



FTSE RAFI QSR (Research Affiliates Fundamental Index) Index Series

v2.7

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Section 1

Introduction

1.0 Introduction

- 1.1 This document sets out the Ground Rules for the construction and management of the FTSE RAFI QSR Index Series, which is calculated in association with Research Affiliates, LLC.
- 1.2 The FTSE RAFI QSR Index Series weights index constituents using specific fundamental factors (see Section 5), rather than market capitalisation. Therefore at review constituent weights are not based on price valuations established by the market.
- 1.3 The FTSE RAFI QSR Index Series does not take account of ESG factors in its index design.
- 1.4 The following indexes are calculated:

Global & Regional Indexes:

- FTSE RAFI All-World 3000 Index - QSR*
- FTSE RAFI All-World 3000 North America Index - QSR
- FTSE RAFI All-World 3000 Eurozone Index - QSR
- FTSE RAFI All-World 3000 Developed Europe Index - QSR
- FTSE RAFI All-World 3000 Developed Europe ex UK Index – QSR
- FTSE RAFI Developed 1000 Index - QSR*
- FTSE RAFI Developed 1000 ex Korea ex Israel Index – QSR
- FTSE RAFI Developed ex US 1000 Index - QSR*
- FTSE RAFI Developed ex US Mid Small 1500 Index – QSR
- FTSE RAFI Developed Asia Pacific ex Japan Index - QSR
- FTSE RAFI Developed Asia Pacific ex Japan ex Korea - QSR
- FTSE RAFI Developed Europe Mid Small Index - QSR
- FTSE RAFI Emerging Index - QSR*
- FTSE RAFI Emerging plus Korea - QSR
- FTSE RAFI Europe Index - QSR
- FTSE RAFI Developed Eurozone Index - QSR
- FTSE RAFI North America Index – QSR

Country Indexes:

- FTSE RAFI UK 100 Index - QSR
- FTSE RAFI UK 300 Index - QSR
- FTSE RAFI US 1000 Index - QSR*
- FTSE RAFI US 1500 Mid Small Index - QSR*
- FTSE RAFI US 3000 Index - QSR*
- FTSE RAFI Canada Index - QSR
- FTSE RAFI Japan Index - QSR
- FTSE RAFI Japan 350 Index - QSR*
- FTSE RAFI Switzerland Index - QSR
- FTSE RAFI Italy 30 Index - QSR
- FTSE/JSE RAFI 40 Index - QSR*
- FTSE/JSE RAFI All-Share - QSR
- FTSE RAFI Hong Kong/China 80 Index - QSR

1.5 Price and Total Return values are calculated for all the FTSE RAFI QSR Indexes on an end of day basis. Price Index values are also calculated in real time for those Indexes marked with an asterisk (*) in Rule 1.3.

1.6 The following variants are, or if requested may be, calculated for certain indexes within the index series:

- Capital and total return indexes.
- Net total return indexes based on specified withholding tax rates.
- Indexes calculated in currencies other than the base currency (USD).
- Currency hedged indexes.

Additional customised variants can be calculated on request including indexes with industry, country and sector exclusions. Selected indexes are calculated and disseminated on a real time basis.

1.7 The base currency of the benchmark is US Dollars (USD). Index values may also be published in other currencies.

1.8 Unless specifically detailed in this document, all areas of the methodology regarding the management of the FTSE RAFI QSR Index Series are derived from the FTSE RAFI Index Series Ground Rules. The FTSE RAFI QSR Indexes methodology should therefore be read in conjunction with the FTSE RAFI Index Series Ground Rules. These rules are available on www.ftserussell.com.

1.9 IOSCO

1.9.1 FTSE considers that the FTSE RAFI QSR Index Series meets the IOSCO Principles for Financial Benchmarks as published in July 2013.

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

1.11 Index users who choose to follow this index or to buy products that claim to follow this index 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.

