ANREV/INREV/NCREIF Global Index Methodology Guide 2026

Market Information

ANREV is the Asian Association for Investors in Non-listed Real Estate Vehicles Limited. ANREV is a not-for-profit organization driven by Institutional Investors in Asian non-listed real estate funds. ANREV's agenda is driven by the members, in particular the investors, and is focused on improving transparency and accessibility through market information, promoting professionalism and best practices, sharing and spreading knowledge.

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INREV is the European Association for Investors in Non- Listed Real Estate Vehicles. Our aim is to improve the accessibility of non-listed real estate vehicles for institutional investors by promoting greater transparency, accessibility, professionalism and standards of best practice.
As a pan European body, INREV represents an excellent platform for the sharing and dissemination of knowledge on the non-listed real estate industry.

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The National Council of Real Estate Investment Fiduciaries (NCREIF) is an association of institutional real estate professionals who share a common interest in their industry. They are investment managers, plan sponsors, academicians, consultants, appraisers, CPAs and other service providers who have a significant involvement in institutional estate investments. They come together to address vital industry issues and to promote research. NCREIF was established to serve the institutional real estate investment community as a nonpartisan collector, processor, validator and disseminator of real estate performance information.

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Executive summary

> ANREV/INREV/NCREIF suite of global indices now includes 3 publications
> First Global Real Estate Fund Index was launched in 2014 and is the longest standing in the suite
> The Global ODCE Index is the latest index released in 2023

Global alliance initiative

This initiative represents the logical integration of the three member-driven non-profit organisations to meet the data collection and, increasingly global, information needs of our members; and to serve as the basis for further collaboration in the future

A global collaboration creates GREFI

The **GREFI** (Global Real Estate Funds Index) was launched in 2014 and represents a collaboration between ANREV, INREV and NCREIF. The Index measures the value-weighted quarterly net asset value performance of non-listed real estate funds on a global basis. The history of the index starts in Q1 2005, with global strategy funds being added to GREFI in 2015.

The global index serves the need for greater information flow, and more in-depth analytics providing an input into performance attribution analysis. It allows for interrogation of the drivers of returns helping market participants to better understand the performance of their non-listed real portfolios.

Global ODCE Index

ANREV, INREV and NCREIF have launched the first **Global ODCE Index**, which is the latest in a suite of global indices aimed at enhancing the transparency of the non-listed real estate investment industry. The new index focuses on open end diversified core equity funds across all three global regions.

The Global ODCE Index reflects the growing need for data on a global scale as investor appetite for diversified real estate portfolios gathers momentum. The consultation release measures the net asset value quarterly performance, net of fees and other costs, with a near-term plan to report gross of fees performance.

Regional ODCE performance is calculated by aggregating vehicle performance on a value-weighted basis across all funds in each region. However, the Global ODCE index aggregates the three regional indices on an equal-weighted basis (i.e. simple average).

Global IRR Index

Industry bodies INREV, ANREV and NCREIF have launched the first Global IRR Index, providing data on the since-inception performance of value added and opportunity, closed end, non-listed real estate funds in Asia Pacific, Europe and the US.

As a money-weighted measure, it provides global investors and managers with an additional view of fund performance, enabling them to assess whether a fund's cashflow is sufficient to meet its specific investment goals.

The equal weighted index measures the since inception internal rate of return (IRR), net of fees and other costs.

SECTION 1

Introduction

Introduction

ANREV/INREV/NCREIF Index Methodology Guide provides an overview of the Global suite of indices, their specific characteristics and their methodology.

The first ANREV/INREV/NCREIF index was launched in 2014 and the suite of indices has now grown to include 3 publications:

- GREFI – Global Real Estate Fund Index
- Global IRR Index
- Global ODCE Index

ANREV/INREV/NCREIF do not use publicly available information, and both members and non-members of ANREV, INREV and NCREIF can provide data for the Indices.

ANREV, INREV and NCREIF would like to thank all participants for contributing their data and the respective performance measurement committees for their guidance and governance of the Index and all participants for providing their data to the indices.

For more information about Performance Measurement visit the INREV Guidelines on Performance Measurement and the NCREIF / PREA Reporting Standards Handbook Volume I and Volume II.

Index use

The ANREV/INREV/NCREIF global indices may be used for research and information purposes only.

