PRIIP KID calculations for Category II products
Data Content Guide

Morningstar EMEA Data Content
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Background

The PRIIP Key Information Document (KID) is a pre-sale document for European packaged retail investment products. The document contains information on costs and performance scenarios that need to be calculated for the product in question. The calculation methodologies are governed by the PRIIPs regulations and technical standards. This document covers the calculation methodologies under the legislative regime after the changes that are effective from 31st December 2022.

Definition of the dataset

A dataset that comprises of data that Morningstar calculates as part of the KID creation service, calculated in accordance with legislation regarding the creation of the PRIIP Key Information Document.

Content

Morningstar provides a calculation service for a number of the required elements of the PRIIP KID: -

- The Market Risk Measure (MRM).
- The Synthetic Risk Indicator (SRI).
- The Performance Scenarios [Favourable, Moderate, Unfavourable and Stress].
- The Cost calculations.

Inputs/Sources

The calculations require various inputs including: -

- The performance of the investment product. In most cases Morningstar will have the required performance history for a fund. Where the regulation requires additional history, this will need to be supplied by the product manufacturer.
- Valuation frequency. This can be daily, weekly, or monthly. Morningstar can derive this.
- The recommended holding period (RHP) of the product. This information needs to be supplied by the product manufacturer.
- The Credit Risk Measure (CRM). This is required to calculate the SRI, in most cases for funds this will be 1 but the product manufacturer will need to supply.
- Annual underlying costs of the product (Entry Fee, Ongoing Cost, Transaction Cost, Performance Fee, and Exit Fee). This information needs to be supplied by the product manufacturer.
- If the investment product pursues the reward objective through flexible investments in different financial asset classes, the manufacture will also need to supply values for the VaR

Equivalent Volatility of the returns of the pro-forma mix and the VaR Equivalent Volatility that is consistent with the risk limit of the fund.

Assumptions

The Morningstar calculation service is for products that are designated as Category II under the regulation. Morningstar does not determine if the product falls under the category II designation and it is assumed that any product sent to our service will be a category II product.

Limitations/Exceptions

The service is only suitable for products designated under category II for the purposes of the PRIIPS legislation. It is not suitable for any other product type.

Markets

The PRIIPs KID regulation applies to retail packaged investment products sold into to European Union (EU). Products, regardless of whether they are domiciled inside or outside the EU, will have to create a KID to sell into the EU. From 31st December 2022 this includes UCITs funds.

The UK has deviated from the EU in regards of the application of the PRIIPs KID. To be sold in the UK EU UCITs, UK UCITs and Non-UCIT Retail Schemes (NURS) do not have to create a KID but do need to create a Key Investor Information Document (KIID). Investment products that are not UCITs or NURS will have to create a KID for the UK market, but the rules are slightly different to the EU version: -

- No requirement to calculate performance scenarios, instead a narrative description must be created.
- SRI can be revised upwards if manufacturer believes it to be too low.
- The way the underlying transaction cost is calculated.

Universes

The service extends to open ended funds, closed ended funds and exchange traded funds (ETFs)

Entitlements/Suppressions

This is a service for clients who wish to have their KIDs created by Morningstar, the results are for the requesting client use only who may use them both internally and externally.

Calculations

Calculation of the return input for MRM

The mean, standard deviation, skew, and kurtosis of the lognormal return stream must be calculated before the market risk measure (MRM) can be derived.

The first step in the process is to obtain the relevant performance history for the product in the trading currency of the product. If the product is not traded in the currency of the market the KID is being produced for then the KID will need to contain a currency risk warning.

If the product is priced daily then 5 years of daily performance values should be used where possible, with a minimum of 2 years data required. If a product has less than 2 years of daily data, then the returns of a recognised appropriate market index may be used as a proxy otherwise no data should be calculated. If the product has between 2- and 5-years history all available history is to be used.