1.12 **FTSE Russell**

FTSE Russell is a trading name of FTSE International Limited, Frank Russell Company, FTSE Global Debt Capital Markets Limited (and its subsidiaries FTSE Global Debt Capital Markets Inc. and MTSNext Limited), Mergent, Inc., FTSE Fixed Income LLC, The Yield Book Inc and Beyond Ratings.

Section 2

Management Responsibilities

2.0 Management Responsibilities

2.1 FTSE International Limited (FTSE)

2.1.1 FTSE is the benchmark administrator of the index series.

2.1.2 FTSE is responsible for the daily calculation, production and operation of the FTSE RAFI QSR Index Series and will:

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

2.2 Research Affiliates (RAFI)

2.2.1 Research Affiliates is responsible for calculating the RAFI fundamental value of companies based on FTSE's universes at the annual review.

2.3 Status of These Ground Rules

2.3.1 These Ground Rules set out the methodology and provide information about the publication of the FTSE RAFI QSR Index Series.

2.4 Amendments to these Ground Rules

2.4.1 These Ground Rules shall be subject to regular review (at least once a year) 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.

2.4.2 As provided for in the Statement of Principles for FTSE Russell Equity Indexes, where FTSE Russell determines that the Ground Rules are silent or do not specifically and unambiguously apply to the subject matter of any decision, any decision shall be based as far as practical on the Statement of Principles. After making any such determination, FTSE Russell shall advise the market of its

decision at the earliest opportunity. Any such treatment will not be considered as an exception or change to the Ground Rules, or to set a precedent for future action, but FTSE Russell will consider whether the Ground Rules should subsequently be updated to provide greater clarity.

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 Corporate Actions and Events Guide

3.2 Full details of changes to constituent companies due to corporate actions and events can be accessed in the Corporate Actions and Events Guide for Non Market Cap Weighted Indexes using the following link:

[Corporate Actions and Events Guide for Non Market Cap Weighted Indexes.pdf](#)

3.3 Statement of Principles for FTSE Russell Equity Indexes (the Statement of Principles)

3.3.1 Indexes need to keep abreast of changing markets and the Ground Rules cannot anticipate every eventuality. Where the Ground Rules do not fully cover a specific event or development, FTSE Russell will determine the appropriate treatment by reference to the Statement of Principles which summarises the ethos underlying FTSE Russell's approach to index construction. The Statement of Principles is reviewed annually and any changes proposed by FTSE Russell are presented to the FTSE Russell Policy Advisory Board for discussion before approval by the FTSE Russell Product Governance Board.

3.3.2 The Statement of Principles can be accessed using the following link:

[Statement of Principles.pdf](#)

3.4 Queries, Complaints and Appeals

3.4.1 A constituent or prospective constituent company (or professional advisor acting on behalf of the company), a national organisation or a group of no fewer than ten users of the Indexes from different organisations acting in their professional capacity may appeal against decisions taken by FTSE Russell.

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

[Benchmark Determination Complaints Handling Policy.pdf](#)

FTSE Russell's Appeal Process can be accessed using the following link:

[Appeals Against Decisions.pdf](#)

3.5 **[Index Policy for Trading Halts and Market Closures](#)**

- 3.5.1 Guidance for the treatment of index changes in the event of trading halts or market closures can be found using the following link:

[Index_Policy_for_Trading_Halts_and_Market_Closures.pdf](#)

3.6 **Index Policy in the Event Clients are Unable to Trade a Market**

- 3.6.1 Details of FTSE Russell's treatment can be accessed using the following link:

[Index Policy in the Event Clients are Unable to Trade a Market.pdf](#)

3.7 **Recalculation Policy and Guidelines**

- 3.7.1 The FTSE RAFI QSR Index Series is recalculated whenever errors or distortions occur that are deemed to be significant. Users of the FTSE RAFI QSR Index Series are notified through appropriate media.

For further information please refer to the FTSE Russell Recalculation Policy and Guidelines document which is available from the FTSE Russell website using the link below or by contacting info@ftserussell.com.

