IPD INDEXES AND BENCHMARK METHODOLOGY GUIDE

June 2014

CONTENTS

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Appendices

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

INTRODUCTION

This Methodology Guide outlines how MSCI produces and computes real estate market return measures and performance benchmarks to address the needs of real estate and multi-asset class institutional investors. It describes the main MSCI procedures, methods and rules which govern MSCI's definition and computation of real estate indexes and benchmarks. MSCI 's objective in producing these indexes and benchmarks is to provide more transparency to the real estate investment market, with the aim of matching best practice in mainstream investment measurement and performance assessment.

IPD indexes and benchmarks cover both asset and fund-level returns. The principles behind their computation are explained in Section 1 below. Asset level reporting encompasses all real estate investment interests which are portfolio structured and professionally managed. It therefore includes properties held in insurance and pension funds, sovereign wealth funds, listed property companies including REITs, unlisted pooled funds, charitable trusts, traditional landed estates and large private property owners. Fund-level returns are much more narrowly restricted to a range of unlisted pooled structures, since the returns to listed vehicles are covered by equity indexes, and those to segregated private mandates are not normally put into the public domain.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

SECTION 1: INDEXES AND BENCHMARKS

Real estate is a relatively illiquid and heterogeneous asset class. Each property asset is unique, differing from all others in terms of its location, size and physical characteristics. Most individual assets are only traded once every 5-10 years in most national markets. At the same time real estate managers are able to interact directly with their assets, affecting their value, by re-leasing, refurbishing and sometimes even completely redeveloping the properties for which they are responsible.

The illiquidity of real estate stems principally from the time and cost involved in bringing a deal to fruition: typically 3-6 months to effect the transaction of a large property, with the marketing, legal and taxation costs amounting to 5-10% of asset value in most countries around the world.

These aspects of real estate – its illiquidity, heterogeneity and relative large individual lot sizes ('lumpiness') mean that individual transaction and development impacts can be large relative to the overall market performance, and can often be influenced by non-market or 'deal-specific' factors, particularly in the short term. These can significantly distort market average movements, particularly in the case of small sub-markets.

MSCI therefore distinguishes between indexes and benchmarks as these have different definitions and uses when applied to real estate. Conceptually, an index is a historical record of the performance of a single national market, an international composite of those markets, or a defined market segment. A benchmark is a yardstick defined for the purpose of assessing the performance of institutional investors or managers participating in those markets.

IPD indexes and benchmarks are both constructed by collecting and aggregating granular asset-level data on portfolios, together with financial overlays such as cash, debt, fees and taxes, when appropriate for the reporting requirements of the user.

THE DIFFERENCE BETWEEN INDEXES AND BENCHMARKS

IPD property market indexes are based exclusively upon retained standing investments in completed properties, while IPD benchmarks cover all property assets. Market indexes aim to give consistent, comprehensive and authoritative statements of investment market levels and trends. They should provide transparency to the market at all relevant levels of disaggregation, within the limits of data confidentiality considerations. Indexes should also support investment market research through the provision of well-documented and detailed historical series.

The objective of a performance benchmark is different. Its primary goal is to act as a fair and transparent yardstick for retrospective portfolio or fund manager performance assessment.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

In addition, it should support strategic and tactical planning with detailed comparative diagnostic information and insightful analytics. In many cases benchmarks may be used as an input to remuneration arrangements between asset owners and asset managers or internally within managing organisations.

ASSET AND PORTFOLIO LEVEL REPORTING FOR REAL ESTATE

A direct real estate investment index, the aim of which is to provide a measure of market change, should be constructed to avoid distortion by the non-market features of direct real estate investment activity and the transaction costs associated with them. Exclusion of the costs of trading matches the approach normally adopted by the indexes in use for equities, bonds and all other major investment asset classes, which conventionally ignore all such costs.

IPD property market indexes are therefore based exclusively upon retained standing investments in completed and lettable properties, and exclude properties that are purchased, sold or under development or major refurbishment during the measurement period. Restricting real estate indexes to these standing investments aims to ensure that they clearly reflect underlying market returns and are not influenced by any abnormal profits or losses which may result from substantial active management.

A real estate investment benchmark, in contrast, should provide appropriate coverage of all aspects of the investment process, including any involvement in active management and all associated costs. IPD real estate benchmarks thus cover all assets and investment holdings including purchases, sales, developments, indirect holdings and where in the remit of the investor, other financial assets and liabilities.

FUND LEVEL REPORTING

For the special purposes of real estate fund level reporting – in which the unit of interest is the investment fund rather than the real estate assets which it holds - market indexes and performance benchmarks are normally identical. This is because the market consists of units or shares in these investment funds in their entirety, rather than of the individual direct market properties which, among many other assets and liabilities, they contain. Both the market index of, and the performance benchmark for, these funds by definition therefore include all the effects of the assets, liabilities and financial structures that constitute them.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

SECTION 2: DATA DEFINITIONS, INPUTS, SOURCES AND VALIDATION

The individual property and fund data provided by clients for the purposes of index construction and benchmarking are governed by MSCI data definitions, which form a framework for the consistent recording of property data for use in all IPD indexes and benchmarks. A mandatory core set of data, used for the calculation of total investment returns (see Section 3) is required in all markets, to render the IPD indexes and benchmarks comparable across borders. In addition, non-mandatory data, often specific to individual national markets, can be provided if available to allow for more detailed analyses. These non-mandatory data are currently being reviewed and where possible standardised by MSCI across geographic markets. Full definitions of all data required from submitters are shown in the IPD data requirements form, which varies by geographic market and is sent to all submitters.

DATA REQUIREMENTS

MSCI measures direct portfolio level investment performance bottom-up from records of individual property assets, while fund investment performance is constructed top-down from the financial records of real estate investment funds. The data required by MSCI depend on the level of investment return being measured:

- Portfolio level performance: data are required for all direct properties that form part of the investment portfolio (including foreign properties), indirect investments in property related products, and cash and debt that can be directly related to the assets
- Fund level performance: data are required for all financial interests and fund level costs where they form part of the overall property investment vehicle

Data submitters to MSCI are required to provide external or independent professional valuations, in accordance with international or local valuation standards, for each of their assets. Valuation reports should be provided to MSCI to the frequency at which the investments are being measured, at least once annually.

Property data should be supplied in the local currency of the property's physical situation. MSCI converts valuation, income and expenditure figures into the client's reporting currency where required.

For properties where the ownership is shared with another investor, all data must be provided for the percentage share owned by the portfolio, except for the floor space of the property for which the full area should be provided.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

MSCI performance measurement is standardised in accordance with the accruals accounting principle rather than on a cash-paid basis. This means that costs are recorded for the period when the liability was incurred, while rents are recorded on a receivable basis.

Capital and revenue data should be allocated to individual properties. Where they cannot be allocated, they should nevertheless be submitted and recorded in a "dummy" record.

MSCI uses two types of data for the purpose of calculating performance measures: valuation data, including lease details; and accounting data, principally capital expenditure and operating costs. These data are often provided by the client from two or more independent sources.

Valuation and tenancy data are sometimes provided to MSCI directly by the valuer of the property on behalf of the client. However, valuation data are frequently read into in-house management software, either by the property's owners or their managing agents, and then forwarded to MSCI.

Accounts data are provided either by in-house accounts teams or by external managing agents, using real estate management and accounting software.

For IPD property fund indexes, data are required for the whole fund as well as for the individual assets it holds. Data are compiled for fund level Net Asset Values (NAVs), prices and distributions, and a range of intermediate fund level financial information including costs, fees, taxes, cash and debt.

All data must be provided electronically in either an MSCI template, or in an industry standard file format.

DATA SUBMITTER CODE OF CONDUCT

The quality of data inputs is reinforced through data providers' compliance with a Data Submitter Code of Conduct developed and published by MSCI. The Code of Conduct covers internal systems and controls within the contributing firm for preparing data submissions in order to comply with MSCI quality and integrity standards. It also conforms to the principles set out in the IOSCO Principles for Financial Benchmarks.

A data submitter is responsible for compliance with the standards set out in the Data Submitter Code of Conduct. Non-compliance with the standards set out in the Data Submitter Code of Conduct, that is not corrected or properly addressed, may result in the rejection of a data submission or the removal of a submitter's data from the IPD database and relevant index/benchmark. MSCI procedures are in place to handle breaches of the Code of Conduct through the Technical Committee (see Section 5).

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

SUBMITTER INCLUSION AND EXCLUSION CRITERIA

To facilitate the adjudication task of the Technical Committee in deciding whether a submitter's data can be accepted for IPD indexes and benchmarks, the following criteria for including and excluding submitters have been established.

Rules for Inclusion

- New funds to be included in any service frequency must have had historical data recorded and verified by MSCI before the established update period
- Where the above rule has not been met, there must be proof that adequate time has been spent with clients to explain data requirements, submission templates and data deadlines
- Clients should comply with the Submitter Code of Conduct and are reminded of this expectation on the IPD Fund Checking Reports, provided for each submission.
- Clients must have submitted all mandatory data fields (or those required for headline returns and key components of index/benchmark outputs) for their portfolios to be included in standard IPD indexes and benchmarks

Rules for Exclusion

Client data will risk exclusion from standard IPD indexes and benchmarks, at the discretion of the Technical Committee, in the following circumstances:

- Client breach of the Submitter Code of Conduct with respect to data quality, completeness, timeliness or collusion
- Client submission of new data for an entire portfolio or significant part of a portfolio, less than five workings days before universe sign off. This applies for all service frequencies except monthly, for which data must be provided at least two days before sign-off
- Client failure to respond to queries regarding anomalous data for a significant part of a portfolio, representing a material difference in universe capital value, were it to be excluded
- The Technical Committee has sufficient evidence of gross misconduct of a client

DATA VALIDATION AND SCREENING

Data quality and consistency are both integral to IPD indexes and benchmarks.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

MSCI runs an internal data quality assessment process during every data update period for the purpose of identifying errors that may have been missed by data submitters as well as unusual or unexpected changes in values over the period. For this process, each national IPD service has produced a set of exception criteria appropriate for its market against which the data are checked. Exceptions include omitted data, illogical data and data outside specified numerical ranges. The acceptable ranges are based on local market conditions and previous results.

