



Capping Methodology

v1.6

This document applies to any index series where the guide is specifically referenced in the index methodology documents.



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Section 1

Introduction

1.0 Introduction

- 1.1 This document sets out the capping methodology applied to FTSE Russell indexes calculated by FTSE International Limited (FTSE). The capping methodologies included in this document are used to adjust the weight of index constituent companies to adhere to different regulatory requirements or risk/concentration thresholds at the time of the periodic reviews. A list of the capped indexes is included in Appendix A.
- 1.2 These Ground Rules should be read in conjunction with the Ground Rules for the construction and management of the FTSE Global Equity Index Series and FTSE UK Index Series, which are available from FTSE Russell.
- 1.3 In exceptional circumstances the capping methodology will be re-capped outside of the time of the periodic reviews. 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 a change to the Ground Rules, or to set a precedent for future action, but FTSE Russell will consider whether the Rules should subsequently be updated to provide greater clarity.
- 1.4 **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 and The Yield Book Inc.
- 1.5 FTSE Russell hereby notifies users of the index series 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 series and therefore, any financial contracts or other financial instruments that reference the index series should be able to withstand, or otherwise address the possibility of changes to, or cessation of, the index series.
- 1.6 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

FTSE Russell Index Policies

2.0 FTSE Russell Index Policies

This document should be read in conjunction with the following policy documents which can be accessed using the links below:

2.1 FTSE Global Equity Index Guide to Calculation Methods

The aim of the guide is to describe how the indexes are calculated, to facilitate users replication of the indexes in order to support their investment and trading activities and to assist users in understanding the factors which influence the performance of the indexes.

[FTSE Global Equity Index Series Guide to Calc.pdf](#)

2.2 Corporate Actions and Events Guide

2.2.1 Full details of changes to constituent companies due to corporate actions and events can be accessed in the Corporate Actions and Events Guide using the following link:

[Corporate Actions and Events Guide.pdf](#)

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

Indexes need to keep abreast of changing markets and the Ground Rules cannot anticipate every eventuality. Where the 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 FTSE Russell's Governance Board.

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

[Statement of Principles.pdf](#)

2.4 Queries, Complaints and Appeals

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](#)

2.5 **Index Policy for Trading Halts and Market Closures**

2.5.1 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](#)

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

2.6.1 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](#)

2.7 **Recalculation Policy and Guidelines**

2.7.1 The FTSE Capped Indexes are recalculated whenever errors or distortions occur that are deemed to be significant. Users of the FTSE Capped Indexes are notified through appropriate media.

For further information 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](#)

2.8 **Policy for Benchmark Methodology Changes**

2.8.1 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 3

Eligible Securities

3.0 Eligible Securities

3.1 The eligible securities of each FTSE Capped index are the constituents of indexes defined by the FTSE Global Equity Index Series and FTSE UK Index Series Ground Rules.

3.2 Multiple Lines

3.2.1 All lines of the same company are combined as part of the capping process.

Section 4

Capping Methodologies

4.0 Capping Methodologies

4.1 Data cut-off dates and effective dates

- 4.1.1 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 and investability weights as designated to take effect after close on the third Friday of the review month (i.e. taking effect on the review effective date).
- 4.1.2 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.
- 4.1.3 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.

4.2 UCITS I and RIC Capping

- 4.2.1 The following capping methodology has been created to support indexes adhering to the European Investment in Transferable Securities (UCITS I) and Regulated Investment Company (RIC) requirements for diversification.

Application of Capping at the Quarterly Reviews

Capping Target

Capping is applied to the constituents of the relevant capped Index at each periodic review so that for:

UCITS I

- All companies that have a weight greater than 4.5% in aggregate are no more than 38% of the index.
- No individual company in the index has a weight greater than 9% of the index.

RIC

- All companies that have a weight greater than 4.5% in aggregate are no more than 48% of the index.
- No individual company in the index has a weight greater than 20% of the index.

Capping Methodology

The index is capped by the following methodology:

Step 1: Cap at company level

Any company whose index weight is greater than $y\%$ is capped at $y\%$. Where y is 9% for UCITS I and 20% for RIC capping. The weights of the remaining index constituent companies are increased as a consequence of reducing the weights of the larger companies. The weights of uncapped constituent companies are then checked and if they exceed $y\%$ they are also capped at $y\%$. This process is repeated until no company weight exceeds $y\%$.