[Recalculation Policy and Guidelines Equity Indexes.pdf](#)

3.8 **Policy for Benchmark Methodology Changes**

- 3.8.1 Details of FTSE Russell's policy for making benchmark methodology changes can be accessed using the following link:

[Policy for Benchmark Methodology Changes.pdf](#)

Section 4

Eligible Securities

4.0 Eligible Securities

- 4.1 Each FTSE RAFI QSR Index is based on the corresponding March annual review of the FTSE RAFI Index. The rules for eligible securities are therefore identical to those set out in the Ground Rules for the FTSE RAFI Index Series.

Section 5

Periodic Review of Constituents

5.0 Periodic Review of Constituents

- 5.1 The FTSE RAFI QSR Index Series is based on the March annual review of the FTSE RAFI Index Series. The details of this review are set out in the Ground Rules for the FTSE RAFI Index Series.
- 5.2 The FTSE RAFI QSR Index Series will be reviewed annually at the close of business on the Wednesday before the first Friday in March.
- 5.3 Weighting changes and constituent additions and deletions arising from the annual review will be implemented in four stages, using data as of the close of business on the Wednesday before the first Friday in March, June, September and December, taking into account future additions and deletions to the underlying indexes.
- 5.4 Weighting changes arising from the quarterly implementation will be effective after the close on the third Friday of March, June, September and December each year.
- 5.5 The mechanism by which the FTSE RAFI QSR Index Series is rebalanced using the result of the annual March rebalance of the equivalent FTSE RAFI Index Series is set out in Section 6.

Section 6

Changes to Constituent Companies

6.0 FTSE RAFI QSR Methodology

6.1.1 The FTSE RAFI QSR index I_{QSR} is comprised of four component indexes I_{Mar} , I_{Jun} , I_{Sep} and I_{Dec} . Each sub-index is rebalanced annually in March, June, September and December using the constituents and fundamental weights of the FTSE RAFI index annual index review in March, updated for corporate events.

6.1.2 A weight adjustment factor WAF_i is calculated for each security i at the sub-index review. For example, in June:

$$WAF_{i,Jun} = \frac{w_{i,Mar}^*}{w_{i,Jun}} \quad (1)$$

where $w_{i,Mar}^*$ is the fundamental weight of security i in the underlying FTSE RAFI index reviewed annually in March (updated for corporate events) and $w_{i,Jun}$ is the June investable market capitalisation weight of security i , using prices updated for corporate events on the review cut-off date and shares in issue and investability weights at the close on the third Friday of June.

6.1.3 The index weights of each sub-index are updated for price movements and corporate events for the next 12 months (ws_i) until they are updated with new FTSE RAFI index annual weights.

6.1.4 At the quarterly review of the FTSE RAFI QSR index, the weight for each security i is calculated as the average of the four sub-index weights ws_i . The updated FTSE RAFI QSR index $WAF_{QSR,i}$ used in the calculation of the notional index market value is calculated as follows, using June as an example:

$$WAF_{QSR,i,Jun} = \left(\frac{ws_{i,Mar} + ws_{i,Jun} + ws_{i,Sep} + ws_{i,Dec}}{4} \right) / w_{i,Jun} \quad (2)$$

6.1.5 Further information of how the WAF is used in the index calculation can be found in the Corporate Actions and Events Guide for Non Market Cap Weighted Indexes.

Section 7

Changes to Constituent Companies

7.0 Changes to Constituent Companies

7.1 Additions

7.1.1 Additions to the FTSE RAFI QSR Index Series occur only as part of the March annual review in line with the underlying FTSE RAFI Index Series.

7.2 Deletions

7.2.1 There will be no intra-review deletions except in the event of corporate actions and events covered in Section 8, or of securities which are subject to surveillance by stock exchanges. Such securities will be deleted in line with their removal from the underlying index.

Section 8

Corporate Action and Events

8.0 Corporate Action and Events

8.1 If a constituent has a stock split, stock consolidation, rights issue, bonus issue, a change in the number of shares in issue or a change in free float, the constituent's weighting in the FTSE RAFI QSR Index Series will remain unchanged pre and post such an event.

