Ground Rules

FTSE TWSE RAFI Taiwan Index Series
v1.8
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>2.0</td>
<td>Management Responsibilities</td>
<td>5</td>
</tr>
<tr>
<td>3.0</td>
<td>FTSE Russell Index Policies</td>
<td>7</td>
</tr>
<tr>
<td>4.0</td>
<td>Eligible Securities</td>
<td>9</td>
</tr>
<tr>
<td>5.0</td>
<td>Annual Review of Constituents</td>
<td>10</td>
</tr>
<tr>
<td>6.0</td>
<td>Changes to Constituent Companies</td>
<td>12</td>
</tr>
<tr>
<td>7.0</td>
<td>Index Algorithm and Calculation Method</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Appendix A: Index and Market Opening and Closing Hours</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Appendix B: Market and Stock Exchange</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Market and Stock Exchange</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Appendix C: Status of Index</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Appendix F: Further Information</td>
<td>18</td>
</tr>
</tbody>
</table>
Section 1

Introduction

1.0 Introduction

1.1 This document sets out the methodology for the construction and management of the FTSE TWSE RAFI Taiwan 50 Index and FTSE TWSE RAFI Taiwan 100 Index, which is calculated in association with Research Affiliates.

1.2 FTSE TWSE RAFI Taiwan 50 Index will consist of the Top 50 Taiwan companies with the largest RAFI fundamental values, selected from the FTSE Global Equity Index Series excluding the stocks that are listed on FTO – Taiwan (Taipei OTC).

1.3 FTSE TWSE RAFI Taiwan 100 Index will capture the performance of the next 100 Taiwan companies, outside the FTSE TWSE Taiwan 50 Index with the largest RAFI fundamental values, selected from Global Equity Index Series excluding the stocks that are listed on FTO – Taiwan (Taipei OTC).

1.4 The FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index weights its constituents using specific fundamental factors, rather than market capitalisation. Therefore at review constituent weights are not based on price valuations established by the market.

1.5 The FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index are calculated in real time and disseminated every 15 seconds.

1.6 A Price Index is calculated in TWD in real time. Capital and Total Return indices are calculated in USD at the end of the day, using WM/Reuters Spot Rates.

1.7 Unless specifically detailed in this document, all areas of the methodology regarding the management of the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index are in line with the FTSE RAFI Index Series Ground Rules. The FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index methodology should therefore be read in conjunction with the FTSE RAFI Index Series Ground Rules. These rules are available on www.ftserussell.com.

1.8 The FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index have a starting value of 5000, as at the 26 March 2008.
1.9 **FTSE Russell**


1.10 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.

1.11 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.
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.¹

2.1.2 FTSE is responsible for the daily calculation, production and operation of the index series and will:

- maintain records of the index weightings of all constituents and reserve companies;
- 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 review;
- disseminate the indexes.

2.2 Research Affiliates (RAFI)

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

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.

¹ The term administrator is used in this document in the same sense as it is defined in Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds (the European Benchmark Regulation).
2.5 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 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

3.1.1 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

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

3.2.1 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 which is reviewed annually and any changes proposed by FTSE Russell are presented to the FTSE Russell Index Policy Advisory Board for discussion before approval by the FTSE Russell Product Governance Board.

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


3.3 Queries and Complaints

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

Benchmark_Determination_Complaints_Handling_Policy.pdf

3.4 Index Policy for Trading Halts and Market Closures

3.4.1 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

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

3.5.1 Details of FTSE Russell’s treatment can be accessed using the following link:

Index_Policy_in_the_Event_Customers_are_Unable_to_Trade_a_Market.pdf
3.6 Recalculation Policy and Guidelines

3.6.1 The FTSE TWSE Taiwan Index Series are recalculated whenever errors or distortions occur that are deemed to be significant. Users of the FTSE TWSE Taiwan Index Series 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

3.7 Policy for Benchmark Methodology Changes

3.7.1 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 The universe of eligible constituents is all the Taiwan securities that are current constituents of the FTSE Global Equity Index Series and listed on the Taiwan Stock Exchange. Stocks listed on the Taipei Exchange will not be eligible. Additionally, Altered-Trading-Method (Full Delivery) Stocks are not eligible to be included in the FTSE TWSE RAFI Taiwan Index Series. (See Appendix B for definition of Altered-Trading-Method Stocks)

4.2 FTSE TWSE RAFI Taiwan 50 Index

4.2.1 The FTSE TWSE RAFI Taiwan 50 Index will consist of the top 50 Taiwan companies with the largest RAFI fundamental values which qualify under Rule 3.0 as eligible for inclusion in the index.

