MSCI Global Methodology Standards for Real Estate Investment

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Contents

1 Introduction

MSCI provides a wide variety of Private Real Estate Indexes, which are governed by rules-based methodologies.

Methodology documents outline index objectives and describe the rules and guidelines followed by MSCI to create and maintain the MSCI Private Real Estate Indexes in the widest set of possible circumstances, including situations of market stress. MSCI's rules-based private real estate index methodologies are designed to ensure that indexes are determined with integrity, and that discretion with respect to methodology is only used in unusual cases not effectively addressed by the methodologies.

This document outlines the list of various published MSCI Private Real Estate Index methodology documents, which are available on MSCI's website at www.msci.com/real-estate-methodology. This document also covers the naming convention applied to MSCI Private Real Estate Indexes which corresponds to the methodology used for an index.

2 Methodology Sets

MSCI Private Real Estate Indexes are governed by a set of methodology documents (Methodology Set) which define the full methodology governing a specific index.

The Methodology Set for all MSCI Private Real Estate Indexes includes:

- MSCI Real Estate - Index Policies

- MSCI Global Data Standards for Real Estate Investment

For a Property Index, the Methodology Set additionally includes:

- MSCI Property Indexes Methodology

- MSCI Standards for Real Estate Valuations

- Additional methodology specifications, as appropriate to the market or index.

For a Property Fund Index, the Methodology Set additionally includes:

- MSCI Property Fund Indexes Methodology

- Additional methodology specifications, as appropriate to the market or index, for example, MSCI/AREF UK Quarterly Property Fund Index Methodology.

For BMR Benchmarks[1], the Methodology Set includes the Property Index Methodology Set or Property Fund Index Methodology Set, as applicable, together with the MSCI Real Estate – BMR Benchmarks Methodology Specifications document, which describes any additional methodology specifications and documents for the BMR Benchmarks.

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[1] A "BMR Benchmark" is an MSCI Private Real Estate Index for which MSCI Limited has provided written permission in each instance to its client to be used for a BMR regulated use.

3 Methodology Documents

3.1 MSCI REAL ESTATE - INDEX POLICIES

The MSCI Real Estate – Index Policies document is part of each Methodology Set and sets out the development and maintenance for the MSCI Private Real Estate Indexes, including Index Design Guidelines and key index policies.

3.2 MSCI GLOBAL DATA STANDARDS FOR REAL ESTATE INVESTMENT

The MSCI Global Data Standards for Real Estate Investment document defines the data fields collected from clients. The document provides background to the Data Standards, explaining its purpose, benefits and structure and includes appendices listing all fields, enumerations, definitions and data formats.

3.3 MSCI PROPERTY INDEXES METHODOLOGY

The MSCI Property Indexes Methodology document outlines how MSCI creates and maintains its Property Indexes, market information and analytics, which are designed to address the needs of real estate and multi-asset class investors.

MSCI's Property Indexes measure the performance of global, regional and individual national markets and segments by calculating and aggregating the performance of individual properties.

3.4 MSCI STANDARDS FOR REAL ESTATE VALUATIONS

The standards for the asset level valuations used in the MSCI Property Indexes are provided in the MSCI Standards for Real Estate Valuations document.

For most financial asset classes, investment performance measurement is based upon transaction prices. The relatively low liquidity of private real estate investments renders the establishment of purely price-based property indexes problematic. As a result, the MSCI Property Indexes are predominantly constructed from professional valuations.

3.5 MSCI PROPERTY FUND INDEXES METHODOLOGY

The MSCI Property Fund Indexes Methodology document outlines how MSCI creates and maintains its Property Fund Indexes and market information, which are designed to address the needs of real estate and multi-asset class investors.

The objective of MSCI Property Fund Indexes is to measure the performance of unlisted pooled structures, including the effects of cash holdings, leverage and fund operating costs, as well as the returns to the underlying real estate assets.

3.6 MARKET SPECIFIC PROPERTY FUND INDEX METHODOLOGY DOCUMENTS

The Market Specific Methodology Documents provide details on the specific methodology for the respective Property Fund Index and includes, among other things, the index inclusion requirements, the definition of the sub-indexes and data provision requirements. The methodology books are available on the Real Estate Methodology Documents section on the MSCI website.

The section includes among other market specific document the MSCI/AREF UK Quarterly Property Fund Index Methodology. The MSCI/AREF UK Quarterly Property Fund Index is designed to represent the performance of UK unlisted pooled property funds. The Index is value-weighted, and it is based on the Net Asset Value (NAV) of its constituent property funds each quarter.

