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How Indices Change

Coping with Market Changes

Financial markets change continuously: markets increase and decrease in relative size, companies are listed, delisted, taken over and restructured, and securities produce cash flows. An important challenge for an index provider is to record the evolution of markets in a consistent and transparent way.

In this *FTSE Insight* we describe how an index provider manages these complex processes of change, with a specific focus on equity indices. We explain how an index's constituent list of stocks is selected and maintained, how the index review process works and how indices deal with corporate actions. We also cover index governance: how an index firm ensures that its benchmarks are constructed consistently, objectively and according to high technical standards.

The Index Ground Rules

Each FTSE index series is managed according to a set of ground rules, published on the FTSE website. The ground rules for each index series set out how the indices within the series are constructed and maintained.

The ground rules also set out the management responsibilities of the entities involved in the oversight of the index series: who calculates the benchmark, who maintains the benchmark and the role of FTSE Advisory Committees and the FTSE Policy Group (see "Index Governance", below).

As ground rules cannot anticipate every eventuality in the changing markets covered by each index series, certain FTSE indices are also constructed by reference to a set of guiding principles[1]. These principles have precedence over the ground rules in circumstances where an application of the rules might be expected to lead to market distortions.

The index series ground rules also set out the procedures for countries' and securities' inclusion, the index review process, the construction methodology, the methods for dealing with corporate actions and events in equity indices and the calculation schedule.

Selecting Index Constituents

When constructing indices, index providers must select from a variety of sources. These may include information published by local stock exchanges and data supplied by specialist vendors.

For example, the process for the construction of the FTSE Global Equity Index Series (GEIS) is detailed in the flow chart below.

First, a starting universe of potential index constituents is selected from stock markets in eligible countries (the FTSE GEIS includes equities from markets designated as developed, advanced emerging and secondary emerging by FTSE's Country Classification Committee[2]). The sources of trading data in the eligible markets are set out in Appendix A of the FTSE GEIS ground rules[3].

Second, screens for security type and liquidity are applied. The index series excludes certain types of security, such as investment trusts, limited liability partnerships and companies, stapled securities and unconverted convertible preference shares and loan stocks. The liquidity screen excludes securities failing to achieve a minimum median level of daily trading volumes, based upon historical data.

1 See http://www.ftse.com/products/downloads/Statement_of_Principles.pdf. The ground rules state whether the statement of principles applies.

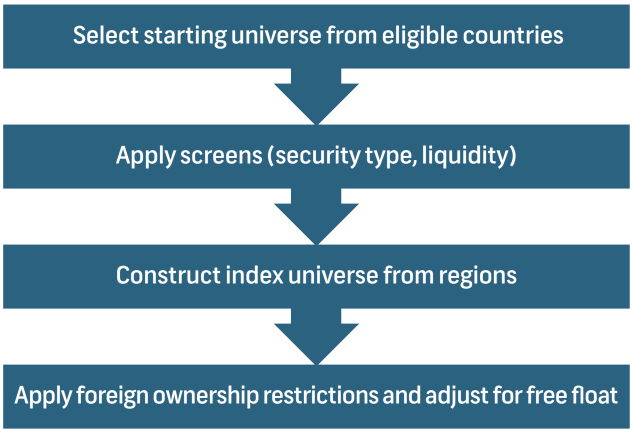
2 See http://www.ftseangle.com/research-summary/classifying-countries-the-ftse-approach/

3 http://www.ftse.com/products/downloads/FTSE_Global_Equity_Index_Series.pdf

Third, the index universe is constructed by selecting the top 98% of stocks, ranked by their full market capitalisation, from seven regional universes: Asia Pacific ex-Japan, Developed Europe, Emerging Europe, Japan, Latin America, Middle East and Africa, and North America.

Fourth, constituent weightings are adjusted for free float[4] and foreign ownership limits.

FTSE Global Equity Index Series Construction Process



Source: FTSE, for illustrative purposes only.