If the product is priced weekly then 5 years of performance values should be used where possible, with a minimum of 4 years data required. Only if a product has less than 4 years of data, then the returns of a recognised appropriate market index may be used as a proxy otherwise no data should be calculated. If the product has between 4- and 5-years history all available history is to be used.

If the product is priced fortnightly or monthly, then 5 years of performances must be used. If a product has less than 5 years of data, then the returns of a recognised appropriate market index may be used as a proxy otherwise no data should be calculated.

The calculations use the Morningstar Total return index series to generate the returns. Weekends and bank holidays are excluded when creating a daily return series of lognormal returns, but other non-tradable days may be included, for example where an indicative valuation has been sent to Morningstar. If a product requires proxy data to be added that proxy will be used to extend the history to 5 years worth of data. If a fund has at least 240 tradable prices in a year it will be considered daily pricing.

[1]

$$R_t = Ln\left(\frac{TRI_t}{TRI_{t-1}}\right)$$

Where

TRI_t	=	Total Return Index on date t,
TRI_t	=	Total Return Index on date t-1

Calculation of the mean input for the MRM

Calculate the simple mean of the lognormal returns by summing all the log normal returns and dividing by the number of lognormal returns.

[2]

$$\boldsymbol{M1} = \sum \frac{\boldsymbol{R_{tx}}}{\boldsymbol{n}}$$

Where

M1	=	Mean of the observed natural log returns
R_{tx}	=	Natural Log of return for time period x
n	=	Number of return observations in period

Calculation of the standard deviation input for the MRM

The standard deviation is calculated by computing the square of the difference between each lognormal return and the mean. These are then added together and divided by the number of lognormal returns and finally taking the square root of that value.

[3]

$$s = \left(\sum \frac{[\boldsymbol{R_{tx}} - \boldsymbol{M1}]^2}{\boldsymbol{n}}\right)^{\frac{1}{2}}$$

Where

s	=	Standard deviation of the observed natural log returns.

Calculation of the Skewness input for the MRM

The skewness is calculated by computing the cube of the difference between each lognormal return and the mean. These are then added together and divided by the number of lognormal returns. This value is then divided by the cube of the standard deviation.

[4]

$$\boldsymbol{\mu 1} = \sum \frac{(\boldsymbol{R_{tx}} - \boldsymbol{M1})^3}{\boldsymbol{n}} \Big/ s^3$$

Where

μ1	=	Skew of the observed natural log returns.

Calculation of the Kurtosis input for the MRM

The Kurtosis is calculated by raising to the power of four the difference between each lognormal return and the mean. These are then added together and divided by the number of lognormal returns. This value is then divided by the standard deviation raised to the power of four subtracting 3.

[5]

$$\boldsymbol{\mu 2} = \sum \frac{(\boldsymbol{R_{tx}} - \boldsymbol{M1})^{\boldsymbol{4}}}{\boldsymbol{n}} \Big/ (s^{4} - \mathbf{3})$$

Where

μ2	=	Kurtosis of the observed natural log returns.

Calculation of the Value at Risk input for the MRM

Next calculate the value at risk (VaR), using the Cornish-Fisher expansion as prescribed by the legislation.

$$[6] VaR = s(\boldsymbol{n})^{\frac{1}{2}} \left[-\mathbf{1.96} + \mathbf{0.474} * \frac{\mu 1}{n^{\frac{1}{2}}} - \mathbf{0.0687} * \frac{\mu 2}{n} + \mathbf{0.146} * \frac{\mu 1^{2}}{n} \right] - \mathbf{0.5} s^{2} n$$

Calculation of the VaR Equivalent Volatility input for the MRM

The VaR is then used to calculate a Var-Equivalent Volatility using the method prescribed by the legislation.