MSCI works continually to improve the validation process. As new data issues arise and are identified, they are added to the exception criteria.

If any of the exception criteria are triggered in the quality assessment, the data will not be added to the database until the issue is explained or resolved.

Once each portfolio has been processed in the IPD database, a Fund Checking Report is produced for each portfolio, which is checked for accuracy by MSCI. MSCI confirms that headline results are in the expected range or that valid explanations have been provided if not. Performance measures for the portfolio's history are also checked with the aim of ensuring that no unexpected changes have occurred. The Fund Checking Report is then distributed to the client so it may verify that the results are accurate and complete. MSCI expects clients to review the Fund Checking Report.

After the clients review, the individual portfolios are compiled into a 'universe' dataset which is checked for extreme observations in the context of overall IPD universe averages.

DATA EXCLUSIONS

Individual assets may be excluded from IPD indexes when they display performance attributes or abnormalities that are manifestly different from underlying market trends and which may therefore contribute to misleading aggregate reported results. These assets are not however excluded from IPD real estate benchmarks (see Section 1).

This screening procedure is intended to exclude properties that have been subject to abnormal events rather than levels of performance that might appear abnormal but are valid. (see Section 5).

DATA QUALITY REVIEW

Following each data update cycle, MSCI operates a quality scoring mechanism based on several criteria including accuracy, completeness and timeliness. Portfolios with low scores are selected for a data quality review.

The aim of the review is to allow an open discussion between MSCI and clients to understand why perceived areas of weak data supply are occurring and provide recommendations to help bring clients in line with best practice. It also allows MSCI to

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

examine clients' internal data submission processes and assess how well they are adhering to the Data Submitter Code of Conduct.

In addition to improving clients' understanding of MSCI data requirements and methodologies, the review process helps MSCI to better understand clients' difficulties in reconciling source data with the MSCI template.

The output from the review is an action plan outlining recommendations with target dates and the possibility for input and comment from the client. MSCI then tracks these plans with the aim of ensuring follow-up at subsequent updates.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

SECTION 3: PERFORMANCE MEASURE CALCULATIONS

As noted above, MSCI distinguishes between direct real estate indexes and benchmarks, which measure the performance of aggregates of individual property assets held within investment portfolios, and fund indexes and benchmarks, which measure the performance of fund vehicles in their entirety. The latter reflect not only underlying property assets, but also the effects of cash holdings, leverage and fund operating costs.

DIRECT REAL ESTATE RETURN INVESTMENT COMPUTATION METHODS

Direct real estate performance measurement may be carried out at property, portfolio or market level, or for any other grouping of property assets.

Market returns, as shown by IPD indexes (see Section 1), are based solely on directly owned standing investments in completed and lettable properties; these returns exclude assets held indirectly through investment funds and the impacts of debt, fund management fees, taxation and cash. Market measures are intended to reflect underlying market trends over the period of analysis. Some properties, such as those occupied by the owners, are screened out of market measures in all periods.

Portfolio and benchmark returns include all investment properties within the portfolio, including those bought, sold, under development or major refurbishment during the measurement period. Performance measures therefore allow the comparison of property and portfolio investment returns relative to an appropriate benchmark, either for the whole investment market or a relevant sub-group of portfolios or properties.

The headline measures which are most widely relied upon and used to document the investment performance of commercial real estate are total return and its income and capital components. MSCI calculates these measures monthly and time-weights (chain-links) them over longer periods. They are value-weighted measures for each measurement period, meaning that the contribution of each asset is in proportion to its monetary weight.

Interpolation and held down treatment of valuations

In the case of markets where the valuation dates of contributing properties are synchronised, MSCI calculates estimated capital and rental values for the intervening months for assets that are not valued every month. This interpolation process spreads capital and rental value changes across the period between two genuine data points. Interpolation is linear for most MSCI services, except in the case of the UK where values are adjusted in proportion to changes in values underlying the IPD UK Monthly Property Index.

In markets where the valuation dates of contributing properties are not synchronised to a common date, MSCI either holds values constant from one valuation date to the next, or

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

interpolates retrospectively between genuine valuations and uses data from the most recent measurement period to adjust the entire sample.

Apportionment of expenditure

Capital expenditure, which is deducted from the change in capital value when calculating total return and capital growth measures, is apportioned equally across measurement periods if only available in aggregate for a longer period. This procedure is also applied to non-recoverable revenue expenditures, which are deducted from the gross asset income. For properties bought or sold over the period, any capital expenditures are divided equally over the months except that in which the transaction took place; for these properties, revenue expenditures are divided equally over the months with a half-month allocation made to the purchase or sale month.

Total investment return

As the most widely recognised 'bottom line' figure, total return is the most important measure of overall investment performance used to compare different assets across time periods. It incorporates both capital and income elements, and is calculated as the percentage value change plus net income accrual, relative to the capital employed. It is recognised by GIPS (the Global Investment Performance Standard set out by the Chartered Financial Analyst Institute) as the standard composite measure of investment performance.

With respect to a single month, total return is defined as:

$$TR_t = \frac{(CV_t - CV_{(t-1)} - CExp_t + CRpt_t + NI_t)}{(CV_{(t-1)} + CExp_t)} * 100$$

Where:

TR_t is the total return in month t;
CV_t is the capital value at the end of month t;
$CExp_t$ is the total capital expenditure (includes purchases and developments) in month t;
$CRpt_t$ is the total capital receipts (includes sales) in month t;
NI_t is the day-dated rent receivable during month t, net of property management costs, ground rent and other irrecoverable expenditure.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Total return index values

Starting from a base value of 100, each successive index value is calculated by multiplying the preceding index value by (1+monthly return):

$$\text{Index}_{t=0} = 100$$

$$\text{Index}_{t+1} = \textit{Indext} * (1 + TR_{t+1}/100)$$

Where:

TR_{t+1} = total return in month t+1 expressed as a decimal

Multi-period time-weighted total return

All IPD annual and quarterly performance measures are time-weighted. Annual measures are the result of compounding 12 months' figures and are only shown when all 12 months' figures are available. The measure gives an equal weight to each month. To calculate quarterly and annual returns it is necessary first to construct an index from the monthly values.

The 12-month return, for example, is calculated as the percentage change in the index (X t) over the relevant 12 months.

$$\text{12-month Total Return} = [(X_{t+12}/X_t) - 1] * 100$$

Annualised rate

The annualised rate is the geometric mean of the individual annual rates of change for a series of years. It is calculated as the nth root of the final indexed score converted back into a percentage:

$$[(Xt/100)^{1/n} - 1] * 100$$

Where:
n is the number of years and X_t is the final indexed score

Capital growth

Capital growth or indirect return, measures the change in asset capital value over a period of time, relative to the capital employed. This measure of the 'growth' component of performance is based on the change in value for properties held at the start and end of an analysis period.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Capital growth also takes account of actual transaction prices for bought or sold assets. The calculation is net of any capital expenditure and receipts over the period.

With respect to a single month capital growth is defined as:

$$CVG_t = \frac{(CV_t - CV_{(t-1)} - CExp_t + CRpt_t)}{(CV_{(t-1)} + CExp_t)} * 100$$

Where:
CVG_t is the capital growth in month t;
CV_t is the capital value at the end of month t;
$CExp_t$ is the total capital expenditure (includes purchases and developments) in month t;
$CRpt_t$ is the total capital receipts (includes sales) in month t;

Monthly figures are compounded, as described for total return, over 12 months to give an annual rate.

Income return

Income return or direct return, measures the income receivable in relation to the capital employed over a period. This measure is calculated net of all irrecoverable costs incurred by the investor – which will depend upon the terms of the tenant lease contracts in place.

With respect to a single month, income return is defined as:

$$INCR_t = \frac{NI_t}{(CV_{(t-1)} + CExp_t)} * 100$$

Where:

$INCR_t$ is the income return in month t;
CV_t is the capital value at the end of month t;
$CExp_t$ is the total capital expenditure (includes purchases and developments) in month t;
NI_t is the day-dated rent receivable during month t, net of property management costs, ground rent and other irrecoverable expenditure

Monthly figures are compounded over 12 months to give an annual rate.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Separation of income and capital components

The components of total return are calculated separately using chain-linked time-weighted rates of return. Multi-period capital growth and income return do not sum perfectly to total return due to the cross product that occurs when capital and income returns are combined within compounded total returns.

OTHER DIRECT REAL ESTATE MEASURES: RENTS, YIELDS AND COST RATIOS

Market rental value (MRV) growth

The increase in the market rental value, expressed as a percentage of MRV at the beginning of the month.

$$\frac{(MRV_t - MRV_{(t-1)})}{(MRV_{(t-1)})}$$

Monthly figures are compounded over twelve months to give an annual rate.

Gross income (GI) growth

The increase in gross rent passing (GI) less ground rent (GR), expressed as a percentage of (GIGR) at the beginning of the month.

$$\frac{(GI-GR)_t - (GI-GR)_{(t-1)}}{(GI-GR)_{(t-1)}}$$

YIELD MEASURES

Initial yield

The rent passing net of ground rent (NR) as a percentage of the gross capital value (GCV) at the same date.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Reversionary yield

The market rental value net of ground rent (NMRV) as a percentage of the gross capital value (GCV) at the same date.

$$\frac{NMRV}{GCV}$$

Equivalent yield

Only used in the UK and Ireland, the discount rate which equates future income flows to the gross capital value. This is calculated on a quarterly in advance (true equivalent yield) basis. The equivalent yield discounts the current rental value in perpetuity beyond the last review date recorded for the tenancies in the subset.