The ANREV/INREV/NCREIF global indices do not meet the legal criteria for a “benchmark” under the Benchmarks Regulation (2016/1011/EU)

Therefore, the indices should not be used for the following:

- To determine the value of a fund
- To determine the value of a financial instrument
- To determine the amount payable under a financial instrument
- To determine the amount payable under a financial contract
- To calculate performance fees
- To define the allocation of a portfolio

2013
GREFI consultation index is launched

2014
GREFI launched by ANREV, INREV and NCREIF

2017
Global Definitions Database (GDD) created by INREV, ANREV, NCREIF, and PREA to promote global standards and transparency

2019
GREFI history extended from Q1 2010 to Q1 2005

2020
Total Global Expense Ratio (TGER) launched to globally harmonise the approach for measuring the total fees and costs of real estate investment

2020
Global IRR Index launched by ANREV, INREV and NCREIF

2023
Global ODCE Index launched by ANREV, INREV and NCREIF

SECTION 1

Global Real Estate Funds Index (GREFI)

GREFI - introduction

Introduction

The Global Real Estate Funds Index (GREFI) measures net asset value performance of commingled non-listed real estate funds on a quarterly basis. The value weighted performance is measured net of fees and other costs and represents the aggregate investor return.

The Index was launched in 2014 and is published 12 weeks after quarter end. The GREFI is an unfrozen index which means that historical data can change with future updates. The history of GREFI starts at Q1 2005.

Data collection

The Index results are based on fund level data that is provided to ANREV, INREV and NCREIF directly from managers.

ANREV, INREV and NCREIF do not use publicly available information, and both members and non-members can provide data for the Index.

Inclusion criteria

- All funds included in the ANREV Quarterly Index – core, value added and opportunity
- All funds included in the INREV Quarterly Index – core and value added
- US core funds – NCREIF Fund Index Open End Diversified Core Equity, NFI – ODCE
- US non-core funds – NCREIF Fund Index Open End, NFI – OE
- US closed end value added funds (CEVA funds) are included in the index from Q1 2010 to Q2 2018 performance. Since Q3 2018, GREFI no longer includes them.
- Global strategy funds targeting >2 investors and a >50% institutional holding.

Classification

ANREV and INREV styles are self-defined by the manager.

Asia Pacific non-core funds include value added and opportunity funds.

European non-core funds include value added funds only.

US non-core funds include open end funds in the NFI – OE that are not included in NFI – ODCE and closed end value added funds.

Publication and accompaniments

The GREFI publication includes:

- A PDF publication with a supplementary Excel workbook
- A PDF and Excel snapshot that is also available to non-members

GREFI - index methodology

Performance calculation

ANREV and **INREV** uses the Modified Dietz methodology to calculate quarterly net asset value fund performance.

The total return measures the performance over a specific period and does not include projections to the end of the fund's life.

The total return is computed as follows:

$$\frac{NAV_t - NAV_{t-1} - contributions + redemptions + distributions^*}{NAV_{t-1} + TwdC - TwdR - TwdD}$$

*Distributions include both capital and income distributions.

NAV_t – net asset value at time t (end of quarter)

NAV_{t-1} – net asset value at time t-1 (end of the previous quarter)

TwdC – time weighted (daily) contributions over the quarter

TwdD – time weighted (daily) distributions over the quarter

TwdR – time weighted (daily) redemptions over the quarter

NCREIF uses manager actual reported returns to investors to calculate the value-weighted NFI-OE Index. Managers must comply with the NCREIF / PREA Reporting Standards which require, at a minimum, quarterly time-weighted returns where contributions and distributions are time-weighted using the Modified Dietz methodology. Some managers calculate daily or monthly returns, therefore the use of Modified Dietz may not be applicable.

Differences in methodologies are not deemed significant as all methods are essentially an approximation of an internal rate of return for the quarter.

Long term performance

Quarterly returns are chain-linked and annualised to calculate the returns for one year or longer.

Confidentiality thresholds

Performance of any index or sub-index is reported only when the sample includes at least 3 funds from 3 different fund managers.

Allocation

The proportion of the real estate portfolio measured based on the gross asset value (GAV) of the fund's portfolio, excluding cash, cash equivalents, and other accountancy items.

Guidelines

For more information about Performance Measurement visit the INREV Guidelines on Performance Measurement and the NCREIF / PREA Reporting Standards Handbook Volume I and Volume II.