4.3 FTSE TWSE RAFI Taiwan 100 Index

4.3.1 The FTSE TWSE RAFI Taiwan 100 Index will capture the performance of the next 100 Taiwan companies, outside the FTSE TWSE Taiwan 50 Index with the largest RAFI fundamental values which qualify under Section 4 as eligible for inclusion in the index.
Section 5

Annual Review of Constituents

5.0 Annual Review of Constituents

5.1 Index Qualification Criteria

5.1.1 To be included in the index, a stock must pass free float and Liquidity criteria.

5.1.2 The FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index will follow the same Index qualification criteria as defined in FTSE Global Equity Index Series. Please refer to the FTSE Global Equity Index Series Ground Rules for more information. These rules are available on www.ftserussell.com.

5.2 Periodic Review of Constituent Companies

5.2.1 The FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index will be reviewed annually in March based on data as at the close of business on the Monday 4 weeks prior to the review effective date, taking into account any additions and deletions planned in the underlying indices.

5.2.2 Changes arising from the annual review will be implemented after the close of business on the third Friday of March each year (i.e. effective Monday).

5.2.3 The review of the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index, and the calculation of the fundamental weighting of a company is carried out as follows, using the following factors as found in a company’s annual returns:

A) Sales = company sales averaged over the prior five years
B) Cash Flow = company cash flow averaged over the prior five years
C) Book Value = company book value at the review date
D) Dividends = total dividend distributions averaged over the last five years

5.2.4 The fundamental value is calculated for each company as a whole, rather than for individual securities issued by the company. Where a single company is represented by two or more lines of stock, the company’s fundamental value is allocated between these lines of stock in proportion to their free float-adjusted market capitalisations as of the date of the rebalancing.

5.2.5 Fundamental data that is not yet available and/or cannot be derived from pre-existing companies, for example, companies such as recent listings, or recently merged companies or investment entities that do not report the necessary fundamental values will be ineligible for the FTSE RAFI Index review.
5.3 Steps for Conducting a Review

a) Underlying universe for the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index is the FTSE Global Equity Index Series excluding Gre Tai Securities Market stocks and “Altered-Trading-Method (Full Delivery) Stocks” (see Appendix B).

b) Stocks are then ranked in descending order by their RAFI company fundamental value. For more information on the calculation of the RAFI company fundamental value please refer to the FTSE RAFI Index Series Ground Rules. These rules are available on www.ftserussell.com.

c) The top 50 companies by RAFI company fundamental value are selected for the FTSE TWSE RAFI Taiwan 50 Index. The next 100 companies by RAFI company fundamental value are selected for the FTSE TWSE RAFI Taiwan 100 index.

d) Constituents are weighted within the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index by their investable RAFI fundamental value rather than their investable market capitalisation.

e) To calculate the FTSE RAFI adjustment factor, FTSE divides the investable RAFI fundamental value of each constituent by its investable market capitalisation as at the close of business on the last trading day of February. This is the weighting factor used in the FTSE RAFI Index Series calculation. Please refer to Section 7 for more information regarding the FTSE RAFI Index Series calculation.
Section 6
Changes to Constituent Companies

6.0 Changes to Constituent Companies

6.1 New Issues

6.1.1 The FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index will not have intra-review additions and new issues will be reviewed for index inclusion at the next annual review, in line with the FTSE RAFI Index Series. When a constituent is added to the universe, it will therefore be considered for inclusion at the next annual review of the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index.

6.2 Deletions

6.2.1 If a constituent is removed from the underlying index universe i.e. FTSE Global Equity Index Series, the constituent will be removed from the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index. The number of constituents for both the indices is not fixed and it may vary between annual reviews, in line with the FTSE Global Equity Index Series. If an index constituent is deleted, the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index would have less than 50 and 100 constituents respectively.

6.3 Splits / Demergers

6.3.1 If a constituent splits and forms two or more companies and any of the new entities are retained in the underlying universe, those new entities will be retained in the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index with the same FTSE RAFI adjustment factor as their parent company until the next periodic review. The FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index may have more than 50 and 100 constituents respectively after review only in the event that a constituent company is split and forms two or more companies by issuing new equity to existing shareholders. The resulting companies will be eligible to continue to be included in the Index.

6.4 Mergers / Takeovers

6.4.1 Mergers / Takeovers between Constituents

If an existing constituent is acquired for eligible shares or a combination of eligible shares and cash by another constituent, the constituent being acquired is deleted on the effective date of the acquisition. The enlarged company will remain a constituent of the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index with its FTSE RAFI adjustment factor recalculated.
a) Where the existing company is acquired for eligible shares only, the FTSE RAFI adjustment factor is recalculated to take into account the terms of the merger.

b) Where the existing company is acquired for a combination of eligible shares and cash the FTSE RAFI adjustment factor is recalculated to take into account the terms of the merger minus the cash component.

6.4.2 Mergers / Takeovers between a Constituent and a Non-Constiuent

a) If an existing constituent is acquired by a non-constituent for stock and the non-constituent is added to the underlying FTSE universe index (see Section 4 Eligible Securities), the non-constituent will be added as a constituent of the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index with its FTSE RAFI adjustment factor recalculated to take into account the terms of the merger.

b) The enlarged company will remain a constituent of either the FTSE TWSE RAFI Taiwan 50 Index or the FTSE TWSE RAFI Taiwan 100 Index with its FTSE RAFI adjustment factor unchanged only if the RAFI fundamental value is not available for the non-constituent.

c) If the event involves cash only, the constituent will be deleted and the non-constituent will not be added.