Equivalent yield is calculated by solving the equation iteratively for the rate *r*:

$$GCV_t = \frac{NR1/4}{(1+r)^0} + \frac{NR_1/4}{(1+r)^{0.25}} + \frac{NR1/4}{(1+r)^{0.5}} + \frac{NR1/4}{(1+r)^{0.75}} + \frac{NR2/4}{(1+r)^{1.0}} ..... + \frac{FCF/4}{(1+r)^{9.75}} + \frac{FCF/4}{(1+r)^{10} * (1-(1+r)^{-0.25})}$$

Where:

GCV_t is the capital value gross of purchasers' costs in month *t*; *NR* is the net projected rental income; *r* is the equivalent yield; *FCF* is the final cash flow in the tenth year

Cost Ratios

In markets where real estate owners face heavy outgoings from their gross income, such as the Nordic region, the Netherlands and South Africa, it is important to benchmark income lost through non-recoverable operating costs.

Comparison of the operating expenses of similar properties can be made through the following measurements to assess the impact on overall returns:

- Total gross operating costs (both irrecoverable and recoverable) as a percentage of gross income
- Total gross operating costs per square metre
- Total net operating costs (irrecoverable) as a percentage of gross income

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

- Total net operating costs per square metre

These cost ratios can be further analysed by comparing each type of cost such as utilities, insurance, taxes, maintenance, management and letting, with the operating income and with floor space. Cost ratios may also be sub-divided into fixed and variable costs.

DIRECT REAL ESTATE EXPLORATORY TECHNIQUES

ATTRIBUTION ANALYSIS AND WEIGHTED CONTRIBUTIONS TO RETURNS

Attribution analysis is a powerful technique for understanding the reasons for a portfolio's outperformance or underperformance of a benchmark. It breaks down the relative return into structure-specific and property-specific scores, allowing the influences of sub-market allocations and asset selection to be clearly distinguished.

This section explains the computation of attribution analysis scores, together with the statistical components which underlie those calculations.

Relative return

The ratio of the return of the portfolio, segment or individual asset, to that of the chosen benchmark, expressed as a percentage.

$$Relative\ return = ((1+Fund\ TR) / (1+ Benchmark\ TR) - 1)*100$$

Where:

Fund and benchmark total returns are expressed as decimals

Average capital employed

For a single month, capital employed is calculated as the sum of the start-month capital value of all assets covered and the capital expenditure over the month. This is the denominator of the monthly total return, capital growth and income return measures.

For a period of more than one month, there is no single figure for annual capital employed. In such cases (for example for one year), average capital employed is the arithmetic mean of the capital employed for each month in the period.

Weighted Contribution to absolute portfolio return

The weighted contribution of an individual asset or group of assets to the return of the portfolio over a defined period is its money return over the reporting period (the sum of monthly total return numerators) expressed as a percentage of the portfolio average capital employed for the period.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

$$WTC_k = (NUM_k / Z) * 100$$

Over a period of more than one month, the weighted contribution is calculated as the sum of the monthly relative return numerators as a percentage of the whole portfolio's average capital employed for the period.

$$WTCRR_k = (NUM_k / Z) * 100$$

Where:

$WTCRR_k$ is the weighted contribution of set k to portfolio relative return
$NUM_k = (RR_i * DENTR_i) /100$ summed over all i properties in set k and over all months in the defined period
RR = monthly relative return
DENTR = monthly denominator of total return (capital employed)
Z = average capital employed over the period

Attribution of relative returns

Attribution analysis distinguishes that part of the relative return derived from the portfolio's abnormal weightings in strong or weak sectors of the market (structure score), from that part derived from the exceptional performance of the assets in the portfolio within each segment of the market (property score). The analysis is performed month by month.

Structure score - The proportion of relative return attributable to the weighting of the portfolio relative to the benchmark in each of the segments used in the analysis. It is calculated on a monthly basis as:

$$(WT_{fs} - WT_{bs}) * [(1 + TR_{bs}) / (1 + TR_b) - 1]$$

Where:

W is the proportion of capital employed of portfolio f or benchmark b in segment s and TR is total return expressed as a decimal

Thus, if a portfolio has an above-average weighting in a strongly performing segment of the market, the structure score for the segment is positive. Conversely, an above-average weighting in a poorly performing segment of the market results in a negative structure score.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Monthly scores are chain linked to calculate quarterly and annual structure scores.

Property score - The portion of relative return attributable to the performance of the portfolio's properties relative to the benchmark for each segment. It is calculated as:

$$(SAW_{fs}) * [(1 + TR_{fs}) / (1 + TR_{bs}) - 1]$$

Where:

TR is total return expressed as a decimal and SAW_{fs} (segment adjusted weight) is the proportion of capital employed of portfolio f adjusted by the growth rate of segment s relative to benchmark *b*, and calculated as

$$WT_{fs} * \left(\frac{1 + \text{Total Return of Market Segment (\%)}}{1 + \left(\sum_{sn}^{s1} \text{Portfolio Segment Weights (\%)} * \text{Market Segment Returns (\%)} \right)} \right)$$

Thus, if a portfolio's properties have recorded above-average returns relative to the benchmark in a segment of the market, the resultant property score is positive; If their performance is below-average, the score is negative. Monthly scores are chain-linked to calculate quarterly and annual property scores.

DECOMPOSITION OF CAPITAL GROWTH

The data collected by MSCI allow the underlying drivers of capital growth to be identified, isolating the separate effects of changes in market rental values and changes in valuation yields or capitalisation rates.

Changes in open market values – and therefore in capital growth rates – generally depend on changes in levels of market rents and investment yields, each sifted through lease structure effects on income. For analytical purposes relative capital growth for a property, sector or fund is explained in terms of three components: the rate of rental value growth, the yield impact and a residual term, all computed on a consistent set of standing investment properties.

Consistent set

Properties are generally only included in these measures where they satisfy the following conditions during the month:

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

- They are not a purchase, sale or development in the month
- They have had a previous actual valuation as a standing investment
- They have an open market rental value at both the start and end of the month
- They have a yield at both the start and end of the month

Market rental value (MRV) growth

The increase in the market rental value, expressed as a percentage of MRV at the beginning of the month, as defined above.

Monthly figures are compounded over twelve months to give an annual rate.

Yield impact

This measure indicates the effect of yield change on capital growth. It is calculated monthly as the ratio of the month-start to month-end yield with the sign reversed, so that a rise in yields is shown as a negative impact and vice versa.

$$-((YE-YS)/YE)*100$$

Where:

YS = start-month yield
YE = end-month yield

The monthly figure is calculated on a consistent set of properties and compounded over the relevant period.

Residual

In the analysis of capital growth, the residual is that part of the change in value that is not attributable to either MRV growth or yield impact for those standing investments with complete rental value and yield data. This is normally due to unanticipated changes in income from new lettings or vacancies, abnormal lease terms or over-renting that may distort the impact of changes in market rental values.

Yield measures – the measures of initial yield, reversionary yield and equivalent yield are defined earlier in this section.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

INCOME PROJECTIONS

Income projections play an important role in the calculation of capital values used in performance measures (see above).

MSCI income projections and related measures are constructed from tenancy level data on lease terms, rent passing and market rental value, where available.

Income projections are based on the following assumptions:

- **Letting of vacancies and developments** – Vacant units and developments are assumed let from the actual or estimated rent start date. The anticipated rent start date for developments is taken to be the rent commencement date under a pre-let agreement or the date a developer guarantee takes effect. Otherwise the portfolio manager's expected rent start date is taken. If the expected rent start date is not known, MSCI assumes a letting date for developments at the end of a 30 month construction phase. If the letting date is not known on vacant completed properties, units are assumed to be let after 18 months.
- **Contracted rent passing** - Throughout the income analysis, all measures related to top slice (see below) and future income growth prospects are based on the contracted tenant rent.

Over-renting - Where open market rental values are below current tenant rents, properties are termed 'over-rented'.

Top slice income - Where current rent is above the open market rental value, the excess income is termed 'top slice' income.

Income growth potential – Two measures of income growth potential are available, the conventional reversionary potential and yield ratio.

Reversionary potential – the ratio of current market rental value to rent passing (both gross of ground rent), expressed as a percentage.

Yield ratio – the ratio of equivalent yield to the reversionary yield. This is only available for markets where equivalent yield can be calculated.

Vacancy - a vacant unit is defined as having:

- No lease
- No previous lease holding over
- No temporary contract in place
- Any previous lease has been disclaimed

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Vacancy does not apply to tenants in administration where leases are technically in place.

Vacancy rate – this is calculated in terms of both market rental value and floor area:

- The sum of market rental value in vacant units as a percentage of total market rental value excluding development units
- The sum of vacant floor area in completed properties as a percentage of total lettable floor area. Floor area is scaled down by the ownership share

PORTFOLIO RISK ANALYTICS

MSCI measures real estate portfolio risk using standard statistical measures, and analyses the sources of risk based on a wide variety of factors specific to real estate assets.

MSCI reports the volatility of returns using the following traditionally defined measures:

Risk or volatility – Portfolio or asset risk is defined as the standard deviation of the series of annual returns around the arithmetic mean.

Tracking error - The standard deviation of the arithmetic difference in return between the portfolio and the benchmark. The tracking error shows the extent to which a portfolio's returns move in line with its benchmark over a given time period.

Risk adjusted return – The ratio of the arithmetic average return over the period to the volatility of returns measured by the standard deviation.

Sharpe Ratio - The ratio of risk premium, defined as the average return less the risk free rate of return (assumed to be medium to long term government bonds) to the total risk of the portfolio (measured by the standard deviation).

Risk adjusted relative return – The volatility or risk adjusted relative return is the ratio of the arithmetic mean of a portfolio's relative return over a defined number of periods to the standard deviation over the same number of periods.

$$Mean\ RRn\ /\ Sd\ RRn$$

Where:
n is the number of months in the period; *RR* is the monthly relative return; and *Sd* is the standard deviation of the monthly relative returns over the period

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

PERFORMANCE AND RISK ANALYTICS: METHOD SPECIFICATIONS

In addition to the above, and primarily for the purpose of investigating the sources of volatility, IPD breaks down portfolio and benchmark risk into ten constituent factors, identifying where the strengths and weaknesses of a portfolio lie. Analyses also explore the relationship between performance and risk.