If the weights after the $y\%$ capping satisfies the capping target or the index has less than 19 companies for UCITS I or 15 companies for RIC capping, they then become the final weights of the index. Otherwise, the capping proceeds to the next step.

Step 2: Select the top group of companies

Companies are ranked in descending order by their capped index weight and the cumulative weight for each company is calculated. The companies are selected for the top group of companies, G by selecting the company that intersects and companies within the $z\%$ percentile. Where z is 38% for UCITS I and 48% for RIC capping. The weights that are capped at $y\%$ in Step 1 are discarded.

Step 3: Intermediary Step

Indexes with 23 companies or greater

Companies in the index are capped at 4.5% based on their uncapped weights. w_i' is used in Step 4 and the preceding steps 5a and 6.

Indexes with less than 23 companies

Let G denote the collection of the top group of companies as defined in Step 2. A set of intermediate weights w' are calculated:

$$w_i' = \begin{cases} 4.5\% & , i \in G \\ \frac{w_i}{v} \times 4.5\% & , i \notin G \end{cases}$$

where $v = \max(w_i: \forall i \notin G)$ is the largest uncapped weight of all companies that are not in the top group G .

w' is used in Step 4 and the preceding steps 5b and 6.

Step 4: Adjust weights for the top group of companies

Let w_i be the uncapped weight for company i , w_i' the adjusted weight of company i and G denote the collection of the largest companies by uncapped index weights:

$$G = \{i: w_i \text{ is one of the top group of companies}\} \quad (\text{E.1})$$

Let u denote the minimum uncapped index weight in the top group G and w_k' is the adjusted weight of u from step 3

The top companies that belong to group G , are then elevated proportionally from the weights adjusted in Step 3, i.e. w_i^* .

With $u < 4.5\%$

$$w_i^* = w_i' + (z\% - \sum_{j \in G} w_j') \frac{|w_k' - u| + w_i - w_i'}{\sum_{j \in G} |w_k' - u| + w_j - w_j'} \quad , i, j \in G \quad (\text{E.2.1})$$

With $u \geq 4.5\%$

$$w_i^* = w_i + (z\% - \sum_{j \in G} w_j) \frac{|w_i - w_j|}{\sum_{j \in G} |w_i - w_j|}, \quad i, j \in G \quad (E.2.2)$$

If all companies weights are no greater than $y\%$, i.e. $w_i^* \leq y\%, \forall w_i \in G$, then the capping proceeds to Step 5. Otherwise, update the weights as:

With $u < 4.5\%$

$$w_i^* := \begin{cases} y\% & , w_i^* \geq y\% \\ w_i^* + (z\% - \sum_{w_j < y\%} w_j^* - y\%N) \frac{|w_k^* - u| + w_i - w_j^*}{\sum_{w_j < y\%} |w_k^* - u| + w_j - w_j^*} & , w_i^* < y\% \end{cases}, \quad i, j \in G \quad (E.3.1)$$

With $u \geq 4.5\%$

$$w_i^* := \begin{cases} y\% & , w_i^* \geq y\% \\ w_i^* + (z\% - \sum_{w_j < y\%} w_j^* - y\%N) \frac{|w_i - w_j|}{\sum_{w_j < y\%} |w_i - w_j|} & , w_i^* < y\% \end{cases}, \quad i, j \in G \quad (E.3.2)$$

Where N is the number of companies with weights equal to or greater than $y\%$. (E.3) is repeated until all company weights are no greater than $y\%$.

For UCITS I capping in extreme market conditions where the top four companies have a combined weight of greater than 33.5% in group G all five companies will be assigned an equal weight in group G (i.e. $w_i^* = 7.6\%$).