[7]

$$VEV = \frac{(3.842 - 2 * VaR)^{\frac{1}{2}} - 1.96}{T^{\frac{1}{2}}}$$

Where

T	=	Recommended holding period of the product

Calculation of the MRM

The VEV is then used to calculate the Market Risk Measure (MRM)

[8]

MRM Class		VEV
1	=	<0.5%
2	=	0.5%-5.0%
3	=	5.0% - 12%
4	=	12% - 20%
5	=	20% - 30%
6	=	30% - 80%
7	=	>80%

NOTE For PRIIPs that are managed that pursue reward objective through flexible investments in different financial asset classes the VEV to be used must be the highest of the calculated VEV above, the VEV of the returns of the pro-forma mix or the VEV that is consistent with the risk limit of the fund. These values must be provided by the manufacturer.

Calculation of the SRI

This MRM value is combined with a Credit Risk Measure (provided by the manufacturer) to derive the SRI, which is displayed on the PRIIPS KID

[9]

CRM/MRM	MR1	MR2	MR3	MR4	MR5	MR6	MR7
CR1	1	2	3	4	5	6	7
CR2	1	2	3	4	5	6	7
CR3	3	3	3	4	5	6	7
CR4	5	5	5	5	5	6	7
CR5	5	5	5	5	5	6	7
CR6	6	6	6	6	6	6	7

Calculation of the performance scenarios

Depending on the recommend holding period of the product, performance scenario periods may need to be calculated.

- If the product has a recommended holding period between 1 and 10 years, then the performance scenarios must be calculated for 1 year and the recommended holding period itself
- If the product has a recommended holding period of 10 years or more then the performance scenarios must be calculated for 1 year, ½ the recommended holding period (rounded up to nearest full year) and the recommended holding period.
- If the product has a recommended holding period of 1 year or less, then only the recommended holding period needs to be calculated

In addition, multiple versions of the performance scenarios must be calculated, the unfavourable, moderate, favourable and Stress scenarios.

For all these combinations of scenarios the annualised return and return on amount invested must be calculated, taking into account entry and exit fees for the product.

The performance scenarios are calculated using the monthly total returns for a fund. The history required for the calculations is the recommend holding period of the product plus five years, with a minimum requirement of at least ten years. If the fund does not have enough history the product manufacturer must provide proxy monthly returns from the beginning of the required history until the month the product has its first return.

For a product with a recommended holding period of 7-years the performance scenario calculation requires 12-years of monthly return history. A product with a recommend holding period of less than 5-years would require 10-years of monthly return history.

Calculation of favourable scenario before fees

Calculate all the possible returns that are the same length as the period being calculated (RHP, 1/2 RHP or 1 year) within the required history. As an example, take a product with a RHP of 7 years, for this product the scenario will need to be calculated for the recommended holding period and a 1-year period. For the recommended holding period all possible seven year returns within the required 12-year history will be calculated (start date to 7-years after start date, start date plus 1-month to 7-years plus one month after start date etc.).

For the 1-year period all possible 1-year returns within the required 12-year history will be calculated (start date to 1-year after start date, start date plus 1-month to 1-year plus one month after start date etc.….).

The favourable scenario is the highest return within the calculated returns for the relevant period (RHP, 1/2 RHP or 1 year period).

[10]

$$FRetBF = Max\ (Rt_{Period}) \in H$$

Where

$FRetBF$	=	Favourable performance scenario return on invested amount
Rt_{Period}	=	Cumulative return of length equal to a period (either RHP, 1/2 RHP or 1 year)
H	=	The total period of all required history (10 years or RHP + 5 years whichever is larger)

Calculation of favourable scenario investment amount after fees

To calculate the return on investment after fees have been applied firstly take the initial investment and multiple by 1 minus the entry fee divided by 100, this provides the amount that is invested at the beginning of the period after fees.

Multiple this by the favourable return to determine the amount the investment is worth after the holding period, but before any exit fees are taken.

Finally multiple by 1 minus the exit fee divided by 100 to compute the amount the investment is worth after any exit fees are applied.