At asset level, measurement extends to the risk derived from covenants, lease length, vacancy and development exposure.

At portfolio level, analyses focus on concentration risks (asset, location and tenant concentrations), exposure to risky markets and income risk.

At fund level, the debt profile is added to give a complete picture of risk.

Asset risk factors

- **Development exposure** - Percentage of capital employed in developments at period-end. The higher the development exposure, the riskier the portfolio's structure.
- **Vacancy rate** - Sum of market rental value in vacant units as a percentage of total market rental value. The vacancy rate calculation excludes developments. The higher the vacancy rate, the riskier the portfolio's structure.
- **Unexpired lease term** - Average number of years left to expiry. The longer the unexpired lease term, the safer the portfolio's structure.
- **Risky covenants** - Rent exposure to risky covenants. Risky covenants are defined as tenants whose Risk Band is High Risk or Maximum Risk (derived from Dun & Bradstreet data). The higher the exposure to risky covenants, the riskier the portfolio's structure.

Portfolio risk factors

- **Asset concentration** - Percentage of portfolio's capital value that is held in its five largest assets. The higher the asset concentration the more vulnerable the portfolio is to events affecting those properties.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

- **Location concentration** - The five locations the portfolio is the most exposed to (by capital value). Standard MSCI regions are used to define the locations. The higher the concentration, the riskier a portfolio's structure.

- **Company Concentration** - Percentage of portfolio's contracted rent that is bound up in its 10 largest companies. A company is the aggregation of all the tenants with the same name. The higher the company concentration, the riskier the portfolio's income profile.

- **Structural difference** - The extent to which a portfolio's structure differs from the benchmark structure, in terms of capital value in each market segment. A score of zero indicates that the portfolio structure matches that of the benchmark exactly. The higher the score the more different the portfolio structure relative to the benchmark structure. The higher the difference score, the riskier a portfolio's structure.

$$\text{Structural difference} = \sum_{seg=1}^{n} \left(CV_{fund_i} - CV_{bmk_i} \right)^2$$

- **Segment volatility exposure** - The degree of portfolio exposure to the more volatile segments of the market. Volatility is measured by a weighted beta. Where available, 15-year beta coefficients are calculated for each market segment against the benchmark all property return. The portfolio level weighted Beta is calculated by weighting each segment by capital value exposure. The higher the weighted beta, the riskier.

- **Income return** - 12-month income return calculated as the net income receivable for the year expressed as a percentage of the capital employed over the year. This is preferred to a forward-looking yield measure as it does not incorporate future (uncertain) income and to initial yield as it is a measure of actual income collected rather than potential income. Though not commonly used as a measure of risk, this is included because the income component of total return is invariably more secure and less volatile than the capital component. Therefore the assumption is that the higher the income return, the safer.

SPECIALIST PERFORMANCE MEASURES: TRANSACTION LINKED INDEXES

In recent years MSCI has developed a hybrid index methodology which combines transaction information with standard IPD valuation data in order to give a more robust measure of the

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

volatility in direct real estate markets. The methodology, which falls into four distinct stages, is summarised below.

Stage 1 – Create dataset

The dataset used to create transaction linked indexes is the same as that used to produce standard IPD valuation-based indexes. Some filtering is required so that the model is not distorted by extreme cases and that an adequate valuation history is available.

All Continental European countries with a statistically sufficient sample are modelled together using data specified in Euros and then converted to local currency. The UK has an independent model as its data series extends back further than that used to generate Continental European transaction linked indexes.

Stage 2 – Regression on sale sample

For each quarter's model, sales from the preceding six months are identified. This reflects the fact that, owing to the low liquidity of property investments, there are usually insufficient sales in a single quarter for stable models to be estimated.

A reference set of valuations for each sale sample is defined using valuations two quarters prior to the quarter being analysed. This aims to ensure that the valuations are not influenced by sale negotiations. In the case of national markets with biannual or annual valuations, interpolated figures are used for dates between actual valuations.

Once the relevant sales and their reference valuations are defined, the natural log of the sale price and the capital value in each case are computed. Meanwhile, dummy variables are created to identify the main property type and the country of each asset in the dataset. The dummy variables are defined to strike a balance between disaggregation and representation, such that sales for each category are observed in the majority of periods.

An Ordinary Least Squares (OLS) regression is then run for every quarter in the time period. The regression model has the following form

$$\widetilde{Ln\ P_{i,t}} = \beta_0 + \widetilde{\beta_1}\ \widetilde{ln\ V_{i,\ t-3}} + \widetilde{\beta_{2,i,j}}\widetilde{D_{i,j}} + \widetilde{\beta_{3,i,k}}\widetilde{D_{i,k}} + \widetilde{\varepsilon_i}$$

Where:
t identifies a particular quarter,
j identifies a country and $D_{i,j}$ is a vector of country dummies,
k identifies a sector and $D_{i,k}$ is a vector of sector dummies,
P is the gross sale price and

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

V is the capital valuation

Stage 3 – Mass appraisal of all assets

The coefficients from the regressions are used to predict sale prices for assets that were not traded. Two predictions are made for properties held in each quarter. First, a start price is predicted using coefficients from the regression on the sale sample for the preceding period. Second, an end price is predicted from output for the regression on the sale sample for the current period. So, for Q4, predicted start prices are derived from the regression on Q2-Q3 sales and predicted end prices are derived using the regression on Q3-Q4 sales.
These predicted prices are in log form rather than the cash terms that are required for generating indexes. The predicted log prices are transformed in the following manner to correct for bias:

$$\hat{P} = exp(\ln \hat{P}) \times exp(\frac{\hat{\sigma^2}}{2})$$

Where:
σ^2 is the Mean Squared Error of the regression generating the predicted price

Stage 4 – Generation of index

The transformed start and end prices are then each summed for all assets within a particular country or sector. The difference between these two totals, in percentage terms, represents a value-weighted capital return derived from transaction evidence.

These rates of change are chain-linked quarter-on-quarter to produce time series by country and sector.

FUND INVESTMENT RETURN COMPUTATION METHODS

All of the above methods build up from the level of the individual assets (or liabilities) and seek to report the performance of investment portfolios and markets which comprise large and small aggregations of these assets. The financial overlays which characterise the investment vehicles in which the assets are held are deliberately excluded.

IPD fund indexes compliment these more granular analyses by working from the top down, treating the funds themselves rather than the assets they hold, as the investment products. They measure the performance of unlisted real estate investment funds. These indexes take

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

account of the performance of the properties held within the fund structure, together with the impacts of non-property assets, cash holdings, debt, and fees, to produce an overall investment return. MSCI produces fund indexes for many national markets, either annually or more frequently. IPD fund indexes can be used for both market measurement and performance benchmarking purposes (see Section 1).

MSCI uses a monthly time-weighted return (Method 1) for all fund indexes except in the US where it uses the quarterly Modified Dietz methodology (Method 2), to address client requirements. For global reporting, US data are converted in order to allow a time weighted return to be computed in a uniform manner.

It should be noted that the calculations described below are applicable to individual funds as well as to the whole market as covered by an index.

MONTHLY TIME-WEIGHTED RETURN (METHOD 1)

The total return on the Net Asset Value (NAV) is calculated as the current month-end NAV less the previous month-end NAV, plus any distributions accrued/declared for the current month ('ex-dividend' distribution), expressed as a percentage of the capital employed. If no ex-dividend distribution information is provided or estimated, the distributions included will be the actual distributions made ('as paid').

The capital employed is defined as the previous month-end NAV multiplied by the number of units in issue.

Multi period measures of performance, and the index values themselves, are time weighted and calculated by the chain-linked compounding of single monthly period percentage measures.

The funds included in the index are weighted according to their NAV at the beginning of the measurement period.

To avoid double counting, where a constituent of the UK index has an investment in another constituent, the NAV of that investment is deducted from the NAV weighting in the index of the investee fund.

Monthly market total return

In broad terms, month-end fund (NAV) market total returns are calculated by aggregating the return on investment (numerator) and capital employed (denominator) components of each fund's per unit total return together, for all funds contributing to a fund universe.

The following steps are undertaken when calculating IPD fund (NAV) total returns for use in property fund indexes:

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

$$TR_{fund} = \left(\frac{NAV_{per\,unit,t} - NAV_{per\,unit,t-1} - NCI_{per\,unit,t} + Distribution_{per\,unit,t}}{NAV_{per\,unit,t-1}} \right) \times 100$$

Before being incorporated into an aggregate market measure each fund's per unit numerator and denominator is multiplied by the number of units in existence at the start of the month. This process is applied for the purpose of ensuring that the weight of each fund, in terms of NAV, is reflected in the overall market total return.

$$TR_{market} = \left(\frac{\sum_{f=1}^{n} \left(ReturnOnInvestment_{(per\,unit,t)} \times FundUnits_{(t-1)} \right)}{\sum_{f=1}^{n} \left(FundCapitalEmployed_{(per\,unit,t-1)} \times FundUnits_{(t-1)} \right)} \right) \times 100$$

Where:
n is the number of funds in the market sample
Fund Units is the current number of units in issue by each fund in the universe, less cross Holdings (UK Only).

