess Return Index of Indices is to represent the aggregate performance of a combination of a number of input excess return indices. The unit holdings are fixed on the selection date to provide certainty for the holdings on the rebalancing date. The allocations to these indices are defined in the specific index documentation. The index includes a rebalancing cost based on the change in allocation on the rebalancing date.

Index Inception Date – See index specific document

Index Live Date – See index specific document

Index Calculation Holiday Calendar – See index specific document

Index Selection Date – See index specific document

Index Rebalancing Date – See index specific document

Index Currency – See index specific document

Input Excess Return Index i – See index specific document

Target Weight for Input Excess Return Index i on date s - See index specific document

Percentage Rebalancing Cost for Input Excess Return Index i on date s - See index specific document

Number of input indices - See index specific document

Index publication rounding - See index specific document

Index calculation rounding – 6 decimal places with 0.0000005 rounded up

For a calculation day t , the Total Return Index level is expressed as

$$ILER(t) = ILER(r) + \sum_{i=1}^n (IL(i, t) - IL(i, r)) * U(i, r) - RC(r)$$

On a rebalancing date the unit holdings are expressed as

$$U(i, r) = \frac{TW(i, s) * ILER(s)}{IL(i, s)}$$

The rebalancing cost is calculated as

$$RC(t) = ILER(t) * \sum_{i=1}^n ABS(TW(i, s) - CW(i, t)) * PRC(i, s)$$

The current weight for an input index is expressed as

$$CW(i, t) = \frac{U(i, r) * IL(i, t)}{ILER(t)}$$

Where:

ILER(t) = Index Level of Excess Return Index on day t

IL(IER, t , i) = Index Level of Input Excess Return Index i on day t

U(IER, t , i) = Unit holding of Input Excess Return Index i on day t

TW(i , s) = Target weight for Input Excess Return Index i on selection date s

RC(t) = Rebalancing cost on day t

CW(i , t) = Current weight of Input Excess Return Index i on day t

PRC(i , s) = Percentage rebalance cost for Input Excess Return Index i on selection date s

t = Index calculation day t

r = Last index rebalancing day r

s = Selection date

n = Number of input indices

Where input indices are DBIQ indices, calculations are based on the calculation rounded data. Third party index data is calculated using the lower of the full data received from the provider or 6 decimal places with 0.0000005 rounded up.

Where the input indices follow a different calculation calendar to the calculated index, in the event that no index level is available for the input index its value is rolled from the previous input index business day.

The index will be calculated once all input index data is available and validated.

DBIQ FX Source and Process

FX rates sourced by DBIQ are listed in Appendix 1 - FX Source Rics.

The rates are described as XC1XC2, representing the number of units of XC2 per unit of XC1.

For spot rates, where the quote type is F (forward) the rates captured represent the bid, ask and mid. Where the quote type is B (backward) the rates must be inversed where;

Bid Rate = 1 / Captured Ask Rate

Ask Rate = 1 / Captured Bid Rate

Mid Rate = 1 / Captured Mid Rate

Forward rates are calculated from the captured forward points and spot rates. Where the quote type is F (forward) the rates are;

Bid Rate = Captured Bid Spot Rate + Captured Bid Forward Points

Ask Rate = Captured Ask Spot Rate + Captured Ask Forward Points

Mid Rate = Captured Mid Spot Rate + Captured Mid Forward Points

Where the quote type is B (backward) the rates must be inversed where;

Bid Rate = 1 / (Captured Ask Spot Rate + Captured Ask Forward Points)

Ask Rate = 1 / (Captured Bid Spot Rate + Captured Bid Forward Points)

Mid Rate = 1 / (Captured Mid Spot Rate + Captured Mid Forward Points)

Where the index calculation requires the rate FX(IIC,IC,t) and IICIC is listed in Appendix 1 - FX Source Rics the rate used is described above.