[11]

$$FRetAFAmount = \left(Y * \left(1 - \frac{EntryFee}{100}\right)\right) * FRetBF * \left(1 - \frac{ExitFee}{100}\right)$$

Where

$FRetAFAmount$	=	The amount the investment is worth under the favourable performance scenario after fee adjustments.
EntryFee	=	The Entry fee, in percentage terms, applied to the investment.
$ExitFee$	=	The exit fee, in percentage terms, applied to the investment after the relevant investment period.

Calculation of favourable scenario annualised return after fees

The annualised return after fees, in percent, can then be calculated. The cumulative return is derived by dividing the amount the investment is worth after fees by the initial amount. This can then be raised to the power of 1 divided by the period (expressed in years) then multiplied by 100 to find the annualised return in percentage terms.

[12]

$$FAnnRt\% = \left(\left(\frac{FRetAF}{Y} \right)^{\frac{1}{period}} - 1 \right) * 100$$

Where

$FAnnRt\%$	=	Favourable annualised return after fees, in percent.

Calculation of the moderate scenario return before fees

Similarly to the favourable scenario calculate all the possible returns that are the same length as the recommended holding period (RHP, 1/2 RHP or 1-year period) within the required history.

The moderate scenario is the median of all those returns, over the relevant period (the recommend holding period the 1-year period or 1/2 recommend holding period, as required) within the required history.

[13]

$$MRetBF = Median\ (Rt_{Period}) \in H$$

Where

$MRetBF$	=	Moderate performance scenario return on invested amount
Rt_{Period}	=	Cumulative return of length equal to a period (either RHP, 1/2 RHP or 1 year)
H	=	The total period of all required history (10 years or RHP + 5 years whichever is larger)

Calculation of moderate scenario investment amount after fees

To calculate the return on investment after fees have been applied firstly take the initial investment and multiple by 1 minus the entry fee divided by 100, this provides the amount that is invested at the beginning of the period after fees.

Multiple this by the moderate return to determine the amount the investment is worth after the holding period, but before any exit fees are taken.

Finally multiple by 1 minus the exit fee divided by 100 to compute the amount the investment is worth after any exit fees are applied.

[14]

$$MRetAFAmount = \left(Y * \left(1 - \frac{EntryFee}{100}\right)\right) * MRetBF * \left(1 - \frac{ExitFee}{100}\right)$$

Where

$MRetAF$	=	The amount the investment is worth under the moderate performance scenario after fee adjustments.
$EntryFee$	=	The exit fee, in percentage terms, applied to the investment (Provided by the manufacturer)
$ExitFee$	=	The exit fee, in percentage terms, applied to the investment for the relevant period (Provided by the manufacturer)

Calculation of moderate scenario annualised return after fees

The annualised return after fees, in percent, can then be calculated. The cumulative return is derived by dividing the amount the investment is worth after fees by the initial amount. This can then be raised to the power of 1 divided by the period (expressed in years) then multiplied by 100 to find the annualised return in percentage terms.

[15]

$$MAnnRt\% = \left(\left(\frac{MRetAF}{Y}\right)^{\frac{1}{period}} - 1\right) * 100$$

Where

$MAnnRt\%$	=	Moderate annualised return after fees, in percent.

Calculation of the unfavourable scenario return before fees

Similarly to the favourable scenario calculate all the possible returns that are the same length as the recommended holding period (RHP, 1/2 RHP or 1 year) within the required history (H). In addition also calculate every return from the RHP to the end date reducing by 1 month to the end date (until 1 year prior to the end date). So if RHP of a fund is 5 years, calculate the 60 month return to end date, the 59 month return to end date, the 58 month return to end date and so on up to (and including) the 12 month return to end date.

The unfavourable scenario is the worst of all those returns, over the period (the recommend holding period, 1/2 recommend holding period, or 1 year period) within the required history.