Annualised rates of return

For any period longer than a quarter, investment return is shown in IPD fund outputs as an annualised rate of return. This is the geometric mean of the individual rates of return for a series of years. It is calculated as the nth root of the final index value, converted back to a percentage:

$$[(X_t / 100)^{1/n} - 1] * 100$$

Where:
n is the number of years and X_t is the final indexed score

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

OTHER FUND MEASURES

Gearing

Gearing, or leverage, measures the level of debt in a fund and can be expressed in the following ways:

- Net debt as a percentage of NAV

$$\left(\frac{GrossDebt_t - Cash_t}{NAV_t}\right) \times 100$$

- Gross debt as a percentage of NAV

$$\left(\frac{GrossDebt_t}{NAV_t}\right) \times 100$$

- Gross debt as a percentage of GAV

$$\left(\frac{GrossDebt_t}{GAV_t}\right) \times 100$$

12 month distribution yield or gross yield

Gross yield is the historic distribution yield. Except where there is an indication to the contrary, a fund's gross yield is the sum of its distributions per unit over 12 months as a percentage of its net asset value per unit at the end of that period. The distributions included in the calculation are those earned/accrued, rather than paid, during the twelve months, and are gross of tax.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

$$\left(\frac{(\sum_{t=1}^{12} Distribution_t)}{NAV_t}\right)\times 100$$

Bid/offer spread

Bid/offer spread is calculated as the difference between the latest bid and offer price of a fund, expressed as a percentage of the latest offer price.

$$\left(\frac{Offerprice_t - Bidprice_t}{Offerprice_t}\right)\times 100$$

MODIFIED DIETZ METHODOLOGY (METHOD 2)

Gross of fees fund level return is defined as:

$$\text{Gross Fund Level Return}_t = \frac{\text{Appreciation}_t + \text{Net Investment Income}_t}{\text{Average Weighted Equity}_t}$$

Where average weighted equity is:

$$NAV_{t-1} + \sum_{i=1}^{n} \text{Number of days}_{i,t} \times \text{Net Capital Invested}_{i,t}$$

The capital component of the numerator is defined as the net appreciation of all assets and interests both realised and unrealised. The realised and unrealised capital components are adjusted to offset the inclusion of distributed income in net investment income. This includes both distributed and retained income.

In calculating capital employed a Modified Dietz methodology is applied: contributions and capital distributions are added to the start of the period NAV. They are both weighted to reflect the number of days they have been in the fund.
Net of fees fund level return is defined as:

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

$$\text{Net Fund Level Return}_t = \frac{\text{Appreciation}_t + (\text{Net Investment Income}_t - \text{Fees}_t)}{\text{Average Weighted Equity}_t}$$

Where fees are the fund level fees alone.

The market fund level return, calculated gross and net of fund-level fees, is defined as:

$$\text{Index TR} = \sum_{\text{funds}} \frac{\text{Wtd average equity}_{\text{fund}}}{\text{Wtd average equity}_{\text{Index}}} \times \text{TR}_{\text{fund}}$$

RECONCILING ASSET-LEVEL AND FUND-LEVEL RETURNS

As well as calculating fund-level performance, MSCI measures the impact of each financial layer of the fund on its overall return. Starting from the asset level, each fund financial overlay (debt, cash, etc) is successively added to the return on the underlying assets to widen the scope of the calculation of fund-level performance. The arithmetic difference between two successive return levels (before and after a new layer has been added) shows the impact of a given layer.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

SECTION 4: DATA RULES FOR PERFORMANCE REPORTING

REPORTING ROBUSTNESS

Investor and valuer dominance rules

In order to avoid the possibility of the overwhelming weight of one portfolio or one valuer compromising the representativeness of an index or benchmark, MSCI employs investor and dominance rules and guidelines when determining the composition of an index or benchmark.

MSCI monitors portfolio and valuer dominance in all countries and sectors of the market. When calculating an index, maximum weights for single contributing portfolios and valuers are calculated based on capital value. In the UK and Southern Europe, when the weight of a submitter in an index exceeds 50% of capital value, MSCI contacts the relevant client and requests approval to publish the index, or changes market segmentations if these are influenced by dominance issues. Dominance in other countries is also monitored and action is taken based on local market conditions and the knowledge and experience of MSCIin that country. Most cases where an individual portfolio or valuer appears to be dominant are resolved by changing segmentations.

Asset, portfolio and fund completeness and adequacy rules

In order to avoid “cherry picking” results and to provide more accurate and fair assessment of market performance, each submitter has an obligation to provide IPD data that relate to the entirety of the assets held within each reported portfolio, that are complete at the individual property, and, where appropriate, portfolio and fund level. To confirm this, MSCI checks that all mandatory fields are provided and applies statistical and logical tests to the data received (see Section 3 above).

Asset, portfolio and fund completeness and adequacy rules
In order to avoid “cherry picking” results and to provide more accurate and fair assessment of market performance, each submitter has an obligation to provide IPD data that relate to the entirety of the assets held within each reported portfolio, that are complete at the individual property, and, where appropriate, portfolio and fund level. To confirm this, MSCI checks that all mandatory fields are provided and applies statistical and logical tests to the data received (see Section 3 above).

Asset, portfolio and fund confidentiality rules

In order to protect the confidentiality of both asset and fund level data provided by each client, MSCI applies strict confidentiality rules which set the minimum number of

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

constituents necessary to permit the reporting of a sample dataset. In any aggregate, the minimum acceptable numbers of portfolios and assets are respectively three and five.

Valuation accuracy checks

Although valuations often differ markedly from the prices achieved in subsequent individual transactions, MSCI assumes that at the aggregate level, open market valuations are unlikely to differ systematically from transacted prices.

Once a year, in all countries where this is feasible, MSCI monitors the average spread between valuations and transacted prices in order to assess the extent to which headline indexes reflect transaction price variations. To do this MSCI reviews all properties that have been bought or sold during the year and looks at the relative difference between the transacted price and the preceding valuation adjusted for estimated sector market value changes that occur between the valuation and transaction dates. Properties where valuations were conducted less than three months before a transaction are not included in the analysis as they may have been made with knowledge of the agreed sale price and bias the conclusion.

Assessment of the representativeness of market reports

Where MSCI publishes market reports, through the provision of performance and descriptive series which describe the performance of the market, MSCI checks that the dataset employed is representative of that market in its entirety. In order to assess its representativeness, the aggregate value of all properties in the reporting dataset is compared with independently published reports and assessments of the size and structure of the relevant full real estate investment market. Most of the evidence used in these assessments is collated as part of IPD's annually updated Market Size surveys (see below).

REPORTING SAMPLE COMPOSITION

Exclusions from indexes and market reporting

Properties are excluded from market reporting, including indexes, when they display performance which is manifestly different from the underlying market as represented by the assets recorded by MSCI in the relevant period. Including assets with materially different results could lead to misleading reporting of market trends. This procedure is known as 'market flagging'.

Performance exceptions and therefore exclusions could result from, among other things:

- Abnormal properties, subject to exceptional events such as fire damage or flooding
- Properties displaying atypical period to period performance following a change in valuation methodology

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

- Properties with missing data, high capital expenditure (e.g. 10% of capital value as used in the UK), or on a short leasehold agreement

Historical records of properties held by new portfolios that join MSCI services each year are excluded from frozen indexes; however their historical performance, as provided by the new portfolio, is included in other indexes unless it exhibits atypical performance as described above.

Properties exhibiting extreme results that suggest an abnormality in the property not explained by one of the conditions detailed above, may also be excluded. Such properties are only excluded after careful scrutiny and full documentation of the reason for the abnormal performance.

Rules for inclusion in benchmarks

For performance benchmarks, all properties within a portfolio are included in the benchmarks appropriate to their geographical location. Benchmarks are designed to reflect actual investor returns in real estate including the profits made from active management and the particular risks and costs associated with investment in a real asset (see Section 1). Benchmarks measure actual manager performance and include all properties, including those subject to development, refurbishment, transactions and extreme or unusual events.

Properties that have been subject to active management or extreme events resulting in their exclusion from indexes are included in benchmarks.

Rules for exclusion from benchmarks

A full portfolio or individual assets may be excluded from benchmarks over a particular period. Before this is done, a thorough examination of the circumstances is carried out to confirm the validity of the reasons for the exclusion. A portfolio or asset may be excluded from a benchmark for the following reasons:

- Incomplete mandatory data (see Section 2 above) for the period under analysis
- Anomalous data that appear to be inaccurate which cannot be confirmed with clients before the formal release of results
- Early records of properties held by new portfolios that join the service each year. These are only excluded from frozen composition benchmarks
- Historical records of portfolios for which valuations were irregular in frequency or the data otherwise incomplete or unsatisfactory
- The early history of specific property types that precede complete records for a portfolio e.g. partial data on agricultural properties prior to 1970

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

- In the cases of merged or split portfolios, the historic records prior to the split or merger are excluded from the new portfolio/portfolios to avoid double counting
- Where the same property interest might be included in two portfolios, e.g. a pension fund and management house that oversees that pension fund, leading to double counting

Index and benchmark composites: market size rebalancing

IPD multinational composite indexes aggregate the performance histories of a set of countries, implying the need to re-weight results from each country in a consistent way. As MSCI is unable to provide 100% market coverage due to the voluntary nature of inclusion in IPD data, and coverage varies from country to country, there is a need to weight results from each country to reflect the underlying market as well as possible, adjusting for differing levels of coverage.

MSCI undertakes an annual Market Size survey to estimate the overall extent of each national property investment market for which it publishes an index. In this context a national market is confined to professionally managed investment interests held in portfolio structures. Lists of real estate funds are compiled by MSCI client consultants based in each region and then processed by MSCI to identify the total unlevered direct real estate holdings in each country, including those held within any new real estate funds that have been formed over the past year. The results of this analysis are used for weighting individual markets in composite indexes such as:

- IPD Global Annual Property Index
- IPD Pan-Europe Annual Property Index
- IPD Nordic Annual Property Index
- IPD Iberia Annual Property Index

Currency conversion

Many IPD multi-national indexes and benchmarks cover more than one currency area. As the underlying property or fund data are always collected in local currency terms, the calculation of these indexes and benchmarks requires values to be converted to a common currency. Depending on the usage of the output, this calculation is either performed on a fixed ('local currency') or variable exchange rate.

Fixed rate conversion

For fixed-rate reporting, all historic data are converted at a single exchange rate as at the end of the most recent reporting period, with the result that no currency impact is seen in the reported results. All assets covered by this method of conversion display their original

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

home currency performance. This method is currently used for clients requiring local currency reporting.