Where the index calculation requires the rate FX(IIC,IC,t) and IICIC is not listed in Appendix 1 - FX Source Rics but ICIIIC is the rate is calculated based on the inverse of the rate held by DBIQ. This is calculated as below for both spot and forward rates;

Bid Rate = 1 / DBIQ Ask Rate for ICIIIC

Ask Rate = 1 / DBIQ Bid Rate for ICIIIC

Mid Rate = (Bid Rate + Ask Rate) / 2

Where the index calculation requires the rate FX(IIC,IC,t) and neither IICIC or ICIIIC are not listed in Appendix 1 - FX Source Rics the rate is triangulated using the USD crosses. First the USDIIC and USDIC rates are generated using the above logic. The final rates are calculated as below for both spot and forward rates;

Bid Rate = Bid Rate for USDIC / Ask Rate for USDIIC

Ask Rate = Ask Rate for USDIC / Bid Rate for USDIIC

Ask Rate = Mid Rate for USDIC / Mid Rate for USDIIC

Disruption Events

A “**Disruption Event**”, in respect of any index business day, means an event (including a *Force Majeure* Event and a national holiday or a day of national mourning) that would require the Index Administrator to calculate the Index on an alternative basis, as determined by the Index Administrator in its sole discretion. Without limitation, each of the following may be a Disruption Event if so determined by the Index Administrator in its sole discretion:

- (i) “**Price Source Disruption**”: any price source, any primary source data used in the calculation of the Index, any Instrument or any other information relevant to the calculation of the Index Level is temporarily or permanently discontinued, unavailable or not announced or published thereby preventing or restricting the availability of the information necessary for determining the Index.
- (ii) “**Trading Suspension**”: the material suspension of trading in any Instrument.
- (iii) “**Disappearance of any Instrument**”: the failure of trading to commence, or the permanent discontinuation of trading in any Instrument.
- (iv) “**De Minimis Trading**”: the number of Instruments traded on any relevant date is materially reduced or liquidity in the market for any Instrument is otherwise reduced for any reason.
- (v) “**Change of law or rules**”: there is a change in, or amendment to, the laws, rules, regulations or standard form contracts relating to any Instrument or a change in any application or interpretation of such laws, rules, regulations or standard form contracts that has a material effect on such Instrument.
- (vi) “**Settlement disruption**”: the Index Administrator determines in its sole discretion that trading in, or settlement in respect of, any Instrument is subject to any material disruption temporarily or permanently.
- (vii) “**Tax disruption**”: the imposition of, change in, removal of or change in the interpretation of any tax (including, without limitation, any excise, severance, sales, use, value-added, transfer, stamp, documentary, recording or similar tax) on, or in relation to any Instrument, by any government or taxation authority after the relevant Index Live Date, if the effect of such imposition, change, removal or change in interpretation is to raise or lower the price, rate or level at which such Instrument trades on the relevant exchange or in the relevant market on any relevant date from the price, rate or level at which it would have traded without that imposition, change, removal or change in interpretation.
- (viii) “**Hedging disruption**”: The Index Administrator determines that it and/or any of its affiliates would be unable, after using commercially reasonable efforts, to: (a) acquire, establish, reestablish, substitute, maintain, unwind or dispose of any transaction(s) or asset(s) it deems necessary to hedge its position in relation to any securities issue, financial instrument or other relevant financial transaction relating to or calculated by reference to the Index; or (b) realize, recover or remit the proceeds of any such transaction(s) or asset(s).

“**Force Majeure Event**” means an event or circumstance (including, without limitation, a systems failure, fire, building evacuation, natural or man-made disaster, act of God, armed conflict, act of terrorism, act of state, riot or labour disruption or any similar intervening circumstance) that affects the ability of the Index Administrator to calculate or determine the relevant Index and which is beyond the reasonable control of the Index Administrator.

“**Forecast Price Event**” means an event as of the Index Selection Day, where the number of Analysts contributing to the Commodity Forecast Prices used in the Index Selection falls below five.

Consequences of Disruption Events

If a Disruption Event occurs or subsists on any index business day, that in the determination of the Index Administrator prevents or otherwise affects its determinations with respect to the index level or any other relevant value, then:

1 first, the Index Administrator may make such adjustments and/or determinations in relation to the Index (including, but not limited to, the methodology described in this Index Guide) and any relevant value as it may determine, in its sole discretion, appropriate to facilitate the calculation and publication of the index level;

2 secondly, if the Index Administrator determines that any such adjustment or determination referred to in sub-paragraph 1 above cannot be made on such index business day, then the Index Administrator may defer calculation and publication of the index level until the next index business day on which the Index Administrator determines that no Disruption Event exists. Where any such deferral of calculation and publication continues for a period of ten consecutive index business days, then the Index Administrator may:

- (i) calculate and publish the index level relating to each affected index business day having regard to the then prevailing market conditions, the last reported price, value, rate or level of any Instrument and such other factor(s) and condition(s) that the Index Administrator considers relevant for the purpose of determining such index levels including, but not limited to, any

modifications that the Index Administrator determines to be appropriate in relation to reconstitution or change of methodology of the Index; and/or

(ii) permanently cease to calculate and publish the index level as of the later of (x) the date when such Disruption Event commenced or (y) the index business day following the last index business day for which the Index Administrator calculated and published the relevant index level in accordance with sub-paragraph 2(i) above (if any) and, in each case, the relevant Index shall terminate.