[16]

$$URetBF = Min\ (\ Min(Rt_{Period}) \in H, Min\ (Rt_{12}, Rt_{13}, Rt_{14}, \ldots . Rt_{RHPm})$$

Where

$URetBF$	=	Unfavourable performance scenario return on invested amount
Rt_{Period}	=	Cumulative return of length equal to a period (either RHP, 1/2 RHP or 1 year)
Rt_x	=	The x month return to the end of the period
$RHPm$	=	The Recommended holding period in months

Calculation of unfavourable scenario investment amount after fees

To calculate the return on investment after fees have been applied firstly take the initial investment and multiple by 1 minus the entry fee divided by 100, this provides the amount that is invested at the beginning of the period after fees.

Multiple this by the unfavourable return to determine the amount the investment is worth after the holding period, but before any exit fees are taken.

Finally multiple by 1 minus the exit fee divided by 100 to compute the amount the investment is worth after any exit fees are applied.

[17]

$$URetAFAmount = \left(Y * \left(1 - \frac{EntryFee}{100}\right)\right) * URetBF * \left(1 - \frac{ExitFee}{100}\right)$$

Where

$URetAF$	=	The amount the investment is worth under the unfavourable performance scenario after fee adjustments.
EntryFee	=	The front-end load percentage applied to the investment (Provided by the manufacturer)
$ExitFee$	=	The back-end load percentage applied to the investment for the relevant period (Provided by the manufacturer)

Calculation of unfavourable scenario annualised return after fees

The annualised return after fees, in percent, can then be calculated. The cumulative return is derived by dividing the amount the investment is worth after fees by the initial amount. This can then be raised to the power of 1 divided by the period (expressed in years) then multiplied by 100 to find the annualised return in percentage terms.

[18]

$$UAnnRt\% = \left(\left(\frac{RetAF}{Y} \right)^{\frac{1}{period}} - 1 \right) * 100$$

Where

$UAnnRt\%$	=	Unfavourable annualised return after fees, in percent.

Calculation of standard deviations for the stress volatility input of the stress scenario

The stress scenario is calculated differently to the other scenarios as it requires the calculation of a 'stress volatility'.

The first step is to calculate the standard deviation for each sub-interval, apart from the final sub-interval, w. The sub-intervals can be determine as outlined below.

For the ½ RHP and RHP stress scenarios use:-

63 day rolling periods if daily pricing; 16 weeks rolling periods if weekly pricing; 12 months rolling periods if monthly pricing.

For the 1 year stress scenario use:-

21 day rolling periods if daily pricing; 8 weeks rolling periods if weekly pricing; 6 months rolling periods if monthly pricing.

So, for a daily pricing PRIIP the RHP stress scenario would be calculated using the standard deviation of the lognormal daily returns for each 63-day period (aside from the final 63-day period).

The standard deviation is then calculated by computing the square of the difference between each return and the mean (of all the subinterval returns). These are then added together and divided by the number of returns and finally taking the square root of that value

[19]

$$ {}^{w}_{t_i}S = \left(\sum \frac{\left[R_{ti} - {}^{t_{i+w-1}}_{t_i}M1 \right]^2}{M_w} \right)^{\frac{1}{2}} $$

Where

$ {}^{t_{i+w-1}}_{t_i}M1 $	=	Mean of the historical lognormal return in the corresponding sub-interval
$ M_w $	=	Count of the number of observations in the sub-interval

Calculation of the absolute rank that represents the 95th or 99th percentile of the standard deviations for the stress volatility

Rank all the standard deviation in ascending order and assign absolute rank 1, 2, 3…n.

Find the absolute rank, x, which represents the 95th percentile where the recommended holding period is greater than 1 year or 99th percentile where the recommended holding period is 1 year. [Note: The regulation does not specify which method should be used to calculate the 95/99th percentile].

For the ½ RHP and RHP scenarios take the highest rank in the series plus 1 and multiple by 0.95.

For the 1 year scenario take the highest rank in the series plus 1 and multiple by 0.99.

