FTSE Currency FRB Index Series
Ground Rules
Developed with Record Currency Management v2.6
Contents

1.0 Introduction .................................................................................................................. 3
1.0 Overview .......................................................................................................................... 3
1.9 FTSE Russell .................................................................................................................... 4

2.0 Management Responsibilities .......................................................................................... 5
2.0 FTSE International Limited (FTSE) ............................................................................... 5
2.3 Amendments to These Ground Rules ............................................................................. 5

3.0 FTSE Russell Index Policies ............................................................................................ 6
3.1 Queries and Complaints ..................................................................................................... 6
3.4 FTSE Russell Policy for Benchmark Methodology Changes ........................................... 6

4.0 Eligible Currencies .......................................................................................................... 7

5.0 Periodic Review of Currencies ......................................................................................... 8
5.1 Review Dates .................................................................................................................... 8
5.2 Calculation of Spot and Forward Mid Rates ..................................................................... 8

6.0 Index Calculation ............................................................................................................. 11
Interest rates used in the calculations ................................................................................. 12
Historic interest rates and sources ...................................................................................... 12
Current forex data .............................................................................................................. 13
Historic forex data ............................................................................................................. 13

Further Information ............................................................................................................. 14
Section 1

Introduction

1.0 Introduction

1.0 Overview

1.1 The FTSE Currency FRB Index Series aims to replicate the carry trade strategy that harvests the structural excess returns of the forward rate bias or “carry” experienced in global currency markets.

1.2 The FTSE Currency FRB Index Series comprises both Excess Return and Total Return Indexes.

1.3 The total return indices are calculated by adding the overnight interest rate return of the indices’ base currency to the excess return calculation.

1.4 The indices are calculated on a daily basis whenever WM Reuters currency rates are published.

The FTSE Currency FRB Index Series consists of the following indices:

FTSE Currency FRB5 Index Series

1.5 The FTSE Currency FRB5 Index Series consists of 10 equally weighted currency pairs based upon the 5 most liquid developed market currencies. The 5 currencies are the US Dollar (USD), Euro (EUR), Japanese Yen (JPY), British Pound (GBP) and Swiss Franc (CHF).

1.6 The FTSE Currency FRB5 Index Series indices are available in the following base currencies:

USD, EUR, JPY, GBP and CHF

FTSE Currency FRB10 Index Series

1.7 The FTSE Currency FRB10 Index Series consists of 45 equally weighted currency pairs based upon those currencies in the FTSE Currency FRB5 Index Series plus the 5 next most liquid developed market currencies. In addition to those in the FTSE Currency FRB5 Index Series these currencies are the Australian Dollar (AUD), Canadian Dollar (CAD), New Zealand Dollar (NZD), Norwegian Krone (NOK) and Swedish Krona (SEK).

1.8 The FTSE Currency FRB10 Index Series indices are available in the following base currencies:

USD, EUR, JPY, GBP, CHF, UD and CAD

1.9 The FTSE Currency FRB Index Series does not take account of ESG factors in its index design.
1.10 **FTSE Russell**


1.10.1 FTSE Russell hereby notifies users of the index that it is possible that circumstances, including external events beyond the control of FTSE Russell, may necessitate changes to, or the cessation of, the index and therefore, any financial contracts or other financial instruments that reference the index or investment funds which use the index to measure their performance should be able to withstand, or otherwise address the possibility of changes to, or cessation of, the index.

1.10.2 Index users who choose to follow this index series or to buy products that claim to follow this index series should assess the merits of the index’s rules-based methodology and take independent investment advice before investing their own or client funds. No liability whether as a result of negligence or otherwise is accepted by FTSE Russell for any losses, damages, claims and expenses suffered by any person as a result of:

- any reliance on these Ground Rules, and/or
- any errors or inaccuracies in these Ground Rules, and/or
- any non-application or misapplication of the policies or procedures described in these Ground Rules, and/or
- any errors or inaccuracies in the compilation of the index or any constituent data.
Section 2

Management Responsibilities

2.0 Management Responsibilities

2.0 FTSE International Limited (FTSE)

2.1 FTSE is the benchmark administrator of the index series.

2.2 FTSE is responsible for the daily calculation, production and operation of the FTSE Currency FRB Index Series and will:

- maintain records of the index weightings of all constituents;
- make changes to constituent weightings will be made by FTSE in accordance with the Ground Rules;
- carry out reviews and implement the resulting constituent changes as required by the Ground Rules;
- publish changes to the constituent weightings resulting from their ongoing maintenance and the periodic reviews;
- disseminate the indexes.