Change in methodology

In calculating and determining the value of the Index, the Index Administrator will, subject as provided below, employ the methodology described in this Index Guide and its 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, necessitate or make desirable a modification of or change to such methodology.

Accordingly:

- (i) The Index Administrator shall be entitled to make such modifications and/or changes as it in its sole discretion deems appropriate, including (without limitation):
 - a) to correct any manifest error or proven error contained in this Index Guide; and/or
 - b) to cure, correct or supplement any defective provision contained in this Index Guide; and/or
 - c) if market, regulatory, juridical, financial, fiscal or other circumstances arise, and such circumstances would, in the determination of the Index Administrator, necessitate or make desirable such a modification or change of the methodology described in this Index Guide (including, but without limitation, a change in the frequency of calculation of any Index Level) in order for the Index to continue being calculated and determined notwithstanding the relevant circumstances. In deciding what is necessary the Index Administrator will consider and/or take into account what the Index Administrator determines to be the intended commercial purposes of the Index and/or any hedging transactions entered into by Deutsche Bank AG and/or any of its affiliates in relation to any financial transaction linked to the Index;
- (ii) Further, and without limitation to the above provisions, the Index Administrator shall be entitled to make such modifications and/or changes as it in its sole discretion deems appropriate:
 - a) to preserve the intended commercial purpose of the Index, where such modification and/or change is of a formal, minor or technical nature; and/or
 - b) if market, regulatory, juridical, financial, fiscal or other circumstances arise, and in the determination of the Index Administrator, such modifications and/or changes would assist in maintaining the intended commercial purpose of the Index and/or would ensure that the Index can continue to be calculated and determined by the Index Administrator in light of such circumstances. In making such determination, the Index Administrator may consider and/or take into account any hedging transactions entered into by Deutsche Bank AG and/or any of its affiliates in relation to any financial transaction linked to the Index.

In making such modifications however the Index Administrator will:

- (i) ensure that such modifications or changes pursuant to (i) or (ii) above will result in a methodology that is consistent in its intended commercial purpose with the methodology described in this Index Guide; and
- (ii) limit any such modification or change to the terms of the Index and/or method of calculating the Index Level.

The Index Administrator may, in its discretion, at any time and without notice, terminate the calculation and publication of the Index.

The Index Administrator has no obligation to consult any person about such modification or change. Any such modification or change will be published by means of a revised Index Guide or other notice, on the DBIQ website, <https://index.db.com>.

Expert judgment

It is intended that the only expert judgment to be applied in calculation of the index is that which is described in the narrow circumstances of a Disruption Event or a change in methodology.