Variable rate conversion

For variable rate reporting, each data item is converted using the corresponding month-end midrate, defined as the median of the bid and offer rates on the last day of the month. Performance measures based on variable rates include the impact of monthly changes in exchange rates.

From 1994, MSCI has used exchange rates from WM Reuters, and before that from EcoWin and others.

Frozen history reporting

In most cases IPD indexes and benchmarks are subject to historical restatement when new data become available or corrections are made, in order to maximise the robustness and accuracy of the reported historical results. However, when the sample size for a market is large and the impact of additional submitters is therefore smaller, there can be a value in fixing (" freezing") the historical measures. The primary advantage of fixing the reported index history is that this simplifies the creation of derivatives and other synthetic products which are linked to the index. The decision to freeze is made only after discussion with local market consultative groups.

Frozen indexes currently include:

- Indexes for the UK, France and the Netherlands
- The AREF/IPD UK Quarterly Property Fund Index
- The Mercer/IPD Australia Monthly Property Fund Index - Core Wholesale

Historical total return, income return and capital growth measures are frozen for the headline indexes and the all property, retail, office, industrial, residential and other sectors of a frozen index. The more granular performance series by property type, geography or other criteria remain "unfrozen" as the impact of new submitters is significant in these groupings, where any one submitter potentially represents a large weight within the total.

MSCI reviews each of the unfrozen national market indexes annually together with local market consultative groups to decide whether these indexes should also be frozen. This decision will be based on the likelihood of future revisions to historical data, depending on:

- Market coverage level – the higher the ratio of IPD market data coverage to the estimated total real estate investment market, based on the annual IPD Market Size

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

survey (see above), the greater is the likelihood that historical market results will remain unchanged through the addition of new portfolios to the dataset

- Review of historical restatement – analysing the difference between published results and restated results accounting for new additions to the database gives an indication of the consistency of historical results
- Trends in valuation frequency – changing portfolio valuation frequencies will affect the number of portfolios able to contribute to a particular index
- Trends in numbers of portfolios joining the dataset and their likelihood of supplying historical data

If a decision is taken to freeze an index, that decision will be made by year-end, announced to the public with implementation in the following annual index update cycle.

Policy and procedure for changes in submitters

MSCI's goal is to cover the highest percentage of professionally managed real estate investment markets possible and makes continual efforts to increase coverage, including both existing and new portfolios. For submitters of data, MSCI requests that data be supplied for the entire life of a portfolio, but in some circumstances, e.g., liquidation of a portfolio, MSCI does not receive the information required. Changes in the underlying market as well as the sample collected by MSCI for indexes and benchmarking can influence the quality of analyses.

The IPD Technical Committee undertakes an annual review of each market with the aim of ensuring that the reasons for any significant changes in structure of the market or MSCI's sample are understood. The composition of each index is reviewed in advance of each reporting date and significant changes are communicated to the market. As part of this review, the dominance of any single submitter (see Section 2) is checked before each index publication.

Aggregate disclosure of index composition is provided on the MSCI website in a document which contains a statement of index composition, in each case detailing the number and aggregate value of constituent portfolios in each market segment covered by the index concerned.

Submitter additions and deletions are normal events in the production of IPD indexes and there is no formal policy to announce these changes unless the change is deemed material. In situations where the composition change is considered material by the IPD Technical Committee, additional consultation and communication will occur. Generally, the potential composition change is first presented to the national consultative group to gauge reaction on the impact of the change. Based on this, an index announcement detailing the change may be deemed necessary and, if so, will be published on the MSCI website.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Procedure for historical data screening

MSCI requests a full historical data record for any portfolio entering its databases for the first time. As detailed historical data may in practice be difficult to provide or may not even exist, MSCI will accept a submitter's assessment of the data history. All such data are checked using standard MSCI procedures (see Section 3 above). The impact on the relevant index of the additional data will be reviewed internally prior to their inclusion.

REPORTING METHODOLOGY ISSUES

Policy and procedure for changes in methodology

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.

Major changes to IPD index or benchmark methodology are infrequent. All methodology changes are made in order to bring a clear improvement to the existing methodology. In many cases the need for such changes stems from changes to the real estate investment regulatory environment or a shift in industry norms. The former may necessitate a rapid change in methodology while the latter may be a reaction to a slower shift in the industry consensus.

The first step taken by MSCI in considering methodology change is usually informal consultation with external entities such as clients, consultants, academics and regulators. Such views are distilled and debated internally by MSCI personnel with relevant expertise, who then pass on their findings to the IPD Technical Committee for consideration. After discussion of a proposed methodology change by the IPD Technical Committee, a methodology change proposal is presented to the MSCI client base through a formal consultation.

The formal consultation takes place over a fixed but sufficient period of time with a proposal document available for review. Having given the opportunity for comment and feedback, MSCI then consults individually with a cross section of key clients. All feedback is then consolidated and a final course of action agreed internally by the IPD Technical Committee. The final methodology change is then publicly released, both on the MSCI website and proactively at individual and collective client meetings.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

SECTION 5: GOVERNANCE AND FEEDBACK

MSCI OVERSIGHT

The IPD Technical Committee reviews and provides challenge on all aspects of the real estate index and benchmark determination processes. Broadly, the role of the committee is to oversee all MSCI's methods, analysis rules and implementation procedures, as well as the underlying data and measures definitions and database specifications deployed for real estate measurement and reporting purposes.

This committee works in parallel with the IPD Risk and Regulatory Committee which oversees the integrity of the real estate index processes and aims to ensure that there is in place an effective system reasonably designed to evaluate and control general risks within the real estate index business.

The full Terms of Reference for the IPD Technical Committee are included as Appendix 3 of this guide.

INDEX AND BENCHMARKING CONSULTATIVE GROUPS

The purpose of an index and benchmarking consultative group is to bring the practitioner's viewpoint and knowledge of local markets and market practice to MSCI's approach. Group meetings provide a forum for MSCI to seek advice and input on the formal specification of each of the IPD indexes, market information and benchmarking services provided within a single national market. However, the final decision on any change to index or benchmark determination rests with the IPD Technical Committee.

Membership

The membership of an index and benchmarking consultative group is intended to be broadly representative of the users of the relevant IPD indexes and investment measurement services. Individuals are invited to serve for between two and four years in the first instance. Thereafter membership is reviewed from time to time to reflect changing circumstances and responsibilities. The group aims to meet at least twice a year, and at other times if and when necessary.

Terms of Reference

Index and benchmarking consultative groups undertake an annual review of major IPD indexes and benchmarks, though other indexes and outputs are considered from time to time. This review may cover any aspect of their design, construction and management. Attention is, however, focused upon:

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

- The range of performance and descriptive measures provided, their computation formulae and the specification of their component variables
- The consistency between these formulae and specifications and those applied in other investment markets
- The processes of data capture, validation and database management
- The analysis and reporting employed in the production and distribution of indexes
- The composition of each of the indexes and standardised benchmarks and their stability over time
- The classifications (spatial and functional) employed in disaggregating the indexes and information services
- The reweighting and other adjustments applied from time to time to indexes published or provided by MSCI
- The treatment of active management in the definitions of the indexes and benchmarking services
- Any new initiatives, proposed by MSCI, which may lead to the launch of a new index or a material change in any of the existing indexes or market information and related investment measurement services

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

SECTION 6: REAL ESTATE INDEX USAGE

Indexes and benchmarks are created and may be used for a variety of purposes ranging from research through portfolio analysis to investment products, and by a variety of market participants including asset owners, portfolio managers, broker/dealers, researchers. Not all indexes and benchmarks are appropriate for all potential uses. Market participants should use their judgment when selecting an index for a particular purpose.

Real estate indexes and benchmarks and the effectiveness of their methodologies can be affected by a number of factors, most of which are beyond MSCI's control. These may include structural changes to 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 composition or even in the termination of an index/benchmark or methodology. If financial product issuers choose to use an IPD real estate index as the basis of an index linked financial product, they should consider this possibility.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

APPENDIX 1

IPD TECHNICAL COMMITTEE: TERMS OF REFERENCE

ROLE OF THE TECHNICAL COMMITTEE

The role of the committee is to oversee all methods, analysis rules and procedures, and underlying data definitions and database specifications for the real estate measurement and reporting functions including:

- Identify methodological issues and propose solutions coupled with effective execution plans
- Review periodically the definitions of the indexes and benchmarks produced and published, together with related methodologies and analytics
- Govern subsequent changes in methodologies and/or definitions, ensuring sufficient and appropriate consultation with interested parties

    Determine if a change is material after considering relevant factors, which may include: representativeness of the index; impact on historical results; and client confidentiality

    Oversee any required changes to index and benchmark methodologies

    Review externally proposed changes to the methodologies, and undertake a consultation with interested parties on such changes as appropriate

- Manage index and benchmark termination as required, including guidelines for consulting with interested parties about such termination
- Explore opportunities for credible alternative indexes or benchmarks in the event of a possible termination and if found, notify interested parties accordingly
- Review index composition with the aim of ensuring that the indexes and benchmarks are representative, meaningful and conform with confidentiality rules
- Maintain oversight of third parties whose activities include collection of inputs used in the determination of indexes and benchmarks
- Consider the results of internal and external audits, and follow up on the implementation of remedial actions highlighted in the results of these audits
- Oversee the process and nature of data submission including an annual review of the Submitter Code of Conduct
- Establish procedures to address breaches of the Submitter Code of Conduct
- Establish procedures to report submitters' suspicious activities and misconduct
- Investigate formally index-related complaints

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

MEMBERSHIP

The Chair of the committee is designated by MSCI's Managing Director for a period of three years. The Chair of the Technical Committee proposes to the Managing Director a list of candidate members, making sure that all relevant business perspectives and technical skills are represented.

