Gross Returns
Methodology

Introduction
Morningstar calculates gross returns for funds to give an indication of the return an investor would have received had they not paid any expenses.

Monthly Gross Returns
To calculate the gross return Morningstar adjusts the monthly total return for the share class by the share class level fees prevailing at that time. For periods where Morningstar does not have the prevailing fees for the share class not gross returns will be calculated.

\[ MGTR_i = \frac{(TR_i + 1)}{(1 - RC_i)} - 1 \]

Where

<table>
<thead>
<tr>
<th>MGTRi</th>
<th>Gross return for month i</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRi</td>
<td>Total return for month i</td>
</tr>
<tr>
<td>RCi</td>
<td>Un-annualised representative cost that covers month i</td>
</tr>
</tbody>
</table>

Compounded Returns
Once the monthly returns are adjusted for fees, the holding period gross return is calculated by compounding the adjusted monthly returns. If a monthly gross return is missing during the holding period, then no gross return would be calculated for that period.
Daily Gross Returns

\[ DGTR_d = \frac{(TR_d + 1)}{(1 - RC_d)^m} - 1 \]

Where

- \( DGTR_i \) = Gross return for month \( i \)
- \( TR_i \) = Total return for month \( i \)
- \( RC_i \) = Un-annualised representative cost (excluding transaction fees) that covers month \( i \)
- \( n \) = Number of calendar days between start and end date
- \( m \) = Number of calendar days in Month \( I \)

**Representative Cost**

Morningstar calculates a representative cost series for each share class based upon the fee disclosure regime for the market the fund operates in.

When a newly incepted share class does not yet have a representative cost value, Morningstar will not calculate gross returns for that share class. However, once representative cost values are calculated, Morningstar will retroactively calculate a gross return using those values.

Representative cost values can also change retrospectively, causing a restatement of gross returns. For example: where the latest representative cost has been rolled forward using the last available fee data from the share class, once most up-to-date data has been received those values may be restated.

For a full description of the inputs used to determine a share class’s representative cost see the methodology paper ‘Morningstar Representative Cost Methodology’.

**Methodology History**

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>29 April 2016</td>
<td>Original publication</td>
</tr>
<tr>
<td>2.0</td>
<td>31 Jan 2019</td>
<td>Updated: Use representative cost field as fee input. Previously fees would be rolled indefinitely (backwards and forwards), when using representative costs fees are only rolled up to 15 months (for details see ‘Morningstar Representative Costs methodology’ paper).</td>
</tr>
<tr>
<td>2.1</td>
<td>06 Dec 2019</td>
<td>Clarified the representative cost exc transaction fee is used.</td>
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</tbody>
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