

MSCI REAL ESTATE INDEX DESIGN GUIDELINES AND POLICIES

MSCI Private Real Estate Indexes

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OVERVIEW

MSCI provides a wide variety of Private Real Estate Indexes, all of which are governed by rules-based methodologies. MSCI’s primary methodologies are outlined in the MSCI Global Methodology Standards for Real Estate Investments and the MSCI Methodology for Property Fund Indexes. Importantly, while different indexes each address specific investment information requirements, they are all managed in accordance with a single set of procedures and policies, administered by a small group of governance committees.

MSCI publicly publishes the methodologies governing all of its indexes. MSCI methodology documents outline index objectives and detail the rules and guidelines followed by MSCI to create and maintain its Private Real Estate Indexes. MSCI’s rules-based index methodologies are designed to ensure that indexes are determined with integrity and that discretion is not used in the production of the indexes, except by the Real Estate Index Committee (“REIC”) in extreme cases that are not effectively addressed by the published methodologies.

Any particular index will typically be governed by a number of methodology documents, including specific index methodology books as well as the higher level MSCI Real Estate Index Policies. All of these are publicly available on MSCI’s website www.msci.com.

MSCI’s policies for its Private Real Estate Indexes are all designed to provide consistency in decisions and avoid ambiguity in its responses to particular events.

The key policies and procedures are described below, under the following headings:

- Index Composition Change Policy
- Correction Policy
- Methodology Change Policy
- Consultation Policy
- Index Termination Policy

MSCI also calculates custom indexes at clients’ request. These are constructed and maintained in accordance with the rules and procedures applicable for their corresponding parent MSCI real estate indexes, using standardized methodologies wherever possible.

This document also covers the naming conventions applied to MSCI Private Real Estate Indexes as well as including a section highlighting the risks and limitations of using a real estate index, market information or a benchmark for a particular purpose.

1 REAL ESTATE INDEX DESIGN GUIDELINES

MSCI Private Real Estate Indexes, including custom indexes, are designed and maintained within the framework defined by principles set out in this document. At the highest level,

MSCI follows the following guidelines in the development and maintenance of all Private Real Estate Indexes:

- The aim of all MSCI Private Real Estate Indexes is to appropriately and correctly represent a particular market. MSCI Private Real Estate Indexes should be constructed and maintained to meet the prime objectives of representativeness and accuracy; and
- MSCI Private Real Estate Index methodologies should be monitored regularly with the aim of ensuring that they continue to reflect their objectives, as the underlying market or strategy evolves.

For custom indexes, the prime objective is determined in conjunction with the client and will almost always require that its composition is agreed with the client.

2 INDEX AND METHODOLOGY REVIEW PROCESS

MSCI private real estate index methodologies are reviewed at least annually with respect to both their overall success in capturing the market or strategy they are designed to reflect and to their general representativeness. Any proposed changes are presented to the REIC and will trigger a formal consultation if it is deemed necessary. All methodologies will be presented to and approved by the REIC annually.

MSCI may also trigger out-of-cycle methodology reviews in response to market participant feedback and structural changes in the market. Index changes resulting from an index methodology review are announced simultaneously to all market participants in advance of implementation.

3 INDEX POLICIES

3.1 INDEX COMPOSITION CHANGE POLICY

Changes in the composition of an index can result from various types of events. These include the addition of a new data provider, the omission of mandatory input data by a data provider resulting in the exclusion of the whole or part of the data provided and the withdrawal of an existing data provider.

The aim of this policy is to define and address material impacts resulting from changes in the composition of a Standard Index.¹

¹ A Standard Index is defined by its country or regional (for multinational indexes) scope, its reporting frequency and its basic index methodology, and has the broadest coverage for that market.

3.1.1 POLICY

For each release of a Standard Index, the composition will be reviewed to ascertain if any change to its composition should be deemed material.² Any such ruling on an index change will be based on its impact on the overall index capital value (for Property Indexes) and net asset value (for Property Fund Indexes). However, other factors including sector or segment rebalancing, confidentiality issues,³ and portfolio dominance may also be relevant.

Any such change in index composition, once agreed to be material, will be subject to a formal public announcement that will also be published on the MSCI website.

The historical data provided by any data providers withdrawing from the index will be retained. Portfolios with missing mandatory input data for the period in question will be included in historical universe datasets and in unfrozen indexes, but newly provided assets/portfolios with partial historical information (missing mandatory input data) will be included only from the current analysis period.

3.1.2 SCOPE

The policy applies only to Standard Indexes.