- The removal/replacement of a member follows the same process.
- The following viewpoints must be represented within the Technical Committee:
- Research and methodology: leadership and method coordination; management and support of the committee (agenda planning, process, execution, and record keeping)
- Client coverage: gather and reflect global client expectations, organise global client consultations
- Product design: oversee the ways in which new methodologies or definitions are employed within products
- Technical implementation and monitoring: oversee the translation of product implementation into specifications for IT, and verify that central requirements are properly implemented in all local business units
- Quality assurance: oversee compliance with data and methodology standards, policies and procedures as approved by the Technical Committee

The committee comprises five "core members", key individuals responsible for decision-making, and five "permanent advisors", whose role is to provide advice on an on-going basis to the core members.

ADMINISTRATION

- Meeting Frequency
  Planning/strategic sessions: at least once every six months, occasionally at other times if urgently required
  Implementation and monitoring sessions: once every two weeks

- Operating principles
  A formal agenda and supporting documents should be provided in advance to allow for informed members' review
  All members commit to attend regularly
  The committee may draw on additional research input internally or externally, as required
  Decisions should be minuted at every session and, along with agendas and all supporting papers, subject to the MSCI document retention policy

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

APPENDIX 2

MSCI POLICIES AND PROCEDURES

INTRODUCTION

MSCI policies and procedures for its index and benchmark determination processes are designed to provide consistency in decisions and avoid ambiguity in how particular events are addressed.

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

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

UNIVERSE CHANGE POLICY

INTRODUCTION

Changes in the composition of an IPD data universe can result from various types of event, including the inclusion of a new submitter, missing mandatory input data resulting in the exclusion of whole or part of a submitter's data, and the departure of an existing submitter, and significant shifts in investment strategies.

The aim of this policy is to define and address material impacts resulting from changes in an IPD data universe.

POLICY

Guidelines are provided to data collection and validation teams as to when a change to a universe should be deemed material. These are based primarily upon the resulting overall impact on the universe capital value, but other factors including sector or segment rebalancing and submitter dominance can be relevant. However, the final determination in all cases rests with the Technical Committee. Any such change, once agreed as material, will be subject to a formal public announcement.

The data histories of departing submitters will be retained. Portfolios with missing mandatory input data for the period concerned will be included in historical universe

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

datasets, while assets with partial information will be excluded only from the current analysis period.

SCOPE

The policy applies only to data universes supporting full indexes, not to consultative indexes.

IMPLEMENTATION

Once a material change in a universe has been identified as such by MSCI, the IPD Technical Committee reviews and validates it and an announcement is prepared and published on the MSCI website.

CORRECTION POLICY

INTRODUCTION

This policy outlines the way in which MSCI corrects data errors and applies those corrections to indexes, a process described hereafter as "restatement", and communicates these restatements to interested parties.

POLICY

MSCI corrects errors in individual client portfolio data once they have been identified, so that reports delivered to clients on their own holdings always reflect the latest-known data. MSCI will restate indexes (frozen and unfrozen) if errors were made over the previous 12 months which were material to the index, as defined below. Such restatements will be published on the MSCI website with an explanation of the corrections made.

Consultative indexes, being in early stages of development, are not be subject to this time limit and will be restated at any point following error detection.

SCOPE

This policy addresses the correction of errors, rather than historic index changes resulting from the addition of historic data from new constituents in the universe. Typical errors include:

- incorrect capital values or net asset values
- incorrect net income on direct properties
- incorrect distributions recorded in fund data
- incomplete information on capital invested
- the omission of whole properties or funds

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

CORRECTION PERIOD

MSCI applies a 12-month correction period, calculated retrospectively from the date when the error was detected.

For frozen indexes, errors relating to data more than 12 months past are not considered as relevant to index restatement. For unfrozen indexes, outdated errors are reflected in the index history when it is next published, but are not considered relevant for index restatement.

MATERIALITY

Guidelines are provided, both for frozen and unfrozen indexes, to data collection and validation teams as to when a restatement to an index or universe measure should be deemed material. These are based primarily upon the resulting overall impact on the index or universe return, but other factors including capital and income component scores can be relevant. However, the final determination in all cases rests with the Technical Committee. Any such restatement, once agreed as material, will be subject to a formal announcement.

IMPLEMENTATION

Upon identification of an error, MSCI assesses the impact on the relevant universe. If the error is not material, only client data is modified. If the error is material but outdated, client data is modified and unfrozen indexes are restated accordingly in the subsequent release. If the error is material and has occurred within the correction period, the error is announced and the index corrected and restated.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

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

METHODOLOGY CHANGE POLICY

INTRODUCTION

MSCI methodology changes may arise, among other things, as a response to changes in the regulatory environment or a shift in industry norms. The former may require a rapid change in methodology while the latter is likely to represent the response to a gradual evolution of opinion.

POLICY

MSCI takes a considered approach to methodology changes, involving:

- internal consultation
- a formal internal recommendation by the IPD Technical Committee, taking account of any statistically quantifiable impacts of the proposed change
- external consultation in all affected markets
- consideration of client feedback
- public communication on final decision at least one month before implementation of change.

MSCI does not retain the ability to reproduce historical results based on an old methodology.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

IMPLEMENTATION

Proposals for changes to a methodology may be received from various parts of the MSCI business, including Research, Product Management and Client Coverage, or from the wider industry.

The IPD Technical Committee reviews any proposal, requesting further information if necessary, including an assessment of the practicality of implementation. If the methodology change is considered material and requires the application of significant resources it is presented to the IPD Project Governance Committee for scheduling. If approved, the proposal will be made available for client consultation. The IPD Technical Committee will consider client feedback and the proposal be amended accordingly.

Public communication of the planned change will be made one month before implementation. This communication will include an explanation of the rationale for the change.

CONSULTATION POLICY

INTRODUCTION

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

POLICY

Client consultation will be undertaken in the case of:

- Material changes in methodology related to the determination of indexes and benchmarks, such as changes to headline performance measures, attribution analysis and risk analysis. Such material changes are determined by the Technical Committee
- Decisions to create and discontinue indexes and benchmarks

MSCI may consult clients at other times on any other issues.

IMPLEMENTATION

Once a proposed change has been agreed by the IPD Technical Committee, consultation will take place with interested parties as appropriate, including consultative groups for affected national markets. Proposals will be set before affected clients for comment and amended accordingly.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

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

INDEX TERMINATION POLICY

INTRODUCTION

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

When a termination is deemed essential it will not normally be possible to provide or advise of a robust alternative. For this reason all licensees of the indexes that may seek to develop long or medium term financial products linked to an IPD index must make provisions for the early termination of any such products in these force majeure circumstances.

POLICY

Following each annual review of Index market coverage ('Market Size' survey), the IPD Technical Committee will consider discontinuing an index if it is no longer broadly representative of the investment market it aims to report and there appears to be no prospect of this situation improving in the foreseeable future.

Guidelines are provided to data collection and validation teams as to when an adverse change to a universe 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 submitter dominance may be relevant. However, the final determination in all cases rests with the Technical Committee.

SCOPE

This policy applies only to published indexes (not consultative indexes) and universe benchmarks.

IMPLEMENTATION

If the conditions under which MSCI will consider discontinuing an index have been identified, MSCI will investigate any opportunities to remedy the situation, including making efforts to increase the universe 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 brought to external consultation. As part of this consultation process, alternative indexes, benchmarks and market reporting options will be reviewed, as appropriate, but such alternatives are unlikely to be available, at least in the short term (as noted above).

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

After the consultation, the IPD Technical Committee will consider all of the feedback and make a final determination with regards to terminating the index. If the decision is ultimately to terminate the index, that decision will be publicly announced together with an explanation of the reasons which necessitated the termination.

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

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

APPENDIX 3

GLOSSARY OF TERMS

Accruals accounting principle – the assumption that payment is timed to the due date rather than to the date of monetary transfer.

Active management – management that results in significant alteration to the physical condition or letting situation of a property.

Appraisal – see **Valuation**.

Arithmetic mean - the sum of numbers in a series divided by the count.

Attribution analysis – technique used to calculate that part of a portfolio's relative return derived from its relative weighting in the strong or weak sectors of the market (structure score) and that part which is due to the exceptional performance of the portfolio's own assets within each segment of the market (property score).

Benchmark - the average against which the performance of a portfolio or group of properties is measured. For MSCI, benchmarks cover all assets and investment holdings including purchases, sales, developments, indirect holdings and where appropriate, other financial assets and liabilities.

Bid/offer spread - difference between the bid and offer prices.

Capital employed – the denominator of the total return, capital growth and income return measures, which is calculated as the sum of the start-period capital value of all assets covered and the capital expenditure over the period.

Capital expenditure – expenditure on purchase, development, refurbishment or major improvement of property.

Capital growth (also known as indirect return) - the increase in the value of a property or group of properties net of capital expenditure, expressed as a percentage of the capital employed.

Capital receipts - receipts for changes in the owner's interest in a property.

Consultative index – an IPD index, usually for a market where MSCI services are in an early stage of development, for which the available data are of insufficient quantity or quality to produce a full index.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Covenant (lease) – in IPD risk analysis, an estimation of the level of a property tenant's credit worthiness. This is usually derived from information from a leading credit rating agency.

Cross holding – for real estate funds, the holding of a financial interest in another fund.

Development – property under construction or land where construction is planned.

Direct investment/holding – for real estate, properties held within an investment portfolio or fund, either individually or as a group, as distinct from any financial structures that may support them.

Direct return – see Income Return.

Distribution yield - the sum of a fund's distributions per unit over a period expressed as a percentage of its net asset value per unit at the end of the period.

Equivalent yield - the discount rate which equates future income flows to the current gross capital value.

Fixed rate currency conversion – for multinational IPD reporting, converting all currencies throughout the performance history at a single exchange rate.

Frozen index history – for an IPD index, the case where all historical results are fixed, so that the addition of new data into the relevant dataset will not affect the results stated for earlier periods.

Fund – a financial structure, usually in the form of a co-ownership vehicle, by which investors come together to hold real estate. The performance of a fund as obtained by its unit-holders derives not only from the properties it contains, but also from the effects of debt (gearing/leverage), cash holdings and fees.