Appendix 1 – FX Source Rics

FX Cross	Quote Method	Spot		1M		2M		3M	
		Bid / Ask	Mid	Bid / Ask	Mid	Bid / Ask	Mid	Bid / Ask	Mid
AUDUSD	F	USDAUDFIX=WM	USDAUDFIXM=WM	USDAUD1MFX=WM	USDAUD1MFXM=WM	USDAUD2MFX=WM	USDAUD2MFXM=WM	USDAUD3MFX=WM	USDAUD3MFXM=WM
BWPUSD	F	USDBWPFIX=WM	USDBWPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURAUD	F	EURAUDFIX=WM	EURAUDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURARS	F	EURARSFIX=WM	EURARSFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURATS	F	EURATSFIX=WM	EURATSFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURAUD	F	EURAUDFIX=WM	EURAUDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURBEF	F	EURBEFFIX=WM	EURBEFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURBRL	F	EURBRLFIX=WM	EURBRLFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURCAD	F	EURCADFIX=WM	EURCADFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURCHF	F	EURCHFFIX=WM	EURCHFFIXM=WM	EURCHF1MFX=WM	EURCHF1MFXM=WM	EURCHF2MFX=WM	EURCHF2MFXM=WM	EURCHF3MFX=WM	EURCHF3MFXM=WM
EURCLP	F	EURCLPFIX=WM	EURCLPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURCNY	F	EURCNYFIX=WM	EURCNYFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURCOP	F	EURCOPFIX=WM	EURCOPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURCZK	F	EURCZKFIX=WM	EURCZKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURDEM	F	EURDEMFIX=WM	EURDEMFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURDKK	F	EURDKKFIX=WM	EURDKKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EUREGP	F	EUREGPFIX=WM	EUREGPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURESP	F	EURESPFIX=WM	EURESPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURFIM	F	EURFIMFIX=WM	EURFIMFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURFRF	F	EURFRFFIX=WM	EURFRFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURGBP	F	EURGBPFIX=WM	EURGBPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURGRD	F	EURGRDFIX=WM	EURGRDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURHKD	F	EURHKDFIX=WM	EURHKDFIXM=WM	EURHKD1MFX=WM	EURHKD1MFXM=WM	EURHKD2MFX=WM	EURHKD2MFXM=WM	EURHKD3MFX=WM	EURHKD3MFXM=WM
EURHUF	F	EURHUFFIX=WM	EURHUFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURIDR	F	EURIDRFIX=WM	EURIDRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURIEP	F	EURIEPFIX=WM	EURIEPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURILS	F	EURILSFIX=WM	EURILSFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURINR	F	EURINRFIX=WM	EURINRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURITL	F	EURITLFIX=WM	EURITLFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURJOD	F	EURJODFIX=WM	EURJODFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURJPY	F	EURJPYFIX=WM	EURJPYFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A

EURKRW	F	EURKRWFIX=WM	EURKRWFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURLUF	F	EURLUFFIX=WM	EURLUFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURMAD	F	EURMADFIX=WM	EURMADFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURMXN	F	EURMXNFIX=WM	EURMXNFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURMYR	F	EURMYRFIX=WM	EURMYRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURNLG	F	EURNLGFIX=WM	EURNLGFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURNOK	F	EURNOKFIX=WM	EURNOKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURNZD	F	EURNZDFIX=WM	EURNZDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURPEN	F	EURPENFIX=WM	EURPENFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURPHP	F	EURPHPFIX=WM	EURPHPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURPKR	F	EURPKRFIX=WM	EURPKRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURPLN	F	EURPLNFIX=WM	EURPLNFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURPTE	F	EURPTEFIX=WM	EURPTEFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURQAR	F	EURQARFIX=WM	EURQARFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURRUB	F	EURRUBFIX=WM	EURRUBFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURSEK	F	EURSEKFIX=WM	EURSEKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURSGD	F	EURSGDFIX=WM	EURSGDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURSKK	F	EURSKKFIX=WM	EURSKKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURTHB	F	EURTHBFIX=WM	EURTHBFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURTRY	F	EURTRYFIX=WM	EURTRYFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURTWD	F	EURTWDFIX=WM	EURTWDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURUSD	F	USDEURFIX=WM	USDEURFIXM=WM	EURUSD1MFX=WM	EURUSD1MFXM=WM	EURUSD2MFX=WM	EURUSD2MFXM=WM	EURUSD3MFX=WM	EURUSD3MFXM=WM
EURVND	F	EURVNDFIX=WM	EURVNDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURXEU	F	EURXEUFIX=WM	EURXEUFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURZAR	F	EURZARFIX=WM	EURZARFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
EURZMW	F	EURZMWFIX=WM	EURZMWFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPAED	F	GBPAEDFIX=WM	GBPAEDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPARS	F	GBPARSFIX=WM	GBPARSFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPATS	F	GBPATSFIX=WM	GBPATSFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPAUD	F	GBPAUDFIX=WM	GBPAUDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPBEF	F	GBPBEFFIX=WM	GBPBEFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPBRL	F	GBPBRLFIX=WM	GBPBRLFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPCAD	F	GBPCADFIX=WM	GBPCADFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPCHF	F	GBPCHFFIX=WM	GBPCHFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPCLP	F	GBPCLPFIX=WM	GBPCLPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPCNY	F	GBPCNYFIX=WM	GBPCNYFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A