Step 5a: Adjust the weights of the remaining companies (23 companies or greater)

For indexes with 23 companies or greater the next step of capping adjusts the weights of all the remaining companies whose uncapped weights are not one of the companies in group G . Let T denote the collection of these companies:

$$T = \{i: w_i \text{ is NOT one of the top group companies}\} \quad (E.4)$$

Then all the companies in T are adjusted as:

$$w_i^* = (1 - z\%) \left(\frac{w_i}{\sum_{j \in T} w_j} + a \times d_i \right), \quad i \in T \quad (E.5)$$

Where

$$d_i = \frac{w_i}{\sum_{j \in T} w_j} - \frac{w_h}{\sum_{j \in T} w_j}, \quad i, j \in T \quad (E.6)$$

is the normalised weight difference between 4.5% capped and uncapped weights, and

$$a = \frac{1}{d_h} \left(\frac{0.045}{1 - z\%} - \frac{w_h}{\sum_{i \in T} w_i} \right), \quad i, j \in T \quad (E.7)$$

is an adjustment scalar with h denoting the company with the highest uncapped weight in group T .

Step 5b: Adjust the weights of the remaining companies (less than 23 companies)

For indexes with less than 23 companies the next step of capping adjusts the weights of all the remaining companies whose uncapped weights are not one of the companies in group G . Let T denote the collection of these companies:

$$T = \{i: w_i \text{ is NOT one of the top group companies}\} \quad (E.8)$$

Then all the companies in T are adjusted as:

$$w_i^* = w_i + a \times d_i, \quad i \in T \quad (E.9)$$

Where

$$d_i = \frac{4.5\% - w_i}{\sum_{j \in T} (4.5\% - w_j)}, \quad i \in T \quad (\text{E.10})$$

is the normalised weight difference between 4.5% capped and uncapped weights, and

$$a = (1 - z\%) - \sum_{i \in T} w_i' \quad (\text{E.11})$$

is an adjustment scalar with h denoting the company with the highest uncapped weight in group T .

Step 6: Calculate capping factor

The capping concludes with final weights w_i^* for company i in the Index.

In order to weight the companies in the index a Capping Factor c_i is calculated for each company i (see Appendix B).

$$c_i = \frac{w_i^*}{w_i} \quad (\text{E.12})$$

4.3 Single Level Company Capping

4.3.1 Any company whose index weight is greater than $y\%$ is capped at $y\%$. The weights of the remaining index constituent companies are increased as a consequence of reducing the weights of the larger companies. The weights of uncapped constituent companies are then checked and if they exceed $y\%$ they are also capped at $y\%$. This process is repeated until no company weight exceeds $y\%$.

The capping procedure is applied using the following algorithm:

NB. The algorithm is applied to each constituent that requires capping, i.e. any constituent whose uncapped weight is greater than $y\%$.

The constituent capping factor c_i (see Appendix B) is given by:

$$c_i = \frac{y}{I \times (p_i \times s_i \times f_i)} \sum_{j \in J} (p_j \times s_j \times f_j) \quad (\text{E.13})$$

Where i is the security to be capped, j is the uncapped security, J is the subset of securities that are uncapped, p is the closing price of the security, s is the number of shares in issue, f is the investability weight of the security, I is the percentage of the index represented by all uncapped constituents and y is the capping percentage level.

Section 5

Corporate Actions and Events

5.0 Corporate Actions and Events

5.1 Full details of changes to constituent companies due to corporate actions and events can be accessed in the Corporate Actions and Events Guide using the following link:

[Corporate Actions and Events Guide.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.

5.2 Fast Entrants

Where a security is added to the underlying index as a fast entry it will also be added to the capped index. To determine whether capping is required the new security is added to the capped index with a capping factor of 1. Where the inclusion of the new security breaches the relevant capping target (e.g. its weight is greater than 10% in a single level company capping) the index is capped following the relevant capping procedures outlined in Section Four. This process will use prices adjusted for corporate events as at the close of business on the first day of official trading based on the constituents, shares in issue and free float on the next trading day following the fifth day of official trading.

Where capping is not required the security is given a capping factor of 1.

5.3 Spin-offs

5.3.1 If a constituent company is split and forms two or more companies by issuing new equity to existing shareholders then the spin-off entity will follow the treatment of its underlying index. Where eligible the spin-off entity will be added to the same index as the parent company, per the terms, on the ex-date of the distribution. The spin-off entity will be retained in the index with the same capping factor

as the parent company until the next periodic review. Where the spin-off entity has not commenced trading within 20 business days from the ex-date of the distribution and no firm trading date has been announced, then it will normally be deleted at zero value with T+2 notice.