3.2 CORRECTION POLICY

This policy outlines the way in which MSCI corrects data errors and applies those corrections to indexes historically, a process described hereafter as “restatement.”

3.2.1 POLICY

MSCI corrects errors in individual portfolio data once they have been identified, so that reports delivered to clients on their own holdings always reflect the latest data. MSCI will restate indexes (frozen and unfrozen) if errors were made over the previous 36 months and are deemed to have a material impact on the index. Such restatement of an index history will be published in an announcement on the MSCI website with an explanation of the corrections made.

Consultative indexes,⁴ either in the early stages of methodology development or for which the available data are of insufficient quantity or quality to produce a full index, are not subject to this time limit and will be restated at any point following error detection.

² Currently a change to an index is considered to be material when the net percentage impact on total index capital value for a Property Index or net asset value for a Property Fund Index is greater than 500 bps based on the previous period’s corresponding values at the Standard Index level.

³ As defined in the MSCI Global Methodology Standards for Real Estate Investments and the MSCI Methodology for Property Fund Indexes

⁴ The consultative index status will be included in the index fact sheet.

3.2.2 SCOPE

This policy addresses only the correction of data errors. This policy does not cater for historical index changes due to the addition of historical data from new data providers in the index. Typical errors include but are not limited to:

- Incorrect capital values or net asset values.
- Incorrect transaction prices.
- Incorrect net income on direct properties.
- Incorrect distributions recorded in fund data.
- Incomplete information on capital invested.
- The omission of whole properties or funds.

3.2.3 CORRECTION PERIOD

MSCI applies a 36-month correction period, calculated retrospectively from the date when the error was detected.

For frozen indexes, errors relating to data older than 36 months are not considered as relevant to index restatement. For unfrozen indexes, errors older than 36 months will be corrected when they are next published, but are not considered relevant for index restatement.

3.2.4 MATERIALITY

Index correction thresholds are used to assess whether the restatement of an index or universe measure should be deemed material. These tests are generally applied to the resulting overall impact⁵ on the headline measures of the Standard Index return. Any such restatement of a headline measure, once agreed to be material, will be subject to a formal announcement and that announcement will be published on the MSCI website.

For the correction of non-headline measures, such as rental value growth, floor space and vacancy rates, the correction decision will be treated on a case-by-case basis. Because this kind of correction does not impact any headline measures (total return, capital value growth or income return) and no single predefined threshold would apply, a lighter touch review procedure is acceptable.

Nonetheless, any change to non-headline measures will be reported to the REIC and the decision will be taken on a case-by-case basis. Actions can potentially include a rerun of

⁵ Currently the threshold for corrections is 50 basis points for total return and capital value growth and 25 basis points for income return measures at the Standard Index level.

market information and analytics reports, which will then require clients to be notified of the corrections.

3.2.5 SUMMARY OF CASES

	MATERIAL		NOT MATERIAL	
	WITHIN CORRECTION PERIOD	OUTDATED	WITHIN CORRECTION PERIOD	OUTDATED
Frozen	Restate/ announce	No restatement required	No restatement required	No restatement required
Unfrozen				
Error discovered during current calculation cycle	Announce	No restatement required	No restatement required	No restatement required
Error discovered between calculation cycles	Restate/ announce	No restatement required	No restatement required	No restatement required

3.3 METHODOLOGY CHANGE POLICY

Major changes to the MSCI Property Indexes or analytics methodology are infrequent. In many cases the need for such changes stems from changes to the real estate investment regulatory environment or a shift in industry standards. The former may necessitate a rapid change in methodology while the latter may be a reaction to a more gradual shift in the industry consensus. MSCI takes a considered approach to methodology changes, involving both internal and external consultation, a formal internal sign off procedure and the public communication of final decisions concerning the implementation of changes.

Requests for changes to a methodology may originate from various stakeholders within MSCI such as Research, Product Management and Client Coverage, or from index users directly in relation to a particular issue. The Real Estate Research team will analyze any requests and provide a methodology change proposal if warranted. The Real Estate Index Committee reviews any proposal, requesting further information, including an assessment of the practicality of implementation, if necessary. If the methodology change is considered material⁶ it is presented to the real estate Oversight Committee for scheduling.