8.2 Full details of changes to constituent companies due to corporate actions and events can be accessed in the Corporate Actions and Events Guide for Non Market Cap Weighted Indexes using the following link:

[Corporate Actions and Events Guide for Non Market Cap Weighted Indexes.pdf](#)

A Corporate 'Action' is an action on shareholders with a prescribed ex date. The share price will be subject to an adjustment on the ex date. These include the following:

- Capital Repayments
- Rights Issues/Entitlement Offers
- Stock Conversion
- Splits (sub-division) / Reverse splits (consolidation)
- Scrip issues (Capitalisation or Bonus Issue)

A Corporate 'Event' is a reaction to company news (event) that may impact the index depending on the index rules. For example, a company announces a strategic shareholder is offering to sell their shares (secondary share offer) – this could result in a free float weighting change in the index. Where an index adjustment is required FTSE will provide notice advising of the timing of the change.

8.3 Suspension of Dealing

Suspension of Dealing rules can be found within the Corporate Actions and Events Guide for Non Market Cap Weighted Indexes.

8.4 Takeovers, Mergers and Demergers

The treatment of takeovers, mergers and demergers can be found within the Corporate Actions and Events Guide for Non Market Cap Weighted Indexes.

Section 9

FTSE RAFI QSR Index Series Calculation

9.0 FTSE RAFI QSR Index Series Calculation

9.1 The formula for index calculation is:

$$\sum_{i=1}^N \frac{(p_i \times e_i \times s_i \times f_i \times c_i)}{d}$$

where,

- $i=1,2,\dots,N$
 - N is the number of securities in the Index.
 - p_i is the latest trade price of the component security (or the price at the close of the index on the previous day).
 - e_i is the exchange rate required to convert the security's currency into the index's base currency.
 - s_i is the number of shares in issue used by FTSE Russell for the security, as defined in these Ground Rules.
 - f_i is the Investability Weighting Factor to be applied to a security to allow amendments to its weighting, expressed as a number between 0 and 1, where 1 represents a 100% free float. This factor is published by FTSE Russell for each security in the underlying index.
 - d is the divisor, a figure that represents the total issued share Capital of the Index at the base date. The divisor can be adjusted to allow changes in the issued share Capital of individual securities to be made without distorting the index.
 - c_i is the RAFI QSR adjustment factor to be applied to a security to correctly weight that security in the index. This factor maps the free-float adjusted market capitalisation weight m_i of a stock i to its notional market capitalisation for inclusion in the Index according to the formula $c_i = w_i / \hat{m}_i$ where $\hat{m}_i = m_i / (\sum_{j=1}^N m_j)$. This factor is published by FTSE Russell for each security in the index.
- 9.2 Reuters real time exchange rates are used in the index calculations which are disseminated in real-time. Exchange rates used in the End of Day calculations are WM/Reuters Closing Spot Rates, collected at 16:00 hours London time.

Section 10

FTSE RAFI Capping Methodology

10.0 FTSE RAFI Capping Methodology

10.1 The following capped indexes are calculated:

- FTSE RAFI Italy 30 Index Capped – QSR (Capped at 20%)
- FTSE RAFI UK 100 Index Capped – QSR (Capped at 10%)
- FTSE RAFI Hong Kong/China 80 QSR index (Capped at 10%)
- FTSE/JSE RAFI 40 Index Capped – QSR (Capped at 10%)

10.1.1 The capping process aims to reduce any concentration levels that may exist.

10.1.2 The calculation of the constituent capping factors (c) will be based on prices at close on the second Friday of the review month using shares in issue, investability weights and FTSE RAFI adjustment factor as designated to take effect after close on the third Friday of the review month (i.e. taking effect on the review effective date).

10.1.3 The calculation will take into account any corporate actions/events that take effect after close on the second Friday of the review month up to and including the review effective date if they have been announced and confirmed by the second Friday of the review month.

10.1.4 Corporate actions / events announced after the second Friday of the review month that become effective up and including the review effective date will not result in any further adjustment.