Commented [MS1]: It seems like this part is still according to the previous interpretation

[20]

For the ½ RHP and RHP stress scenarios

$$x = 0.95 * (Rank_{max} + 1)$$

For the 1 year stress scenario

$$\mathrm{x} = 0.99 * (Rank_{max} + 1)$$

Where

x	=	Absolute rank representing the 95th or 99th percentile

Calculate the stress volatility

Find the nearest absolute rank that is an integer and exceeds x and call this j+1.

Find the nearest absolute rank that is an integer and is just less than x, call this j.

Take the value of x and subtract j. Multiply this by the standard deviation corresponding to absolute rank j+1 minus the standard deviation corresponding to absolute rank j. Adding the standard deviation corresponding to rank j will give the stress volatility.

[21]

$$\boldsymbol{Wss} = s_j + \left((s_{j+1} - s_j) * (\boldsymbol{x} - \boldsymbol{j})\right)$$

Where

Wss	=	Stress standard deviation
s_j	=	Standard deviation corresponding to absolute rank j (the nearest absolute rank below x)
s_{j+1}	=	Standard deviation corresponding to absolute rank j+1 (the nearest absolute rank above x)

Calculation of the stress scenario return before fees

The legislation provides that the stress scenario return before fees should be calculated as follows

NOTE The legislation provides that the stress scenario returns may not be better than the unfavourable scenario, in the cases where the calculated stress scenario is higher than the unfavourable return the unfavourable returns should be used for the stress scenario as well.

[22]

$$StressRetBF = Exp[\boldsymbol{Wss(N)\text{^}(1/2)} * (Za + [\boldsymbol{(Za\text{^}2 - 1) \,/\, 6}] * \boldsymbol{\mu 1/N\text{^}(1/2)} + [\boldsymbol{(2Za\text{^}3 - 3Za) \,/\, 24}] * \boldsymbol{\mu 2/N} - [\boldsymbol{(2Za\text{^}3 - 5Za) \,/\, 36}] * \boldsymbol{\mu 1\text{^}2/N}) - \boldsymbol{(0.5Wss)\text{^}2\, N}]$$

Where

StressRetBF	=	Stress performance scenario percentage return before fee adjustment
Za	=	za is a proper selected z-score at the extreme percentile that corresponds to 1 % for one year and to 5 % for the other holding periods.

[22a] For the ½ RHP and RHP stress scenarios the term Za will equal the Z-score corresponding to the extreme percentile of 5% (approximately -1.64485), so the equation becomes

$$StressRetBF = Exp\left[\boldsymbol{Wss(N)^{\frac{1}{2}}} * \left(\boldsymbol{-1.64485 + 0.284257 * \frac{\mu 1}{N^{\frac{1}{2}}} + 0.02018 * \frac{\mu 2}{N} + 0.0187827 * \frac{\mu 1^2}{N}}\right) - \boldsymbol{0.5Wss^2 N}\right]$$

[22b] For the 1 year stress scenario the term Za will equal the Z-score corresponding to the extreme percentile of 1% (approximately -2.32634), so the equation becomes

$$StressRetBF = Exp\left[\boldsymbol{Wss(N)^{\frac{1}{2}}} * \left(\boldsymbol{-2.32634 + 0.7353157 * \frac{\mu 1}{N^{\frac{1}{2}}} - 0.2337877 * \frac{\mu 2}{N} + 0.376337 * \frac{\mu 1^2}{N}}\right) - \boldsymbol{0.5Wss^2 N}\right]$$

Calculation of stress scenario investment amount after fees

To calculate the return on investment after fees have been applied firstly take the initial investment and multiple by 1 minus the entry fee divided by 100, this provides the amount that is invested at the beginning of the period after fees.

Multiple this by the stress return to determine the amount the investment is worth after the holding period, but before any exit fees are taken.

Finally multiple by 1 minus the exit fee divided by 100 to compute the amount the investment is worth after any exit fees are applied.