6.5 Altered-Trading-Method (Full Delivery) Stocks

6.5.1 If a constituent changes status to an Altered-Trading-Method Stock, it will normally be deleted from the FTSE TWSE RAFI Taiwan 50 Index or the FTSE TWSE RAFI Taiwan Mid-Cap 100 Index after close of the fifth business day following the day when classified as an Altered-Trading-Method Stock by the Taiwan Stock Exchange.

6.5.2 Where an Altered-Trading-Method Stock, which has been removed from the FTSE TWSE Taiwan 50 Index or the FTSE TWSE Taiwan Mid-Cap 100 Index, subsequently changes status back to being a normal stock, the company will be eligible for consideration at the next annual review.
Section 10

Index Algorithm and Calculation Method

7.0 Index Algorithm and Calculation Method

7.1 The FTSE RAFI Fundamental value for each stock is applied to the calculation by way of the FTSE RAFI adjustment factor, $c_i$. This factor adjusts the conventional investable market capitalisation of the constituent to the FTSE RAFI Fundamental Weight of the constituent. It is calculated by dividing the FTSE RAFI fundamental value (company level) for each stock by its free-float adjusted market capitalisation at review.

7.2 The application of the FTSE RAFI adjustment factor to the conventional investable market capitalisation ensures that any actions that may impact the price of a constituent (such as rights or scrip issues) are accounted for.

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

Where,

- $i = 1, 2, ..., N$
- $N$ 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 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 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 $\text{RAFI fundamental value} \times \text{investability weighting}$ price $\times$ shares $\times$ investability weighting
Appendix A: Index and Market Opening and Closing Hours

<table>
<thead>
<tr>
<th>Index</th>
<th>Open</th>
<th>Close</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTSE TWSE RAFI Taiwan 50 Index</td>
<td>01:00</td>
<td>05:35</td>
</tr>
<tr>
<td>FTSE TWSE RAFI Taiwan 100 Index</td>
<td>01:00</td>
<td>05:35</td>
</tr>
</tbody>
</table>

Timings are UK hours.

Notes:

WM/Reuters Closing Spot Rates™ compiled by The WM Company are used.
Appendix B: Market and Stock Exchange

Market and Stock Exchange

1.0 The FTSE TWSE RAFI Taiwan Index Series consists of the companies that trade on the main market - Taiwan Stock Exchange.

2.0 “Altered-Trading-Method (Full Delivery) Stocks”: When a company has financial or operation problems, the stocks are required of altering trading method as full delivery. That is, when receiving orders to trade stocks listed under the alter-trading-method category, securities brokers shall take full delivery of the proceeds (if buy) or stocks (if sell) before making trading quotes. The competitive auction for stocks listed under the altered-trading-method category shall without exception be conducted. The settlement cycle becomes T+0 instead of T+2. (For further information of Altered-Trading-Method Stock, please see Article 49 of Operating Rules of the Taiwan Stock Exchange Corporation, available on:
Appendix C: Status of Index

Status of Index
Calculation States
Price Indices will be calculated on a real-time basis every 15 seconds in TWD. The FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index may exist in the following states:

a) Firm
The Indices will be calculated during Official Market Hours (see Appendix A). No message will be displayed against the Index values.

The Official Closing Prices for the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index will be the Official Closing Prices (see Appendix A).

b) Closed
The Indices 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, an Index has exceeded pre-set operating parameters and the calculation has been suspended pending resolution of the problem. The message ‘HELD’ will be displayed against the last Index value calculated by FTSE Russell.

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

The official opening and closing hours of the FTSE TWSE RAFI Taiwan 50 Index and the FTSE TWSE RAFI Taiwan 100 Index are set out in Appendix A. Variations to the official hours of the Indices will be published by FTSE Russell.
Appendix F: 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 TWSE RAFI Taiwan Index Series is available from FTSE Russell and the Taiwan Stock Exchange.

To contact FTSE Russell, please visit the FTSE Russell website at www.ftserussell.com or contact FTSE Russell via e-mail at info@ftserussell.com.

Or:

Research Affiliates can be contacted at:-

Research Affiliates
800 E Colorado Blvd, Suite 870
Pasadena
California 91101, USA
Tel: + 1 (626) 584 -2100

Or:

The Taiwan Stock Exchange at:

Taiwan Stock Exchange
9/F, Taipei 101 Tower
No.7, Sec.5, Xinyi Road
Taipei
Taiwan
Tel: +886 2 8101 3101
Fax: +886 2 8101 3084
E-mail: Res-Dev@twse.com.tw
Taiwan domestic free call: 0080 185 5995