Fund Checking Report – report provided by MSCI to submitters showing the detailed performance of their direct property portfolio. This report is used for final review and sign-off of input data by the client.

Gearing - a measure of the extent to which a fund is indebted or 'leveraged', usually shown as the ratio of gross or net debt to net asset value (NAV), expressed as a percentage.

Geometric mean - the nth root of the product of a series of numbers (where n is the count of the numbers). Geometric means are generally used for calculating average rates of growth.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

GIPS – Global Investment Performance Standards, created and administered by the CFA Institute.

Gross debt – the total outstanding amount of unpaid debt in a fund, in money terms.

Gross yield – see Distribution yield (used in fund reporting).

Ground rent – the rent payable for the use of a site for a fixed period.

Income return (also known as direct return) - the net income receivable for a property expressed as a percentage of the capital employed.

Index – in IPD reporting, a statement of the performance of a real estate market. IPD indexes are based exclusively upon standing investments in completed and lettable properties, and exclude properties that are purchased, sold or under development or major refurbishment during the measurement period.

Indirect investment/holding – in real estate, investment in a fund or other financial structure which holds property assets.

Indirect return – see Capital growth.

Initial yield - the rent passing, net of ground rent, for a property expressed as a percentage of the gross capital value.

International Valuations Standards (IVS) – internationally agreed standards for the valuation of real estate, as established by the International Valuations Standards Council (IVSC).

IOSCO – the International Organization of Securities Commissions.

Irrecoverable expenditure - non-rental costs incurred for the day-to-day operation of a property, which cannot be recovered from its tenants.

Lettable – the state of a property in which it is able to be leased, fully or partially, to tenants.

Market capital value - value of the property as defined by the International Valuation Standards Committee, being "the estimated amount for which a property should exchange on the date of valuation, between a willing seller and a willing buyer in an arm's-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion".

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Market flagging – part of the IPD index computation process, by which certain properties are excluded from market and index performance measures over a single reporting period, due to the abnormal profile of their returns.

Market rental value - the rental income estimated to be achievable were a property or occupational unit to be newly leased, assuming a normal market lease contract.

Market Size Survey – annual survey by MSCI of the value and structure of a national real estate market.

Mid Rate – for currency conversion, the mid point of bid and offer rates.

Modified Dietz methodology – a time-weighted method of calculating gross fund level returns, by which the capital employed is modified by the addition of contributions and capital distributions to start-period NAV. This calculation method is used by MSCI for fund returns in the U.S.

Money-weighted - for performance measures, those in which returns generated by different assets or groups of assets are weighted in proportion to their monetary value. All IPD performance measures are money-weighted over monthly periods.

Multinational – in MSCI reporting, covering two or more national markets.

Net asset value (NAV) – the total value of all the assets held in a fund, less the capitalised value of any outstanding liabilities.

Net debt - the total outstanding amount of unpaid debt in a fund, in money terms, less any cash holdings.

Net income receivable - income receivable on a property from rental contracts or any other sources from a property by the owner over a defined period, less any irrecoverable operating expenditure incurred.

Number of units in issue – the number of units issued to investors in a fund since its inception that are as yet unredeemed.

Open market capital value – see Market capital value.

Operating costs - non-rental costs incurred for the day-to-day operation of a property.

Over-renting - for let property units where the open market rental value is less than tenant rent payable, the difference.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Portfolio - a group of properties or other assets managed as an entity on behalf of an investor or investors.

Property management cost - cost incurred by the owner for administering a property, including rent reviews and lease renewals, but excluding portfolio management costs.

Property score – in Attribution Analysis, the portion of the relative return of a portfolio attributable to the performance of its properties relative to their benchmarks in each market segment.

Relative return - the ratio of the return on a portfolio, segment or individual asset, to that of a benchmark, expressed as a percentage.

Rent passing - income receivable annually on rental contracts in place, as at the end of a defined period.

Rent receivable - income receivable on rental contracts from a property by the owner over a defined period.

Reversionary potential – the ratio of current market rental value to rent passing (both gross of ground rent), expressed as a percentage.

Reversionary yield - the open market rental value of a property expressed as a percentage of the gross capital value.

Risk-adjusted return - the ratio of the arithmetic average return over the period to the volatility of returns measured by the standard deviation.

Sharpe Ratio - the ratio of the risk premium, defined as the average return less the risk free rate of return, to the total risk of the portfolio, measured by the standard deviation.

Standing investment - properties are treated as standing investments following their first actual valuation after completion of development, or after purchase in the case of investment properties, and continue to be included as standing investments until their final valuation prior to sale.

Structure score - in Attribution Analysis, the portion of the relative return of a portfolio attributable to its weightings relative to the benchmark in each market segment.

Time-weighted – for performance measures, those in which returns generated for different time periods are weighted equally in producing returns for longer periods, irrespective of the amount of capital employed in each period.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Top slice income - For property units where current rent is higher than open market rental value, the difference.

Total return - the most important measure of overall investment performance used to compare different assets across time periods. It incorporates both capital and income elements, and is calculated as the percentage value change plus net income accrual, relative to the capital employed.

Tracking error - the standard deviation of the difference in return between a portfolio and a benchmark. The tracking error shows the extent to which its returns move in line with the benchmark over a given time period.

Transaction linked index – a hybrid market index published by MSCI in which transactions and open market capital values are linked to produce measures of market return. These capture more of the true volatility of real estate markets than is possible using capital values alone.

Unexpired lease term – the period of time remaining until the current lease contract ends.

Universe – a dataset covering a whole investment market for the purposes of an index or for benchmarking. For real estate this is normally defined as a national market area.

Vacancy – MSCI defines a vacant unit as one with no lease, no previous lease holding over and no temporary contract in place, and where any previous lease has been disclaimed. Vacancy does not apply to tenants in administration where leases are technically in place.

Vacancy rate – calculated as both the sum of market rental value in vacant units as a percentage of total market rental value excluding development units, and the sum of vacant floor area in completed properties as a percentage of total lettable floor area.

Valuation – the process by which an estimation of market capital value is made for an investment property. The valuation process also generates a large amount of supporting data which is used by MSCI in its analysis of portfolios and markets.

Variable rate currency conversion - for multinational MSCI reporting, converting all currencies throughout the performance history at the exchange rates in effect at the end of each month.

Volatility - portfolio or asset risk is defined as the standard deviation of the series of returns around the arithmetic mean.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

Weighted Contribution to return - measure of the contribution of an individual asset or group of assets to the return of the portfolio over a defined period. The weighted contributions of all the assets in a portfolio sum to its return.
Yield - the ratio of income to capital value expressed as a percentage.

Yield impact - the impact of a change in yield on capital value, expressed as a percentage.

Yield ratio – the ratio of equivalent yield to the reversionary yield. This is only available for markets where equivalent yield can be calculated.

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

CONTACT US

realestate@msci.com

+ 44 20 7336 4783

AMERICAS

Canada	+ 1 416 687 6284
US	+ 1 212 804 3900

EUROPE, MIDDLE EAST & AFRICA

UK	+ 44 20 7336 9200
France	+ 33 1 58 05 36 90
Germany	+ 49 691 3385 999
Netherlands	+ 31 88 328 22 00
Spain	+ 34 917 610 271
South Africa	+ 27 11 656 2115
Sweden	+ 46 8 400 252 30

ASIA PACIFIC

Australia	+ 61 2 9248 1900
Japan	+ 81 3 5211 1455

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

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

© 2015 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

NOTICE AND DISCLAIMER

This document and all of the information contained in it, including without limitation all text, data, graphs, charts (collectively, the "Information") is the property of MSCI Inc. or its subsidiaries (collectively, "MSCI"), or MSCI's licensors, direct or indirect suppliers or any third party involved in making or compiling any Information (collectively, with MSCI, the "Information Providers") and is provided for informational purposes only. The Information may not be modified, reverse-engineered, reproduced or redisseminated in whole or in part without prior written permission from MSCI.

The Information may not be used to create derivative works or to verify or correct other data or information. For example (but without limitation), the Information may not be used to create indexes, databases, risk models, analytics, software, or in connection with the issuing, offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other MSCI data, information, products or services.

The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. NONE OF THE INFORMATION PROVIDERS MAKES ANY EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EACH INFORMATION PROVIDER EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION.

Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall any Information Provider have any liability regarding any of the Information for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited, including without limitation (as applicable), any liability for death or personal injury to the extent that such injury results from the negligence or willful default of itself, its servants, agents or sub-contractors.

Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.

The Information should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. All Information is impersonal and not tailored to the needs of any person, entity or group of persons.

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.

Index returns do not represent the results of actual trading of investible assets/securities. MSCI maintains and calculates indexes, but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the index or Index Linked Investments. The imposition of these fees and charges would cause the performance of an Index Linked Investment to be different than the MSCI index performance.

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 Inc. 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.

MSCI ESG Research Inc. is a Registered Investment Adviser under the Investment Advisers Act of 1940 and a subsidiary of MSCI Inc. Except with respect to any applicable products or services from MSCI ESG Research, neither MSCI nor any of its products or services recommends, endorses, approves or otherwise expresses any opinion regarding any issuer, securities, financial products or instruments or trading strategies and MSCI's products or services are not intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such. Issuers mentioned or included in any MSCI ESG Research materials may include MSCI Inc., clients of MSCI or suppliers to MSCI, and may also purchase research or other products or services from MSCI ESG Research. MSCI ESG Research materials, including materials utilized in any MSCI ESG Indexes or other products, have not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body.

Any use of or access to products, services or information of MSCI requires a license from MSCI. MSCI, Barra, RiskMetrics, IPD, FEA, InvestorForce, and other MSCI brands and product names are the trademarks, service marks, or registered trademarks of MSCI or its subsidiaries in the United States and other jurisdictions. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and Standard & Poor's. "Global Industry Classification Standard (GICS)" is a service mark of MSCI and Standard & Poor's.

© 2015 MSCI Inc. All rights reserved.