[23]

$$StressRetAFAmount = \left(Y * \left(1 - \frac{EntryFee}{100}\right)\right) * StressRet * \left(1 - \frac{ExitFee}{100}\right)$$

Where

StressRetAFAmount	=	The amount the investment is worth under the stress performance scenario after fee adjustments.
EntryFee	=	The entry fee, in percentage terms, applied to the investment (Provided by the manufacturer)
$ExitFee$	=	The exit fee, in percentage terms, applied to the investment for the relevant period (Provided by the manufacturer)

Calculation of stress scenario annualised return after fees

The annualised return after fees, in percent, can then be calculated. The cumulative return is derived by dividing the amount the investment is worth after fees by the initial amount. This can then be raised to the power of 1 divided by the period (expressed in years) then multiplied by 100 to find the annualised return in percentage terms.

[24]

$$SAnnRt\% = \left(\left(\frac{StressRetAF}{Y}\right)^{\frac{1}{t}} - 1\right) * 100$$

Where

$SAnnRt\%$	=	Stress annualised return after fees, in percent.

Calculation of Costs

For the KID the Total costs, Reduction in yield [RIY] and breakdown of 1-year costs need to be calculated. [Note: The legislation does not specify the exact calculation the formulas below represent Morningstar's methodology]

The total fees, over 1 year, 1/2 RHP and the RHP need to be displayed in monetary and reduction in yield terms.

The total cost, reduction in yield (RIY) and breakdown of costs for the 1-year period are calculated with the assumption of a 0% return for the product. This aligns the product costs for the 1-year period with the MiFID values.

Calculation of entry fees in currency terms (1-year)

To calculate the amount charged for an entry fee, from an initial given investment, simply take the entry fee in percentage terms divide by 100 and then multiple by the initial investable amount.

[25]

$$EntryFeeAmt = \mathrm{Y} * \left({}^{EntryFee\%}/_{100}\right)$$

Where

EntryFee%	=	The entry, or initial fee, in annualised percentage terms
EntryFeeAmt	=	The entry, or initial fee, as a currency amount

Calculation of transaction fees in currency terms (1-year)

To calculate the amount charged for transaction fees, from an initial given investment, take the initial investable amount minus the entry fee charged and multiple by the transaction cost in percentage terms divided by 100.

[26]

$$TransactionCostAmt = (Y - \mathrm{EntryFeeAmt}) * \left({}^{TransactionCost\%}/_{100}\right)$$

Where

EntryFeeAmt	=	The entry, or initial fee, as a currency amount
TranactionCost%	=	The Transaction cost in annualised percentage terms
TranactionCostAmt	=	The Transaction cost as a currency amount

Calculation of ongoing costs in currency terms (1-year)

To calculate the amount charged for ongoing costs, from an initial given investment, take the initial investable amount minus the entry fee charged and multiple by the ongoing cost in percentage terms divided by 100.

[27]

$$OngoingCostsAmt = (Y - \text{EntryFeeAmt}) * \left({OngoingCost\%}/{100}\right)$$

Where

EntryFeeAmt	=	The entry, or initial fee, as a currency amount
OngoingCost%	=	The total of management fees and other administrative and operating costs in annualised percentage terms
OnogingCostAmt	=	The total of management fees and other administrative and operating costs as a currency amount

Calculation of performance fee in currency terms (1-year)

To calculate the amount charged for any performance fees (in this context any carried interest charges will be considered performance fees), from an initial given investment, take the initial investable amount minus the entry fee charged and multiple by the performance fees (and/or carried interest fees) in percentage terms divided by 100.

[28]

$$PerffeeAmt = (Y - \text{EntryFeeAmt}) * \left({Perffee\%}/{100}\right)$$

Where

EntryFeeAmt	=	The entry, or initial fee, as a currency amount
PerfFee%	=	The performance and carried interest fees in annualised percentage terms
PerfFeeAmt	=	The performance and carried interest fees as a currency amount

Calculation of exit fee in currency terms (1-year)

To calculate the amount charged for any exit fees, from an initial given investment, take the initial investable amount minus all fees charged (entry, transaction, ongoing and performance) and multiple by the exit fee in percentage terms divided by 100.