The algorithm is applied to each constituent of the FTSE RAFI Indexes that requires capping, i.e. any constituent whose uncapped weight is greater than the capping level.

The Constituent Capping Factor CF_i is given by

$$CF_i = \frac{Z}{I \times (p_i \times s_i \times f_i)} \sum_{j \in J} (p_j \times s_j \times f_j)$$

where,

- i denotes the security to be capped.
- j denotes an uncapped security.
- J is the subset of securities that are uncapped.
- p_k is the official closing price of the k^{th} security.
- s_k is the number of shares in issue of the k^{th} security.
- f_k is the free float factor of the k^{th} security.
- I is the percentage of the index represented by all uncapped constituents.

- Z is the percentage capping level.

10.1.5 The FTSE RAFI QSR methodology detailed in Section 6 is applied to the uncapped annually reviewed FTSE RAFI index. The capping algorithm is applied after the application of the FTSE RAFI QSR methodology.

Appendix A: Index Series Opening and Closing Hours

Index	Open	Close
FTSE RAFI All-World 3000 Index - QSR	00:30	21:10
FTSE RAFI Developed Asia Pacific ex Japan Index - QSR	00:30	10:00
FTSE RAFI Canada Index - QSR	14:30	21:10
FTSE RAFI Developed 1000 Index - QSR	00:30	21:10
FTSE RAFI Developed Europe Mid Small Index - QSR	08:00	16:30
FTSE RAFI Developed ex US 1000 Index - QSR	00:30	21:10
FTSE RAFI Developed ex US Mid Small 1500 Index - QSR	00:30	21:10
FTSE RAFI Emerging Index - QSR	01:00	21:10
FTSE RAFI Europe Index - QSR	08:00	16:30
FTSE RAFI Italy 30 Index - QSR	08:01	16:30
FTSE RAFI Japan Index - QSR	23:50	06:20
FTSE RAFI Japan 350 Index - QSR	23:50	06:20
FTSE/JSE RAFI 40 Index - QSR	07:00	15:00
FTSE/JSE RAFI All-Share - QSR	07:00	15:00
FTSE RAFI UK 100 Index - QSR	08:00	16:30
FTSE RAFI UK 300 Index - QSR	08:00	16:30
FTSE RAFI US 1000 Index - QSR	14:30	21:10
FTSE RAFI US 3000 Index - QSR	14:30	21:10
FTSE RAFI US Mid Small 1500 Index - QSR	14:30	21:10

Notes:

Closing values at 21:10 will be disseminated at 21:30.

Timings are UK hours, from Monday to Friday.

WM/Reuters Closing Spot Rates™ compiled by The WM Company are used.

Appendix B: Status of Indexes

Price Indexes are calculated on a real-time basis may exist in the following states:

A. Firm

The Indexes are being calculated during Official Market Hours (see Appendix A). No message will be displayed against the Index values calculated by FTSE Russell.

B. Closed

The Indexes have ceased all calculations for the day. The message 'CLOSE' will be displayed against the Index values calculated by FTSE Russell.

C. Held

During Official Market Hours, Indexes have exceeded pre-set operating parameters and the calculations have been suspended pending resolution of the problem. The message 'HELD' will be displayed against the last Index values calculated by FTSE Russell.

D. Indicative

If there is a system problem or a situation in the market that is judged to affect the quality of the constituent prices at any time when the Indexes are being calculated, the Indexes will be declared indicative (e.g. normally where a 'fast market' exists in the equity market). The message 'IND' will be displayed against the Index values calculated by FTSE Russell.

The official opening and closing hours of the Indexes are set out in Appendix A. Variations to the official hours of the Indexes will be published by FTSE Russell.



Appendix C: Further Information

A Glossary of Terms used in FTSE Russell's Ground Rule documents can be found using the following link: [Glossary.pdf](#)

For further information on the FTSE RAFI QSR Index Series please visit www.ftserussell.com or e-mail info@ftserussell.com. Contact details can also be found on this website.

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