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GBPCOP	F	GBPCOPFIX=WM	GBPCOPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPCZK	F	GBPCZKFIX=WM	GBPCZKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPDEM	F	GBPDEMFIX=WM	GBPDEMFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPDKK	F	GBPDKKFIX=WM	GBPDKKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPEGP	F	GBPEGPFIX=WM	GBPEGPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPESP	F	GBPESPFIX=WM	GBPESPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPFIM	F	GBPFIMFIX=WM	GBPFIMFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPFRF	F	GBPFRFFIX=WM	GBPFRFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPGRD	F	GBPGRDFIX=WM	GBPGRDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPHKD	F	GBPHKDFIX=WM	GBPHKDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPHUF	F	GBPHUFFIX=WM	GBPHUFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPIDR	F	GBPIDRFIX=WM	GBPIDRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPIEP	F	GBPIEPFIX=WM	GBPIEPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPILS	F	GBPILSFIX=WM	GBPILSFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPINR	F	GBPINRFIX=WM	GBPINRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPITL	F	GBPITLFIX=WM	GBPITLFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPJOD	F	GBPJODFIX=WM	GBPJODFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPJPY	F	GBPJPYFIX=WM	GBPJPYFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPKRW	F	GBPKRWFIX=WM	GBPKRWFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPLUF	F	GBPLUFFIX=WM	GBPLUFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPMAD	F	GBPMADFIX=WM	GBPMADFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPMXN	F	GBPMXNFIX=WM	GBPMXNFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPMYR	F	GBPMYRFIX=WM	GBPMYRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPNLG	F	GBPNLGFIX=WM	GBPNLGFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPNOK	F	GBPNOKFIX=WM	GBPNOKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPNZD	F	GBPNZDFIX=WM	GBPNZDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPPEN	F	GBPPENFIX=WM	GBPPENFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPPHP	F	GBPPHPFIX=WM	GBPPHPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPPKR	F	GBPPKRFIX=WM	GBPPKRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPPLN	F	GBPPLNFIX=WM	GBPPLNFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPPTE	F	GBPPTEFIX=WM	GBPPTEFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPQAR	F	GBPQARFIX=WM	GBPQARFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPRUB	F	GBPRUBFIX=WM	GBPRUBFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPSEK	F	GBPSEKFIX=WM	GBPSEKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPSGD	F	GBPSGDFIX=WM	GBPSGDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPSKK	F	GBPSKKFIX=WM	GBPSKKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A