GREFI - index methodology

Currency conversion methodology

For the purpose of the index calculation, fund managers deliver their financial data to ANREV and INREV in their fund's reporting currency, whereas US funds report all data in USD to NCREIF.

The reporting currency of the fund can be the same as the currency of the assets owned by the fund (i.e. an Australian single country funds reporting in AUD investing in assets in Australia) or could be different (a pan Asia funds reporting in USD but investing in assets in Japan, Australia, etc.).

The Global Real Estate Fund Index returns are then aggregated and calculated in two ways:

- **Returns in Reporting Currency** as outlined in the report and supplement; and
- **Returns in USD**, as shown in the supplement.

Returns in Reporting Currency

In order to aggregate funds' performance of funds with different reporting currencies, GREFI returns as shown in this report is converting the funds reporting currency into USD following the below methodology:

- converting the funds' quarterly NAV and cash flows in all reporting currency types to USD
- for each single fund, the exchange rate for conversion of cash flows and NAVs is the same which is the first day of the quarter exchange rate, so that the fund's return after conversion to USD will be the same as the returns in their reporting currency before conversion.
- aggregate all converted NAVs and cash flows to calculate the index level return.

Returns in USD

In contrast, the Returns in USD are carried out by:

- converting the quarterly NAV and cash flows of all reporting currency types to USD, using the exchange rates on the actual dates of the NAV or capital flows.
- aggregate all converted NAVs and cash flows to calculate the index level return.

Please note that total returns for ANREV & INREV include the impact of currency conversion from local asset currencies to the respective reporting currencies (USD and EUR). NCREIF returns are unaffected by FX impacts, as both asset-level and fund-level reporting are in USD.

Section 2

Global ODCE Index

Global ODCE Index - introduction

Introduction

The Global ODCE Index measures the quarterly net asset value performance of commingled non-listed open end, core funds for institutional investors with a strategy to invest across Asia Pacific, Europe and the US and diversified across multiple sectors. The performance of the Global ODCE index aggregates the three regional indices on an equally weighted basis (i.e. mean average) and measures the performance net of fees and other costs, and represents the aggregate investor return.

The index has been compiled from data collected by ANREV, INREV and NCREIF for their ODCE indices.

At its launch in Q2 2023 the index measured the performance of 50 funds, 8 from Asia-Pacific, 16 from Europe and 26 from the US, on an equally weighted basis. The combined total GAV was $403 billion.

Initially, performance is measured net of fees and costs. However, there is a near term ambition to report gross of fees performance.

The first publication of the Index was launched as a consultation release in July 2023 and will be published 10 weeks after quarter end. The Global ODCE Index is an unfrozen index which means that historical data can change with future updates. The Index has an inception date of Q2 2016.

The Global ODCE Index reflects the growing need for data on a worldwide scale as investor appetite for globally diversified real estate portfolios gathers momentum. It will aid the understanding of the global real estate market with a clear core peer-set for all three regions. The new index will advance the pool of available data and grow transparency, helping to accelerate capital flows into the asset class.

Inclusion criteria

- All funds included in the ANREV ODCE Index
- All funds included in the INREV ODCE Index
- All funds included in the NCREIF Fund Index Open End Diversified Core Equity (NFI – ODCE)

Publication and accompaniments

The Global ODCE Index publication includes:

- A PDF publication with a supplementary Excel workbook
- A PDF and Excel snapshot that is also available to non-members

Global ODCE Index - index methodology

Performance Calculation

ANREV and **INREV** uses the Modified Dietz methodology to calculate quarterly net asset value fund performance. The total return measures the performance over a specific period and does not include projections to the end of the fund's life. Performance is measured on an accrual and leveraged basis, net of fees and other costs.