⁶ A “material change” to an index methodology is a change affecting principles of index construction, a change in the method of determining index inclusion criteria, or a correction or clarification to the index methodology that could

3.3.1 POLICY

MSCI takes a considered approach to methodology changes and is led by Research. This normally involves:

- Internal consultation (in all cases).
- A formal internal recommendation by the Real Estate Index Committee, taking account of any statistically quantifiable impacts of the proposed change.
- Presentation of the proposed change in methodology to MSCI users through a formal consultation in all affected markets. The formal consultation takes place over a fixed but sufficient period of time, with a proposal document made available for review. Having given the opportunity for comment and feedback, MSCI then consults individually with a cross section of key stakeholders.
- Consolidation of all feedback and agreement of a final course of action internally by the Real Estate Index Committee.
- Public announcement of the final methodology change, both on the MSCI website at least one month before implementation of the change and at individual and group stakeholder meetings. This communication will include an explanation of the rationale for the change.

3.4 CONSULTATION POLICY

Stakeholder feedback is important and MSCI consults interested parties as appropriate before introducing any changes to methodology.

3.4.1 POLICY

Stakeholder consultation will always be undertaken in the following circumstances:

- Material changes in methodology related to the determination of indexes, such as changes to headline performance measures, attribution analysis and risk analysis. Such material changes are determined by the Real Estate Index Committee.
- Termination of indexes.

MSCI may also consult stakeholders at other times on any other issues.

Once a proposed change has been agreed by the Real Estate Index Committee, consultation will take place with interested parties as appropriate, including consultative groups for

potentially affect the interpretation of the methodology rules, including any changes or corrections to the composition of the methodology set. In contrast, index methodology updates resulting from the application of existing methodology principles (e.g., threshold updates based on existing formulas), minor clarifications of existing rules or corrections that do not alter the meaning of the methodology text, are generally not considered as material.

affected national markets. Proposals will be set before affected stakeholders for comment and amended if necessary.

Feedback will be provided publicly on the results of the consultation and on how they have been used in shaping the final change.

3.5 INDEX TERMINATION POLICY

The aim of this policy is to establish the conditions under which MSCI will consider discontinuing an index and to describe the steps and precautions taken in these instances.

When a termination is deemed essential, it will generally not be possible to provide or advise on a robust alternative. Indexes may also be discontinued if fewer than the required minimum number of assets or funds/portfolios are eligible and available for inclusion when applying a given methodology to a market.

3.5.1 POLICY

Following each annual review of index market coverage (“Market Size” survey), the Real Estate Index Committee will consider termination of an index if it is no longer broadly representative of the investment market it aims to represent and there appears to be no prospect of this situation improving in the foreseeable future.

Guidelines are provided as to when an adverse change to a index may require an index termination. These are based primarily upon the resulting impact on overall market coverage, but other factors including sector viability, reduction in data quality to below MSCI standards and contributor dominance may be relevant. However, the final determination in all cases rests with the Real Estate Index Committee.

If the conditions under which MSCI will consider terminating an index have been identified, MSCI will investigate any opportunities to remedy the situation, including making efforts to increase the index size and improve data quality. If after these attempts, MSCI concludes that the situation cannot be remedied, the question of the termination of the index will be taken to external consultation. As part of this consultation process, alternative indexes and market reporting options will be reviewed, as appropriate.

After consultation, the Real Estate Index Committee will consider all feedback and make a final determination with regards to terminating the index. When a decision is taken to terminate the index, it will be publicly announced together with an explanation of the reasons that necessitated the termination.

MSCI will endeavour to provide users and other interested parties with reasonable notice of the change, to the extent possible within the context of the review process.

3.5.2 SCOPE

This policy applies only to Standard Indexes.

4 INDEX CALCULATION AND DISCRETION

Where there a need has been identified to take an action that is not prescribed in the current methodology, senior members of the MSCI Index Research and Product groups will develop a proposed approach with the goal of remaining consistent with the objectives of the methodology and ensuring timely calculation and distribution. This proposal will then be reviewed by the REIC. In cases which are deemed material and where time permits, MSCI may consult with clients on the proposed approach. MSCI will then announce the selected action simultaneously to all market participants on the MSCI website.

Typically, MSCI does not perform explicit ex-post analysis of decisions, but always welcomes feedback from market participants on decisions made.

The framework described above is designed to eliminate the exercise of discretion by any one individual and ensures that any required exercise of discretion is managed through escalation to committees of experts. All committees are governed by explicit terms of reference and all decisions will be appropriately documented and archived.

4.1 INDEX DELAY

An index release may be delayed if there is a reasonable expectation that a large portion of the data that would normally but cannot currently be included may be made available given a modest extension of the deadline. Such a delay may relate to data provision, but can equally be required in order to facilitate additional validation checks or gathering additional explanations.

The REIC will review any such scenarios on a case by case basis and an announcement will be published on the MSCI website if and when it has been decided to delay a Standard Index release.