3.7 MSCI REAL ESTATE – BMR BENCHMARKS METHODOLOGY SPECIFICATIONS

The MSCI Real Estate – BMR Benchmarks Methodology Specifications document sets out the additional detailed methodology specifications for BMR Benchmarks.

A "BMR Benchmark" is an MSCI Private Real Estate Index for which MSCI Limited has provided written permission in each instance to its client to be used for a BMR regulated use. A BMR Benchmark may be a Standard Index or an index automatically calculated from a Standard Index using pre-configured specifications.

4   MSCI Private Real Estate Index Naming Conventions

The name of an MSCI Private Real Estate Index series may comprise of 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 the actual index series that is calculated and includes among other things the measure, based on the methodology as defined in the respective methodology book for the Standard Index.

Using this approach, each name is unique and descriptive. 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 document.

4.1   MSCI PRIVATE REAL ESTATE STANDARD INDEX NAME

The Standard Index name indicates the national market or multinational region which it covers, the reporting frequency and the primary methodology. A Standard Index may be labeled MSCI or it may be co-branded. It does not reference any additional filters relating to the index scope.

Indexes based on the MSCI Property Indexes Methodology are named "Property Indexes" while those based on the MSCI Property Fund Indexes Methodology are named "Property Fund Indexes."

The frequency normally reflects the minimum 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 to reflect current composition and available

data). 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.

Examples of MSCI Private Real Estate Standard Index Names:

MSCI U.S. Annual Property Index **(Unfrozen)**
MSCI/AREF UK Quarterly Property Fund Index
{Brand/co-brand}{country/region} {minimum frequency}{Property/Property Fund}Index {History}

4.2   MSCI PRIVATE REAL ESTATE 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 (i.e. MSCI/AREF UK All Balanced Quarterly Property Fund Index).

  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. (i.e. MSCI U.S. (excluding Fund X) Quarterly Property Index (unfrozen)).

- **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 geographical defined investment mandate (i.e. MSCI UK Central London Quarterly Property Index). 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 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 Property Indexes Methodology (i.e. MSCI Germany Shopping Centers Annual Property Index (unfrozen)). 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 (fixed) indexes. For recalibrated indexes, property value is one of the index criteria (e.g., Shopping Centers >£20m at each period end). Because property values change over time, such indexes may require recalibration. The recalibration procedure is defined in the MSCI Property Indexes Methodology.

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.

Examples of MSCI Private Real Estate Index Subset names:

MSCI U.S. **(excl. Fund xxx) New York Office** Annual Property Index (Unfrozen)
MSCI/AREF UK **All Balanced** Quarterly Property Fund Index
    {Peer Group Filters} {Geographic Filters} {Property Attribute Filters}

4.3   MSCI PRIVATE REAL ESTATE 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. For property fund indexes more

details are required for measures, because they are using different methodologies and could be either net or gross of fees, like:

- Gross Total Return - Modified Dietz
- Net Total Return - Modified Dietz
- Net Total Return - Unitized Adjusted for Crossholdings

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 default analysis inclusion filter is All Assets. In other cases (Standing Investments, Non-Operating assets and Same Store) this filter label will be included 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.

Examples of MSCI Private Real Estate Index Subset names:

MSCI U.S. (excl. Fund xxx) New York Office Annual Property Index (Unfrozen) **(Total Return; USD)**

MSCI/AREF UK All Balanced Quarterly Property Fund Index **(50th Vehicle-level Percentile Net Total Return - Unitized Adjusted for Crossholdings; GBP)**
   {Measure Function} {Measure} {Currency}

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5   APPENDIX: Versioning Table

Version	Publication Date	Review Date	Key Changes
V1.0	June 2019		First release of separate document, which outlines the methodology documentation for the MSCI Private Real Estate Indexes.
			The content of the previously MSCI Global Methodology Standards for Real Estate Investments is included in the MSCI Property Indexes Methodology document as well as the index naming conventions.
V2.0	Jun 2021		Updated section 3.6 on Market specific PFI documents to remove specificity around MSCI/AREF UK Property Fund Index document with introduction of other PFI methodology documents.

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ABOUT MSCI

MSCI is a leading provider of critical decision support tools and services for the global investment community. With over 45 years of expertise in research, data and technology, we power better investment decisions by enabling clients to understand and analyze key drivers of risk and return and confidently build more effective portfolios. We create industry-leading research-enhanced solutions that clients use to gain insight into and improve transparency across the investment process.

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