The total return is computed as follows:

$$\frac{NAV_t - NAV_{t-1} - contributions + redemptions + distributions^*}{NAV_{t-1} + TwdC\ - TwdR\ - TwdD}$$

The income return is computed as follows:

$$\frac{\sum Net\ investment\ income}{NAV_{t-1} + TwdC\ - TwdR\ - TwdD}$$

The capital growth is computed as follows:

$$\frac{NAV_t - NAV_{t-1} - contributions + redemptions + distributions^* - (\sum Net\ investment\ income)}{NAV_{t-1} + TwdC\ - TwdR\ - TwdD}$$

**Distributions include both capital and income distributions*.

NAV_t – net asset value at time t (end of quarter)

NAV_{t-1} – net asset value at time t-1 (beginning of quarter)

TwdC – time weighted (daily) contributions over the quarter

TwdD – time weighted (daily) distributions over the quarter

TwdR – time weighted (daily) redemptions over the quarter

NCREIF uses manager actual reported returns to investors to calculate the value-weighted and equal-weighted NFI-ODCE Index. Managers must comply with the NCREIF/PREA Reporting Standards which require, at a minimum, quarterly time-weighted returns where contributions and distributions are time-weighted using the Modified Dietz methodology. Some managers calculate daily or monthly returns, therefore the use of Modified Dietz may not be applicable.

Differences in methodologies are not deemed significant as all methods are essentially an approximation of an internal rate of return for the quarter.

Long term performance

Annual and other multi-period returns are calculated by chain-linking quarterly performance data to derive annualised returns.

Confidentiality thresholds

Performance is shown only when the sample size includes at least 3 vehicles from 3 different managers.

Regional / Global Aggregation

Regional performance is calculated by aggregating vehicle performance on a value-weighted basis across all funds in each region. However, the Global ODCE index aggregates the three regional indices on an equal-weighted basis (i.e. simple average).

Global ODCE Index - index methodology

Allocation

The proportion of the real estate portfolio measured based on the gross asset value (GAV) of the fund's portfolio, excluding cash, cash equivalents, and other accountancy items.

Guidelines

For more information about Performance Measurement visit the INREV Guidelines on Performance Measurement and the NCREIF / PREA Reporting Standards Handbook Volume I and Volume II.

Returns and Currency Conversion

The global ODCE index provides two types of returns:

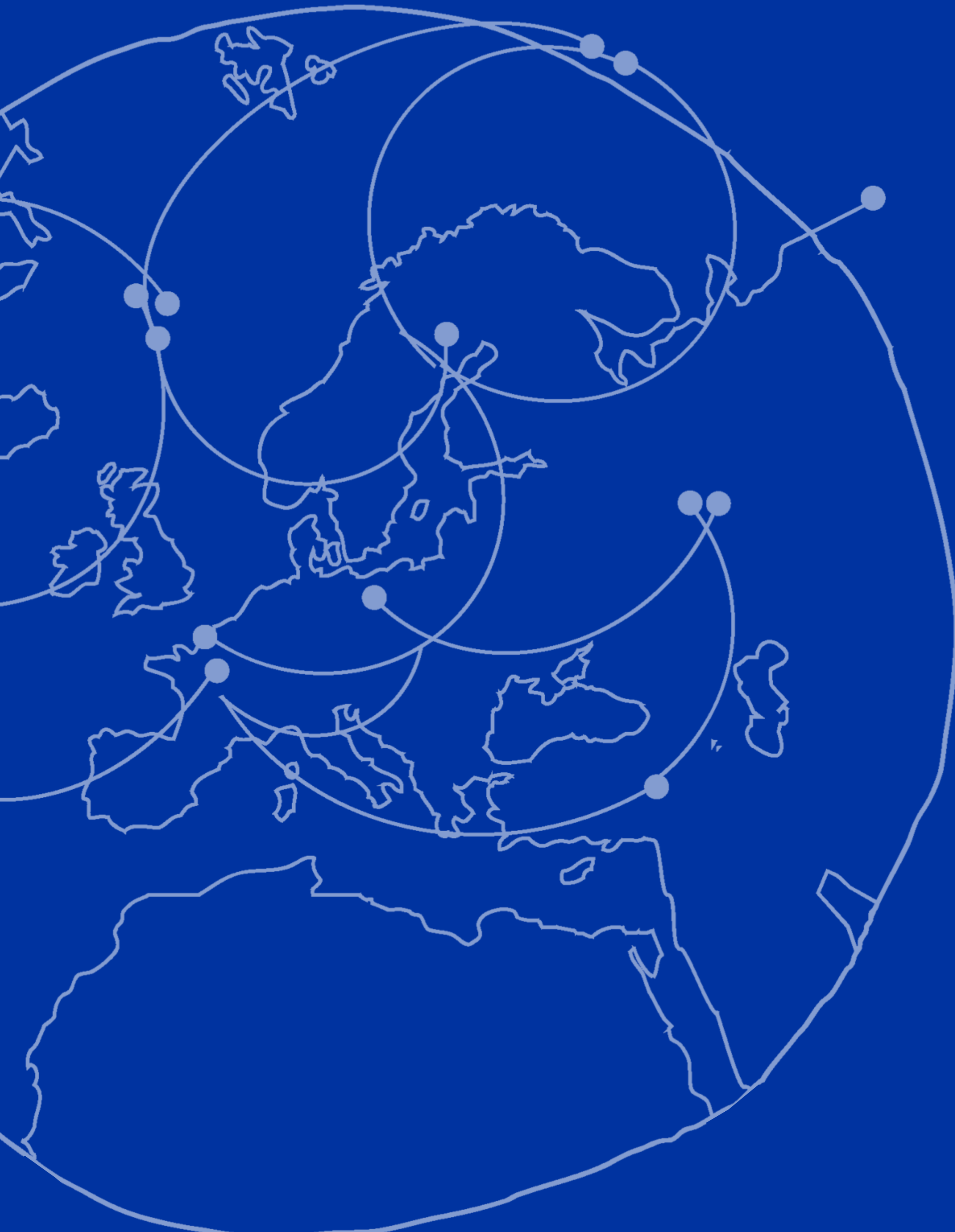
- **Returns in Reporting currency** as outlined in the report and supplement; and
- **Returns in USD**, as shown in the supplement.