2.3 Amendments to These Ground Rules

2.3.1 These Ground Rules shall be subject to regular review by FTSE Russell to ensure that they continue to best reflect the aims of the index series. Any proposals for significant amendments to these Ground Rules will be subject to consultation with FTSE Russell advisory committees and other stakeholders if appropriate. The feedback from these consultations will be considered by the FTSE Russell Product Governance Board before approval is granted.
Section 3

FTSE Russell Index Policies

3.0 FTSE Russell Index Policies

These Ground Rules should be read in conjunction with the following policy documents which can be accessed using the links below:

3.1 Queries and Complaints

3.1.1 FTSE Russell’s complaints procedure can be accessed using the following link:

Queries and Complaints Policy.pdf

3.2 FTSE Russell Policy for Benchmark Methodology Changes

3.2.1 Details of FTSE Russell’s policy for making benchmark methodology changes can be accessed using the following link:

FTSE Russell Policy for Benchmark Methodology Changes.pdf
Section 4

**Eligible Currencies**

4.0 **Eligible Currencies**

4.1 The FTSE Currency FRB Index Series use the WM/Reuters 16:00 UK time Closing Spot and Forward Rates.

4.2 The FTSE Currency FRB5 Index consists of 10 equally weighted currency pairs that are derived from the 5 most liquid developed currencies, namely: US Dollar, Euro, Japanese Yen, British Pound and Swiss Franc.

4.3 The FTSE Currency FRB10 Index consists of 45 equally weighted currency pairs that are derived from the currencies in the FTSE Currency FRB5 Index plus Australian Dollar, Canadian Dollar, New Zealand Dollar, Norwegian Krona and Swedish Krone.
Section 5

Periodic Review of Currencies

5.0 Periodic Review of Currencies

5.1 Review Dates

5.1.1 The FTSE Currency FRB Index Series will be reviewed monthly, one day prior to last working day of the month. The review will be implemented after the close of business on the last working day of the month.

5.2 Calculation of Spot and Forward Mid Rates

5.2.1 Spot and Forward mid rates are calculated as the arithmetic mean of the spot bid and spot offer rates using the following formula:

\[
MidRate = \left( \frac{Bid + Offer}{2} \right)
\]

5.2.2 Where WM/Reuters do not provide directly quoted currency rates, the spot and forward rates are calculated via the U.S. Dollar.
5.3 **Forward Rate Expiry and Day Count Convention**

5.3.1 The diagrams below illustrate the determination of expiry dates for all currency pairs that settle on a T+2 basis and CADUSD which settles on a T+1 basis.

5.3.2 In order to match the cash flows of the CADUSD currency pair with the remaining currency pairs that settle on a T+2 basis one additional day is added in the calculation of the forward contract.

5.4 **Determination of Currency Pair Direction**

5.4.1 The differential between the mid spot rate and mid 1-month forward rate is assessed for each currency pair to determine which currency in each pair has the higher, and which the lower, nominal interest rate.

5.4.2 If the direction of the nominal interest rate differential for a currency pair is unchanged (or if the nominal interest rate differential becomes zero, i.e. mid spot rate equals mid 1-month forward rate), then the position is rolled forward for another month at the then prevailing forward rates.
5.4.3 If the direction of the nominal interest rate differential has reversed, then the forward contract will be closed out, and a new forward contract entered into, in which the former long currency, now with the lower nominal interest rate, is sold, and the former short currency, now with the higher nominal interest rate, is bought.
Section 6

Index Calculation

6.0 Index Calculation

6.1 The FTSE Currency FRB Indexes are derived by marking to market the 1-month forward contracts on a daily basis. An equal and offsetting forward position is used based on quoted 1-month forward contract rates on each valuation day. As the calculation date moves through the month the number of calendar days in the offsetting forward contract diminishes. For example, if we assume there are 31 days in an existing 1-month forward contract and 7 days have transpired in the month, the forward would be marked to market using an offsetting 24-day forward contract (i.e. 31 – 7 = 24).