During this process, a starting set of over 70,000 potential securities (based upon the information supplied by local stock exchanges and data vendors) is reduced to an index constituent list of around 7,500 equities.

A similar process takes place for other FTSE indices, depending on the coverage and objectives of the individual index series.

Index Reviews

Index reviews are conducted on a regular basis and at a frequency set out in the relevant index ground rules.

The primary objective of an index review is to ensure that the index continues to operate in accordance with its stated objectives.

Reviews affecting the make-up of the FTSE GEIS include:

- Country classification reviews, which determine the list of countries eligible for inclusion in the index series;
- Reviews of eligible security classes, which affect the list of index constituents;
- Semi-annual index reviews, which assess compliance with capitalisation thresholds and apply liquidity screens to existing and potential constituents;
- Quarterly reviews of free float and foreign ownership restrictions.

When setting out the review process as part of the index ground rules, index providers must balance the desire to achieve accuracy and representativeness with the requirement to avoid unnecessary index turnover.

In capitalisation-weighted indices, turnover resulting from changes in relative company size can be reduced by the application of "buffer zones" to capitalisation bands defining eligibility for particular size segments.

For example, the FTSE Global Large Cap index aims to measure the performance of the largest companies from within the FTSE GEIS. During the regular (semi-annual) review, potential constituents do not enter the index until they are ranked within the top 68% of companies of the FTSE GEIS, measured by their full market capitalisation. Similarly, constituents are not deleted from the index until they have fallen to below 72% in a ranking of companies by their full market capitalisation.

In order to conduct these periodic index reviews, FTSE relies on detailed, company-by-company information on shares in issue, free float restrictions and trading volumes. This information is compiled and maintained by a specialist index review team, which sources data from specialist vendors, stock exchanges, annual reports and regulatory filings, cross-checking for potential discrepancies.

4 See http://www.ftse.com/products/downloads/Free_Float_Restrictions.pdf for a definition of free float restrictions

Dealing with Corporate Actions and Events in Equity Indices

Corporate actions can be seen as changes in the nature of index constituents. They may impact equity indices in different ways and require detailed and careful examination by index providers.

A mandatory corporate action affects all shareholders: examples of a mandatory action include equity dividends, stock splits, bonus issues and spin-offs (demergers). Voluntary corporate actions include tender offers, rights issues and buybacks.

FTSE defines a corporate action as an action on shareholders with a prescribed ex date, such as a rights issue, special dividend or share split. The share price and indices in which the company is included will be subject to an adjustment on the ex date.

FTSE defines a corporate event as a reaction to company news that might impact the index, depending on the index ground rules. For example, if a company announces a large sale of shares by a strategic shareholder, this could result in a change in the company's free float weighting.

FTSE's Corporate Actions and Events Guide for Market Capitalisation Weighted Indices[5] provides a comprehensive list of FTSE policies regarding the treatment of corporate actions and events.

Corporate actions and events can affect equity indices in different ways. For example, a share split (a pro rata distribution of new shares to existing shareholders) has no effect on the divisor[6] of a capitalisation-weighted index, since it represents no change in the market capitalisation of the company concerned. However, capital repayments (including special dividends), rights issues, takeovers and mergers may require an adjustment to the index divisor.

Sometimes, corporate events have a cross-border element, requiring adjustments to multiple index series. For example, in September 2013 Vodafone, which has a primary listing on the UK Stock Exchange, announced that it would sell its 45% stake in Verizon Wireless to US-listed Verizon Communications, in return for cash and Verizon Communications shares which it would distribute to its own shareholders. This corporate event required different treatment in different FTSE indices, as set out in a FTSE notice issued ahead of the completion of the transaction[7].

Within individual index series, FTSE's approach is to mirror the experience of a local shareholder. For example, the US-listed Verizon Communications shares received by Vodafone shareholders were not eligible for inclusion in the FTSE UK Index Series.