The reporting currency is USD for ANREV and NCREIF, and EUR for INREV.

For **Returns in Reporting Currency**, all EUR-denominated funds' NAVs and cash flows are converted to USD using the fixed exchange rate prevailing on the first day of the quarter, thereby eliminating intra-quarter currency fluctuations.

In contrast, **Returns in USD** apply the spot exchange rate to all cash flows. Following currency conversion to USD, the three regional returns are aggregated on an equal-weighted basis to produce the global return.

Please note that total returns for ANREV & INREV include the impact of currency conversion from local asset currencies to the respective reporting currencies (USD and EUR). NCREIF returns are unaffected by FX impacts, as both asset-level and fund-level reporting are in USD.



Section 3

Global IRR Index

Global IRR Index - introduction

Introduction

The Global IRR Index measures the since inception internal rate of return performance of Asian-Pacific, European and US closed end non-listed real estate vehicles with non-core manager defined strategy, value added and opportunity. The equally weighted performance is measured on a leveraged basis, net of fees and costs.

The Index results are based on vehicle level data that is provided to ANREV, INREV and NCREIF directly from managers.

The Global IRR Index is computed on an equally weighted basis (arithmetic mean).

The first Global IRR Quarterly Index was published in January 2020 and is published 14 weeks after quarter end with exception of the Q4 publication, which is published 16 weeks after quarter end.

The Global IRR Index is an unfrozen index which means that historical data can change with future updates. Any funds that are unable to meet the data reporting deadlines will be included in the next index release. In the case of funds reporting with a lag the latest available NAV is used for the IRR calculations.

Inclusion criteria

- All closed end value added and opportunity funds included in the ANREV IRR Index.
- All closed end value added and opportunity funds included in the INREV IRR Index.
- US closed end funds
- Only vehicles that have provided full cash flows (capital calls, redemptions and distributions) since inception
- Vehicles targeting institutional investors only
- Non-core manager defined value added and opportunity strategies
- All types of vehicle are included i.e. funds, separate accounts, joint ventures and club deals

Classification

Year of first closing is used as a proxy for vintage year and is provided by the manager.

The Multi-country Index includes vehicles that have a strategy to invest in more than one country.

The Multi-sector Index includes vehicles that have a strategy to invest in more than one sector.

Publication and accompaniments

The Global IRR Index publication includes:

- A PDF publication with a supplementary Excel workbook
- A PDF and Excel snapshot that is also available to non-members

Global IRR Index - index methodology

Performance calculation

The IRR, internal rate of return, is also known as a money-weighted return.

The IRR calculation is from inception through to the current quarter adopting NAV (adjusted to eliminate the effect of fees, taxes and carried interest if necessary) as the final end value.

The since inception IRR (SI-IRR) for each vehicle for **ANREV** and **INREV** is computed as follows:

$$f_0 + \frac{f_1}{(1+IRR)} + \frac{f_2}{(1+IRR)^2} + \frac{f_3}{(1+IRR)^3} + \cdots + \frac{f_n}{(1+IRR)^n} = 0$$

Where:

$f_0 \ldots f_n$ denotes the cash flows for the period 0 through to period n (positive values for inflows and negative values for outflows)

ANREV and **INREV** calculate each fund's IRR based on the cash flows in the fund's reporting currency.