GBPTHB	F	GBPTHBFIX=WM	GBPTHBFXIM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPTRY	F	GBPTRYFIX=WM	GBPTRYFXIM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPTWD	F	GBPTWDFIX=WM	GBPTWDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPUSD	F	USDGBPFIX=WM	USDGBPFXIM=WM	USDGBP1MFX=WM	USDGBP1MFXM=WM	USDGBP2MFX=WM	USDGBP2MFXM=WM	USDGBP3MFX=WM	USDGBP3MFXM=WM
GBPXEU	F	GBPXEUFIX=WM	GBPXEUFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
GBPZAR	F	GBPZARFIX=WM	GBPZARFXIM=WM	N/A	N/A	N/A	N/A	N/A	N/A
IEPUSD	F	USDIEPFIX=WM	USDIEPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
NZDUSD	F	USDNZDFIX=WM	USDNZDFIXM=WM	USDNZD1MFX=WM	USDNZD1MFXM=WM	USDNZD2MFX=WM	USDNZD2MFXM=WM	USDNZD3MFX=WM	USDNZD3MFXM=WM
OMRUSD	B	USDOMRFIX=WM	USDOMRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDAED	F	USDAEDFIX=WM	USDAEDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDARS	F	USDARSFIX=WM	USDARSFXIM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDATS	F	USDATSFIX=WM	USDATSFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDAUD	B	USDAUDFIX=WM	USDAUDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDBEF	F	USDBEFFIX=WM	USDBEFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDBRL	F	USDBRLFIX=WM	USDBRLFXIM=WM	USDBRL1MFX=WM	USDBRL1MFXM=WM	USDBRL2MFX=WM	USDBRL2MFXM=WM	USDBRL3MFX=WM	USDBRL3MFXM=WM
USDCAD	F	USDCADFIX=WM	USDCADFIXM=WM	USDCAD1MFX=WM	USDCAD1MFXM=WM	USDCAD2MFX=WM	USDCAD2MFXM=WM	USDCAD3MFX=WM	USDCAD3MFXM=WM
USDCHF	F	USDCHFFIX=WM	USDCHFFIXM=WM	USDCHF1MFX=WM	USDCHF1MFXM=WM	USDCHF2MFX=WM	USDCHF2MFXM=WM	USDCHF3MFX=WM	USDCHF3MFXM=WM
USDCLP	F	USDCLPFIX=WM	USDCLPFIXM=WM	USDCLP1MFX=WM	USDCLP1MFXM=WM	USDCLP2MFX=WM	USDCLP2MFXM=WM	USDCLP3MFX=WM	USDCLP3MFXM=WM
USDCNH	F	USDCNHFIX=WM	USDCNHFXIM=WM	USDCNH1MFX=WM	USDCNH1MFXM=WM	USDCNH2MFX=WM	USDCNH2MFXM=WM	USDCNH3MFX=WM	USDCNH3MFXM=WM
USDCNY	F	USDCNYFIX=WM	USDCNYFXIM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDCOP	F	USDCOPFIX=WM	USDCOPFXIM=WM	USDCOP1MFX=WM	USDCOP1MFXM=WM	USDCOP2MFX=WM	USDCOP2MFXM=WM	USDCOP3MFX=WM	USDCOP3MFXM=WM
USDCZK	F	USDCZKFIX=WM	USDCZKFXIM=WM	USDCZK1MFX=WM	USDCZK1MFXM=WM	USDCZK2MFX=WM	USDCZK2MFXM=WM	USDCZK3MFX=WM	USDCZK3MFXM=WM
USDDEM	F	USDDEMFIX=WM	USDDEMFXIM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDDKK	F	USDDKKFIX=WM	USDDKKFXIM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDEGP	F	USDEGPFIX=WM	USDEGPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDESP	F	USDESPFIX=WM	USDESPFXIM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDFIM	F	USDFIMFIX=WM	USDFIMFXIM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDFRF	F	USDFRFFIX=WM	USDFRFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDGBP	B	USDGBPFIX=WM	USDGBPFXIM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDGRD	F	USDGRDFIX=WM	USDGRDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDHKD	F	USDHKDFIX=WM	USDHKDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDHUF	F	USDHUFFIX=WM	USDHUFFIXM=WM	USDHUF1MFX=WM	USDHUF1MFXM=WM	USDHUF2MFX=WM	USDHUF2MFXM=WM	USDHUF3MFX=WM	USDHUF3MFXM=WM
USDIDR	F	USDIDRFIX=WM	USDIDRFIXM=WM	USDIDR1MFX=WM	USDIDR1MFXM=WM	USDIDR2MFX=WM	USDIDR2MFXM=WM	USDIDR3MFX=WM	USDIDR3MFXM=WM
USDIEP	B	USDIEPFIX=WM	USDIEPFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDILS	F	USDILSFIX=WM	USDILSFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDINR	F	USDINRFIX=WM	USDINRFIXM=WM	USDINR1MFX=WM	USDINR1MFXM=WM	USDINR2MFX=WM	USDINR2MFXM=WM	USDINR3MFX=WM	USDINR3MFXM=WM