Appendix A: List of Capped Indexes

Capped Index	Underlying Index	Review Frequency	Capping Approach/Level
FTSE 100 Capped 10% Index	FTSE 100 Index	Quarterly in March, June, September and December	Rule 4.3 / 10%
FTSE All-Share ex Investment Trusts 5% Capped Index	FTSE All-Share ex Investment Trusts	Quarterly in March, June, September and December	Rule 4.3 / 5%
FTSE All-Share Capped 10% Index	FTSE All-Share Index	Quarterly in March, June, September and December	Rule 4.3 / 10%
FTSE 100 Capped 5% Index	FTSE 100 Index	Quarterly in March, June, September and December	Rule 4.3 / 5%
FTSE All-Share Capped 5% Index	FTSE All-Share Index	Quarterly in March, June, September and December	Rule 4.3 / 5%
FTSE Asia ex Japan RIC Capped Index	FTSE Asia Pacific ex Japan, Australia, New Zealand Index ¹	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Australia RIC Capped Index	FTSE Australia Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE BIVA Index	FTSE Mexico All Cap Index	Semi-annually in March and September	Rule 4.3 / 15%
FTSE Brazil RIC Capped Index	FTSE Brazil Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Canada All Cap Oil & Gas Capped 25% Index	FTSE Canada All Cap Oil & Gas Index	Quarterly in March, June, September and December	Rule 4.3 / 25%
FTSE Canada All Cap Basic Materials 25% Index	FTSE Canada All Cap Basic Materials Index	Quarterly in March, June, September and December	Rule 4.3 / 25%
FTSE Canada All Cap Financial ex Real Estate Capped 25% Index	FTSE Canada All Cap Financials Index ex Real Estate Index	Quarterly in March, June, September and December	Rule 4.3 / 25%
FTSE Canada All Cap Real Estate Capped 25% Index	FTSE Canada All Cap Real Estate Index	Quarterly in March, June, September and December	Rule 4.3 / 25%
FTSE Canada RIC Capped Index	FTSE Canada Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE China RIC Capped Index	FTSE China Index ¹	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Developed Europe RIC Capped Index	FTSE Developed Europe Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Developed Europe RIC Capped Hedged to USD Index ²	FTSE Developed Europe Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE France RIC Capped Index	FTSE France Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Germany RIC Capped Index	FTSE Germany Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC

Capped Index	Underlying Index	Review Frequency	Capping Approach/Level
FTSE Hong Kong RIC Capped Index	FTSE Hong Kong Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE India RIC Capped Index	FTSE India Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Italy RIC Capped Index	FTSE Italy Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Japan RIC Capped Index	FTSE Japan Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Japan RIC Capped Hedged to USD Index ²	FTSE Japan 100% Hedged to USD Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Latin America RIC Capped Index	FTSE Latin America Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Mexico RIC Capped Index	FTSE Mexico Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Russia RIC Capped Index	FTSE Russia Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Saudi Arabia RIC Capped Index	FTSE Saudi Arabia Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Saudi Arabia UCITS Capped Index	FTSE Saudi Arabia Index	Quarterly in March, June, September and December	Rule 4.2 / UCITS I
FTSE South Africa RIC Capped Index	FTSE South Africa Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE South Korea RIC Capped Index	FTSE South Korea Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Switzerland RIC Capped Index	FTSE Switzerland Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE Taiwan RIC Capped Index	FTSE Taiwan Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC
FTSE UK RIC Capped Index	FTSE UK Index	Quarterly in March, June, September and December	Rule 4.2 / US RIC

Notes

1. As part of the September 2017 review the FTSE RIC Capped indices included N-shares at 100% of their investability weight in the underlying index.
2. On a monthly basis 100% of the currency exposure will be hedged in the calculation of the currency hedged indices.

Appendix B: Index Algorithm and Calculation Method

The capped index is calculated using the algorithm described below.

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

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 the underlying index 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.
- c_i is the Capping Factor to be applied to a security to correctly weight that security in the index. This factor maps the investable market capitalisation of each stock to a notional market capitalisation for inclusion in the 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.



Appendix C: Further Information

A Glossary of Terms used in FTSE Russell's methodology documents can be found using the following link:

[Glossary.pdf](#)

Further information on the FTSE Russell Capping Methodology 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

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