6.2 Odd-day forward contracts are calculated by using the spot rate and the premium/discount between the spot rate and 1-month forward rate, prorated for the number of days in the odd-days forward contract.

6.3 FTSE uses a linear interpolation formula to compute odd-days forward rates.

\[
FFRate_{i,\text{odd-days}} = FXRate_{t,i} + (FFRate_{t,i} - FXRate_{t,i}) \left( \frac{d_{sv,md,\text{odd-days}}}{d_{sv,1md}} \right)
\]

where:
- \( FFRate_{i,\text{odd-days}} \) = Odd-days forward FX rate on day \( t \) for currency pair \( i \)
- \( FXRate_{t,i} \) = Spot FX rate, in currency per unit in the NRA on day \( t \)
- \( FFRate_{t,i} \) = 1-month forward FX rate on day \( t \) for currency pair \( i \) on day \( t \)
- \( sv \) = Spot value date
- \( md_{\text{odd-days}} \) = Maturity date for odd-days forward contract
- \( 1md \) = Maturity date for 1m-forward contract
- \( d_{sv,md,\text{odd-days}} \) = Number of calendar days between spot value date and maturity date for odd-days contract
- \( d_{sv,1md} \) = Number of calendar days between spot value date and maturity date for 1m-forward contract
Appendix A

Data Sources and Historic Data

The FTSE Currency FRB5 Indexes have been back-calculated to 1978; the FTSE Currency FRB10 Indexes have been back-calculated to 1988. Over that time a variety of sources of data have been used for Closing Spot and 1-Month Forward Rates to calculate the excess returns and interest rates for the total return calculation.

Interest rates used in the calculations

<table>
<thead>
<tr>
<th>Currency</th>
<th>RIC</th>
<th>Description</th>
<th>Source</th>
<th>Day Count Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Dollar</td>
<td>RBA30/RBA36</td>
<td>Interbank Overnight Cash Rate</td>
<td>Reserve Bank of Australia</td>
<td>a/365</td>
</tr>
<tr>
<td>British Pound</td>
<td>SONIAORS</td>
<td>SONIA – Sterling Overnight Average</td>
<td>WMBA</td>
<td>a/365</td>
</tr>
<tr>
<td>Canadian Dollar</td>
<td>CORRA</td>
<td>CORRA – Canadian Overnight Repo Rate Average</td>
<td>Bank of Canada</td>
<td>a/365</td>
</tr>
<tr>
<td>Euro</td>
<td>EONIA</td>
<td>EONIA® - Euro OverNight Index Average</td>
<td>Euribor EBF</td>
<td>a/360</td>
</tr>
<tr>
<td>Japanese Yen</td>
<td>JPONMU=RR</td>
<td>TONAR - Tokyo Overnight Average Rate</td>
<td>Bank of Japan</td>
<td>a/365</td>
</tr>
<tr>
<td>Swiss Franc</td>
<td>CHFTOIS</td>
<td>TOIS - CHF Tom/Next Index Swaps</td>
<td>Cosmorex</td>
<td>a/360</td>
</tr>
<tr>
<td>US Dollar</td>
<td>USONFFE</td>
<td>Fed Funds Effective Rate</td>
<td>New York Fed</td>
<td>a/360</td>
</tr>
</tbody>
</table>