5 NAMING OF INDEXES

The name of an MSCI index series may comprise up to three components. The first component is the name of the Standard Index upon which the specific index is based. The second component describes any selection filter that has been applied to a Standard Index in creating a sub-index. The third component indicates how the index series is calculated, based on the methodology as defined in the respective methodology book for the Standard Index.

Using this approach, each name is unique. In exceptional circumstances, if a name becomes too long due to the complexity of its definition, MSCI may decide to create an alternative unique name which is shorter. In this case its description will be more fully detailed in a custom methodology.

5.1 STANDARD INDEX NAME

The Standard Index name indicates which national market or multinational region is covered and at what reporting frequency, and does not reference any additional filters relating to the index scope. In addition to the MSCI brand name, the index may also be co-branded.

Indexes based on the MSCI Global Methodology Standards for Real Estate Investments are named “Property Indexes” while those based on the MSCI Methodology for Property Fund Indexes are named “Property Fund Indexes.”

The frequency normally reflects the required data provision regime for an index – monthly, quarterly, bi-annual or annual. In certain markets, however, indexes deviate from full calendar year-end synchronization, which means that the frequency of the releases does not necessarily nest neatly into the standard annual/quarterly/monthly framework. Examples include a biannual index that is based on data to March and September year-ends, and annual indexes based on data to a March year-end.

Some indexes are refreshed and released quarterly but do not fulfill all the requirements of a full quarterly index in that **not all** assets are re-valued each quarter. These indexes reflect a rolling valuation frequency which may vary from quarterly to annual. In these cases the index is considered to be a rolling 12-month index that is updated each quarter.

MSCI Private Real Estate Indexes may be either frozen (fixed history) or unfrozen (history updated at each release date). This distinction is also made clear in the naming of each Standard Index. All unfrozen are labeled “unfrozen,” while all frozen indexes receive no such label.

5.2 INDEX SUBSET

Any index subsets can in principle become a “named” sub-index of any Standard Index through the application of attribute filters (also known as a screen) to the Standard Index. Three broad types of filter attributes are most commonly used, which can be applied to both Property and Property Fund Indexes. These are:

- Peer Group filters
Peer group filters are based on characteristics of the fund or portfolio rather than the underlying assets and may be linked to the type of investor, the structure of the fund, its investment strategy or mandate, or its overall size. Indexes defined by clients that *exclude* specific portfolios or funds fall into this category. Such screening is commonly used when clients wish to exclude their own (fund, portfolio or house) contribution to an index for the purposes of relative measurement.
- Geographic filters
Geographic filters include or exclude certain regions from the overall geographic scope of a particular Standard Index, usually for the purpose of matching a spatially defined investment mandate. One or more countries may be ruled out of a

multinational index or a subset of regions from a country index. In certain cases a mandate will focus on a very specific target area for investment and this will require an equally specific benchmark index.

- Property attribute filters
Property attribute filters encompass a wide variety of asset characteristics that can be used to define index subsets. These attributes are most obviously applicable to Property Indexes, but in certain cases can also be used to create sub-indexes from Property Fund Indexes. The most frequently referenced attributes are property sectors and more detailed property types, as defined in the MSCI Global Methodology Standards for Real Estate Investments. Other commonly required property attribute filters include the size of a property (either based on capital value or floor space), its construction date and its green building certification (if available).

For filters based on asset value bands, MSCI offers both recalibrated and non-recalibrated indexes. For recalibrated indexes, property value is one of the index criteria (e.g., Shopping Centres >£20m at each period end). Because property values change over time, such indexes may require recalibration. The recalibration procedure is defined in the MSCI Global Methodology Standards for Real Estate Investments.

MSCI’s multinational Property Indexes can be market-size weighted (using MSCI’s Market size estimates) or sample weighted (based solely on the data provided to MSCI without reweighting). Therefore, for all multinational Property Indexes the weighting method is always referenced in the index name. However, all MSCI’s multinational Property Fund Indexes are sample weighted and therefore this attribute is not included in the naming of those indexes.

In addition to the standard weighting options, clients may provide MSCI with target weights, drawn from investment strategies or mandates, to be used for reweighting in custom indexes.

5.3 INDEX SERIES

The index series names for each Standard Index are designed to indicate the index calculation methodology and specifically reference a pre-defined performance measure.

The performance measure reference will often include additional elements so that the full designation of the measure is clear. The most commonly used and reported performance measure is total return, but any other performance measure may be reported and thus referenced in the series name.