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USDISK	F	USDISKFIX=WM	USDISKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDITL	F	USDITLFIX=WM	USDITLFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDJOD	F	USDJODFIX=WM	USDJODFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDJPY	F	USDJPYFIX=WM	USDJPYFIXM=WM	USDJPY1MFIX=WM	USDJPY1MFXM=WM	USDJPY2MFXM=WM	USDJPY2MFXM=WM	USDJPY3MFXM=WM	USDJPY3MFXM=WM
USDKRW	F	USDKRWFIX=WM	USDKRWFIXM=WM	USDKRW1MFXM=WM	USDKRW1MFXM=WM	USDKRW2MFXM=WM	USDKRW2MFXM=WM	USDKRW3MFXM=WM	USDKRW3MFXM=WM
USDKWD	F	USDKWDFIX=WM	USDKWDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDKZT	F	USDKZTFIX=WM	USDKZTFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDLKR	F	USDLKRFIX=WM	USDLKRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDLUF	F	USDLUFFIX=WM	USDLUFFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDMAD	F	USDMADFIX=WM	USDMADFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDMXN	F	USDMXNFXM=WM	USDMXNFXM=WM	USDMXN1MFXM=WM	USDMXN1MFXM=WM	USDMXN2MFXM=WM	USDMXN2MFXM=WM	USDMXN3MFXM=WM	USDMXN3MFXM=WM
USDMYR	F	USDMYRFIX=WM	USDMYRFIXM=WM	USDMYR1MFXM=WM	USDMYR1MFXM=WM	USDMYR2MFXM=WM	USDMYR2MFXM=WM	USDMYR3MFXM=WM	USDMYR3MFXM=WM
USDNAD	F	USDNAFIX=WM	USDNAFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDNGN	F	USDNGNFXM=WM	USDNGNFXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDNLG	F	USDNLGFIX=WM	USDNLGFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDNOK	F	USDNOKFIX=WM	USDNOKFIXM=WM	USDNOK1MFXM=WM	USDNOK1MFXM=WM	USDNOK2MFXM=WM	USDNOK2MFXM=WM	USDNOK3MFXM=WM	USDNOK3MFXM=WM
USDNZD	B	USDNZDFIX=WM	USDNZDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDOMR	F	USDOMRFIX=WM	USDOMRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDPEN	F	USDPENFIX=WM	USDPENFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDPHP	F	USDPHPFIX=WM	USDPHPFIXM=WM	USDPHP1MFXM=WM	USDPHP1MFXM=WM	USDPHP2MFXM=WM	USDPHP2MFXM=WM	USDPHP3MFXM=WM	USDPHP3MFXM=WM
USDPKR	F	USDPKRFIX=WM	USDPKRFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDPLN	F	USDPLNFXM=WM	USDPLNFXM=WM	USDPLN1MFXM=WM	USDPLN1MFXM=WM	USDPLN2MFXM=WM	USDPLN2MFXM=WM	USDPLN3MFXM=WM	USDPLN3MFXM=WM
USDPTTE	F	USDPTTEFIX=WM	USDPTTEFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDQAR	F	USDQARFIX=WM	USDQARFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDRON	F	USDRONFIX=WM	USDRONFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDRUB	F	USDRUBFIX=WM	USDRUBFIXM=WM	USDRUB1MFXM=WM	USDRUB1MFXM=WM	USDRUB2MFXM=WM	USDRUB2MFXM=WM	USDRUB3MFXM=WM	USDRUB3MFXM=WM
USDSAR	F	USDSARFIX=WM	USDSARFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDSEK	F	USDSEKFIX=WM	USDSEKFIXM=WM	USDSEK1MFXM=WM	USDSEK1MFXM=WM	USDSEK2MFXM=WM	USDSEK2MFXM=WM	USDSEK3MFXM=WM	USDSEK3MFXM=WM
USDSGD	F	USDSGDFIX=WM	USDSGDFIXM=WM	USDSGD1MFXM=WM	USDSGD1MFXM=WM	USDSGD2MFXM=WM	USDSGD2MFXM=WM	USDSGD3MFXM=WM	USDSGD3MFXM=WM
USDSKK	F	USDSKKFIX=WM	USDSKKFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDTHB	F	USDTHBFIX=WM	USDTHBFIXM=WM	USDTHB1MFXM=WM	USDTHB1MFXM=WM	USDTHB2MFXM=WM	USDTHB2MFXM=WM	USDTHB3MFXM=WM	USDTHB3MFXM=WM
USDTRY	F	USDTRYFIX=WM	USDTRYFIXM=WM	USDTRY1MFXM=WM	USDTRY1MFXM=WM	USDTRY2MFXM=WM	USDTRY2MFXM=WM	USDTRY3MFXM=WM	USDTRY3MFXM=WM
USDTWD	F	USDTWDFIX=WM	USDTWDFIXM=WM	USDTWD1MFXM=WM	USDTWD1MFXM=WM	USDTWD2MFXM=WM	USDTWD2MFXM=WM	USDTWD3MFXM=WM	USDTWD3MFXM=WM
USDUAH	F	USDUAHFIX=WM	USDUAHFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDUYU	F	USDUYUFIX=WM	USDUYUFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A
USDVND	F	USDVNDFIX=WM	USDVNDFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A

USDZAR	F	USDZARFIX=WM	USDZARFIXM=WM	USDZAR1MFIX=WM	USDZAR1MFIXM=WM	USDZAR2MFIX=WM	USDZAR2MFIXM=WM	USDZAR3MFIX=WM	USDZAR3MFIXM=WM
USDZMW	F	USDZMWFIX=WM	USDZMWFIXM=WM	N/A	N/A	N/A	N/A	N/A	N/A

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