Source: FTSE Group

Historic interest rates and sources

<table>
<thead>
<tr>
<th>Currency</th>
<th>Rate</th>
<th>Period</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Dollar</td>
<td>Interbank Overnight Cash Rate</td>
<td>1998 - now</td>
<td>Reserve Bank of Australia</td>
</tr>
<tr>
<td>British Pound</td>
<td>SONIA</td>
<td>Mar '97 – now</td>
<td>WMBA</td>
</tr>
<tr>
<td></td>
<td>1m GBP Libor*</td>
<td>Jan ’86 – Mar ’97</td>
<td>bbalibor</td>
</tr>
<tr>
<td></td>
<td>1m interest rate*</td>
<td>Pre Jan ’86</td>
<td>Record Currency Management</td>
</tr>
<tr>
<td>Canadian Dollar</td>
<td>CORRA</td>
<td>Jul ’97 – now</td>
<td>Bank of Canada</td>
</tr>
<tr>
<td></td>
<td>1m CAD LIBOR*</td>
<td>Oct ’90 – Jul ’97</td>
<td>bbalibor</td>
</tr>
<tr>
<td></td>
<td>1m interest rate*</td>
<td>Jan ’88 – Oct-90</td>
<td>Record Currency Management</td>
</tr>
<tr>
<td>Euro Deutschmark</td>
<td>EONIA®</td>
<td>Jan ’99 – now</td>
<td>Euribor EBF</td>
</tr>
<tr>
<td></td>
<td>1m DEM LIBOR*</td>
<td>Jan ’87 to Jan ’99</td>
<td>bbalibor</td>
</tr>
<tr>
<td>Currency</td>
<td>Rate</td>
<td>Period</td>
<td>Source</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------</td>
<td>----------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Japanese Yen</td>
<td>TONAR 1m JPY LIBOR*</td>
<td>Feb ’89 – now</td>
<td>Bank of Japan</td>
</tr>
<tr>
<td></td>
<td>1m interest rate*</td>
<td>Jan ’86 – Feb ’89</td>
<td>bbalibor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pre Jan ’86</td>
<td>Record Currency Management</td>
</tr>
<tr>
<td>Swiss Franc</td>
<td>TOIS 1m CHF LIBOR*</td>
<td>Aug ’97 – now</td>
<td>Cosmorex</td>
</tr>
<tr>
<td></td>
<td>1m interest rate*</td>
<td>Jan ’89 to Aug ’97</td>
<td>bbalibor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pre Jan ’89</td>
<td>Record Currency Management</td>
</tr>
<tr>
<td>US Dollar</td>
<td>Fed Funds Effective Rate</td>
<td>Continuous</td>
<td>Federal Bank of New York</td>
</tr>
</tbody>
</table>

Source: FTSE Group

* All of the 1-month interest rates used in the calculations as a proxy for the overnight rates in the early years have been reduced by 10 basis points.

**Current forex data**

All Closing Spot and Forward Exchange Rates are sourced from WM/Reuters.

**Historic forex data**

<table>
<thead>
<tr>
<th>Forex Rate</th>
<th>Period</th>
<th>Source</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spot</td>
<td>Aug ’98 –</td>
<td>WM/Reuters</td>
<td>Bid/Offer Calculated Mid</td>
</tr>
<tr>
<td></td>
<td>Jun ‘78 – Aug ’98</td>
<td>Record Currency Management</td>
<td>USD pairs - Bid/Off calculated by applying 6bps around the Mid Spot price Non-USD pairs have 12bps spread around MID Spot price</td>
</tr>
<tr>
<td>1-Month Forward</td>
<td>Aug ’98 -</td>
<td>WM/Reuters</td>
<td>LHS/RHS Calculated Mid</td>
</tr>
<tr>
<td></td>
<td>Jun ‘78 – Aug ’98</td>
<td>Record Currency Management</td>
<td>USD pairs – LHS/RHS calculated by applying 8 bps spread around Mid 1-month Fwd price Non-USD pairs have 16 bps spread over Mid 1-month Fwd price</td>
</tr>
</tbody>
</table>

Source: FTSE Group
Appendix B

Further Information

A Glossary of Terms used in FTSE Russell’s Ground Rule documents can be found using the following link:

Glossary.pdf

Further information on the FTSE Currency FRB Index Series is available from FTSE Russell.

For contact details please visit the FTSE Russell website or contact FTSE Russell client services at

info@ftserussell.com

Website: www.ftserussell.com