Additional information on the reported measure (e.g., unweighted average or percentile ranking), its currency and currency conversion method (e.g., fixed, variable) may be included in the index name to help fully define the index series. If, however, the measure is based on the value-weighted average, that feature will not be included in the name since this is the

standard default basis for MSCI real estate performance measures. In addition, the currency conversion method is not included in the index series name for a single national market that is reported in its local currency.

For Property Indexes, the index series name may include additional information on the inclusion/exclusion of property assets that reflect the nature of the investment interest (e.g., directly held property only or including indirect interests). The baseline analysis inclusion filter (All Assets, Standing Investments, Non-Operating assets and Same Store) will always be indicated in the index name.

However, the investment type “directly held domestic property” is considered to be a default position, and so is not included in any Property Index series name.

6 NOTICE OF REAL ESTATE INDEX USAGE

Indexes, related market information and analytic products are created and may be used for a variety of purposes, ranging from research through portfolio analysis to deployment within a range of more complex investment products. They are used by a variety of market participants including asset owners, portfolio managers, brokers/dealers and researchers. Not all indexes and benchmarks are appropriate for all potential uses. Market participants and data users should exercise caution when selecting an index for a particular purpose.

The applicability and relevance of the MSCI Private Real Estate Indexes and benchmarks will be affected by a large number of factors, most of which are beyond MSCI’s control. These may include structural changes in the underlying market (including decrease in the size and liquidity of relevant market segments), loss of voluntary data contributions, geo-political events and regulatory changes. Some of these may result in a material change to the composition – or even the termination of – an index, benchmark or methodology. If the issuers of financial products choose to use an MSCI Private Real Estate Index as the basis of an index-linked financial product, they should consider all these possibilities.

Use of any MSCI Private Real Estate Index for a “regulated use” as defined in the recently launched EU benchmark regulation (“BMR”) requires a specific written authorization letter from MSCI. Only current MSCI real estate clients are eligible to apply for authorization. Use of any MSCI Private Real Assets Indexes, including the MSCI Private Real Estate Indexes, for BMR “regulated uses” outside this MSCI authorization process is strictly prohibited.

7 APPENDIX: VERSIONING TABLE

VERSION	PUBLICATION DATE	KEY CHANGES
V1.0	January 2019	First release of separate document, which was previously included in the MSCI Global Methodology Standards for Real Estate Investments.

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ABOUT MSCI

For more than 40 years, MSCI’s research-based indexes and analytics have helped the world’s leading investors build and manage better portfolios. Clients rely on our offerings for deeper insights into the drivers of performance and risk in their portfolios, broad asset class coverage and innovative research.

Our line of products and services includes indexes, analytical models, data, real estate benchmarks and ESG research.

MSCI serves 99 of the top 100 largest money managers, according to the most recent P&I ranking.

For more information, visit us at www.msci.com.

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None of the Information constitutes an offer to sell (or a solicitation of an offer to buy), any security, financial product or other investment vehicle or any trading strategy.

It is not possible to invest directly in an index. Exposure to an asset class or trading strategy or other category represented by an index is only available through third party investable instruments (if any) based on that index. MSCI does not issue, sponsor, endorse, market, offer, review or otherwise express any opinion regarding any fund, ETF, derivative or other security, investment, financial product or trading strategy that is based on, linked to or seeks to provide an investment return related to the performance of any MSCI index (collectively, “Index Linked Investments”). MSCI makes no assurance that any Index Linked Investments will accurately track index performance or provide positive investment returns. MSCI Inc. is not an investment adviser or fiduciary and MSCI makes no representation regarding the advisability of investing in any Index Linked Investments.

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The Information may contain back tested data. Back-tested performance is not actual performance, but is hypothetical. There are frequently material differences between back tested performance results and actual results subsequently achieved by any investment strategy.

Constituents of MSCI equity indexes are listed companies, which are included in or excluded from the indexes according to the application of the relevant index methodologies. Accordingly, constituents in MSCI equity indexes may include MSCI Inc., clients of MSCI or suppliers to MSCI. Inclusion of a security within an MSCI index is not a recommendation by MSCI to buy, sell, or hold such security, nor is it considered to be investment advice.

Data and information produced by various affiliates of MSCI Inc., including MSCI ESG Research LLC and Barra LLC, may be used in calculating certain MSCI indexes. More information can be found in the relevant index methodologies on www.msci.com.

MSCI receives compensation in connection with licensing its indexes to third parties. MSCI Inc.’s revenue includes fees based on assets in Index Linked Investments. Information can be found in MSCI Inc.’s company filings on the Investor Relations section of www.msci.com.

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