Rather, a UK shareholder could be expected to receive Verizon Communications shares, sell them for US dollars, convert the proceeds to sterling and then reinvest the cash across the UK share market. FTSE therefore set out changes to the FTSE UK Index Series that involved the creation of a temporary, sterling-denominated dummy line representing the theoretical value of the Verizon share distribution.

5 http://www.ftse.com/products/downloads/FTSE_Corporate_Actions_and_Events_Guide.pdf

6 See http://www.ftseangle.com/learning-modules/how-is-an-index-value-calculated/ for an explanation of the role of an index divisor.

7 http://www.ftse.com/products/index-notices/home/getnotice/?id=335722

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Vodafone/Verizon Deal: Treatment in FTSE UK Index Series

Date	Event
September 2013	Vodafone announces sale of 45% stake in Verizon Wireless in exchange for cash and Verizon Communications shares
17 January 2014	FTSE clarifies timetable for share distribution and describes expected treatment in FTSE UK Index Series
Friday 21 February 2014 (at close)	Closing value of Vodafone reduced by cash distribution and Verizon distribution. Theoretical value of distribution included in FTSE UK Index Series as GBP-priced dummy line
Monday 24 February 2014 (at open)	Theoretical value of dummy line updated to reflect Friday NYSE market close and Friday closing FX rate
Tuesday 25 February 2014 (at open)	Theoretical value of dummy line updated to reflect Monday NYSE market close and Monday closing FX rate
Tuesday 25 February 2014 (at close)	Dummy line deleted, index divisors adjusted accordingly

Source: FTSE, for illustrative purposes only.

Even the commonest type of corporate action—company dividends—requires careful treatment by index providers.

In certain countries, for example, a company's share price may trade ex-dividend before the dividend amount is confirmed. The share price change reflects the market's dividend forecast or, in its absence, past dividend policy. Total return equity indices, which reinvest dividends on the ex-dividend date, therefore reflect the assumed dividend amount. If the actual dividend paid differs from the assumed amount, FTSE makes an adjustment to total return index levels.

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Client Communications

FTSE provides comprehensive information regarding equity index changes and corporate actions via the “Event Monitor” section of the FTSE.com website. For individual index series, Event Monitor captures changes announced in the previous month, as well as covering pending events. This provides users with all the reference data they need to monitor index events in a convenient single spreadsheet source.

FTSE’s one-day and five-day tracker services enable clients to obtain advance notice of equity index changes, such as alterations to shares in issue totals, free float weightings or the index divisor.

Governance

Index ground rules and procedures cannot cover every eventuality in changing markets and, as explained earlier, a set of guiding principles is used by FTSE for certain index series, where the index ground rules do not fully cover a specific event or development.

FTSE’s indices also operate within a well-defined governance framework, drawing on both external and internal expertise via a series of dedicated committees. The framework is illustrated in the diagram opposite.

The governance framework includes:

- The FTSE Board of Directors;
- The FTSE Audit, Risk and Compliance Committee;
- The FTSE Governance Board, which approves all new index methodologies and enhancements to existing methodologies;
- Internal working groups (the Security Events Advisory Group, the Methodology and Procedures Implementation Group and the Index Methodology Group), which draw on staff expertise and support the FTSE Governance Board;
- External Advisory Committees, formed of senior market practitioners, clients and index users, which provide input to the FTSE Governance Board and help to mitigate any potential for conflicts of interest.