NCREIF uses the fund manager's reported IRR to investors to calculate the value-weighted NFI-CEVA Index, with all figures for NCREIF reported in USD. All managers must comply with the NCREIF / PREA Reporting Standards.

Differences in methodologies are not deemed significant as all methods are essentially an approximation of the since inception internal rate of return.

Arithmetic mean

The arithmetic mean represents the average IRR for vehicles of the same vintage on an equally weighted basis by taking the individual IRRs of each vehicle and then computing the arithmetic mean of these vehicles.

The arithmetic mean IRR Index per vintage is computed as follows:

$$\frac{1}{m_j}\sum_{i=1}^{m_j} IRR_i$$

Where:

IRR_i is the IRR for vehicle i

m_j is the number of vehicles for vintage j

Total value to paid in capital multiple (TVPI)

The TVPI, total value to paid in capital multiple, also known as the investment multiple is computed as follows:

$$\frac{TV}{PIC}$$

Where:

TV (Total value) = sum of residual vehicle net assets (NAV) plus aggregate vehicle distributions

PIC (Paid in capital) = cumulative capital contributed to the vehicle

Confidentiality thresholds

Performance is shown only when the sample size includes at least 6 vehicles.

Quartiles and the interquartile range are displayed only when the sample size includes 8 or more vehicles from 3 different managers.

The thresholds for Asia Pacific are lower and are 4 funds to display quartiles and standard deviations, and 3 funds for the mean averages from at least 3 managers.

Performance is included only when a vehicle has at least 5 quarters of cash flows submitted.

Guidelines

For more information about Performance Measurement visit the INREV Guidelines on Performance Measurement and the NCREIF / PREA Reporting Standards Handbook Volume I and Volume II.

Currency conversion

To calculate the equal weighted average returns, the IRRs in the reporting currency of the funds are used to remove the impact of currency fluctuations.

Appendix 1

Summary of key characteristics

Key characteristics

	GREFI	Global ODCE Index	Global IRR Index
Launched	2014	2023	2020
Publication	12 weeks after quarter end	10 weeks after quarter end	14 weeks after quarter end for Q1 and Q2 releases and 16 weeks after quarter end for Q3 and Q4 releases
Frozen / unfrozen	Unfrozen	Unfrozen	Unfrozen
Performance metric	Time-weighted total return on a leveraged basis net of fees and other costs using a Modified Dietz methodology	Time-weighted total return on a leveraged basis net of fees and other costs using a Modified Dietz methodology	Since inception rate of return on a leveraged basis net of fees and other costs.
Weighting	Value-weighted	Value-weighted within region at global level three regions are equal-weighted	Equal-weighted
History from	Q1 2005	Q2 2016	Based on vintages
Excel supplement	Yes	Yes	Yes
Snapshot	Yes	Yes	Yes

Appendix 2

Summary of eligibility criteria

Eligibility criteria for fund indices

	GREFI	Global ODCE Index	Global IRR Index
Vehicle type	Funds	Funds	Funds Separate accounts Joint ventures Club deals
Style	Core Value added Opportunistic (APAC and US only)	Core	Value added Opportunity
Structure	Open end Closed end	Open end	Closed end
Investor type	> 50% institutional	> 50% institutional	> 50% institutional
Number of investors	> 2	>2	> 2
Geography	All geographies	Diversified based on the respective regional criteria	All Geographies
Sector	All sectors	Diversified based on the respective regional criteria	All sectors
Reporting dates	31 Mar 30 Jun 30 Sep 31 Dec	31 Mar 30 Jun 30 Sep 31 Dec	31 Mar 30 Jun 30 Sep 31 Dec
Minimum data required	One quarter	One quarter	Five quarters
Minimum requirement	At least 3 funds by 3 different managers	At least 3 funds by 3 different managers	At least 6 funds are required to display composite mean averages. Quartiles and standard deviation metrics are shown when the sample size meets the minimum threshold of 8 funds. The thresholds for Asia Pacific are lower and are 4 funds to display quartiles and standard deviations, and 3 funds for the mean averages from at least 3 managers.