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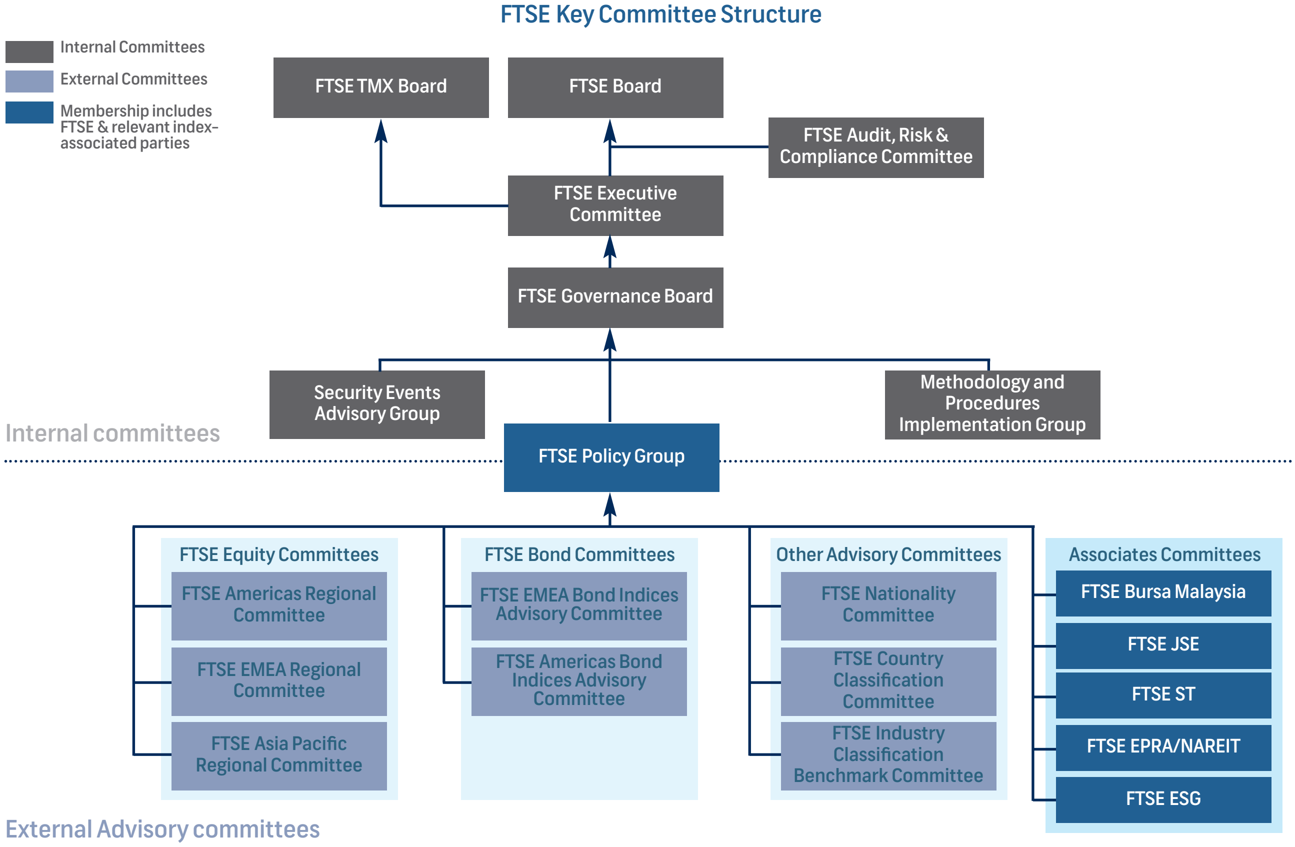
FTSE Governance Framework



Source: FTSE, for illustrative purposes only.

Simple in Theory, Complex in Practice

Conceptually, many types of index appear straightforward. A basic capitalisation-weighted index could be set up by anyone with a spreadsheet, a list of securities, data for shares outstanding and share prices.

Ensuring that indices meet the requirements of investors and perform their role over time is a more complex task, however. The constantly changing nature of securities markets means index ground rules have to contain considerable technical detail. And as a result of corporate actions and events index providers have to exercise consistency and judgement to ensure that equity indices reflect the experience of investors in the underlying markets over time.

A comprehensive governance framework, including input from specialist market practitioners, also helps index providers to cover markets objectively and consistently.

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