[29]

$$ExitFeeAmt = (Y - \text{EntryFeeAmt} - \text{TransactionCostAmt} - \text{OngoingCostAmt} - \text{PerfFeeAmt}) * \left({ExitFee\%}/{100}\right)$$

Where

EntryFeeAmt	=	The entry, or initial fee, as a currency amount
ExitFee%	=	The exit, or back-end load, in annualised percentage terms (that would be charged if sold after 1 year)
ExitFeeAmt	=	The exit, or back-end load, as a currency amount (that would be charged if sold after 1 year)

Calculation of total fee in currency terms (1-year)

The total fee in currency terms is simply a sum of all the underlying fees. The 1-year breakdown of fees must be shown in monetary terms.

[30]

$$TotalFeeAmt = (\text{EntryFeeAmt} + \text{TransactionCostAmt} + \text{OngoingCostAmt} + \text{PerfFeeAmt} + \text{ExitFeeAmt})$$

Calculation of total fee in percentage terms (1-year)

And the total fee in percent term would simply be the total fee divided by the initial amount expressed as a percentage

[31]

$$TotalFee\% = \frac{TotalFeeAmt}{Y}$$

Calculation of reduction in yield figures

For the total costs and RIY for periods over 1 year, the moderate return scenario must be used in the calculation of costs as follows

Calculation of gross return as input for the reduction in yield figures

The gross of fees return is the return the investment would have given if no fees were charged. It is calculated is the initial amount multiplied by the moderate return before fees (expressed as a decimal format) then divide that by 1 minus the sum of all the fees (in decimal format) to the power of the period (expressed in years).

[32]

$$GrossRetAmount = Y * \left(1 + \frac{MRetBF}{100}\right) \Big/ (1 - \sum(TranactionCost\%, OngoingCost\%, PerfFee\%)/100))\text{^}Period)$$

Where

GrossRetAmount	=	Gross of fees return
Period	=	The RHP or 1/2 RHP (as applicable) expressed in years

Calculation of total fees reduction

The difference between the gross of fee return and the Moderate scenario after fee return shows the amount the investment's return has been reduced by due to fees.

[33]

$$TotalFee = GrossRet - MRetAF$$

Calculation of reduction in yield as an annualised percentage

To calculate the reduction in yield annualise the gross return (by raising to the power of 1 divided by the number of years for the period) and subtract the annualised Moderate after fees return. Multiple this by 100 to express as a percentage figure.

[34] $$100 * \left[\left(\frac{GrossRetAmount}{Y}\right)^{\frac{1}{t}} - \left(\frac{MRetAFAmount}{Y}\right)^{\frac{1}{t}}\right]$$

Client Inputs

Clients will need to provide some information for the calculation engine. This includes validation frequency, initial investment amount, front end load (entry fee), back-end load (exit fee as at 1year, 1/2 RHP and RHP), recommended holding period, portfolio transaction cost, Management fees and other administrative or operating costs (other ongoing costs), performance fees and carried interest, exit fees and the CRM. We will also accept a proxy for instruments with less than 10 years of history.

Methodology History

Version 3.2	28 February 2023	Changed stress scenario calculations
Version 3.1	30 November 2022	Clarifications for unfavourable scenario and MRM history calculations (no methodology changes)
Version 3.0	31 October 2022	Updated in line with regulatory changes
Version: 2.0	31 January 2021	Updated publication with client inputs
Version: 1.0	30 June 2019	Original publication

Frequently Asked Questions

What if the product does not have the required amount of performance history?

In the cases where the product does not have enough performance history required the manufacturer has to create simulated performance history for the product from the first product return going back to the required amount of history. For the MRM and related calculations that would mean adding history until 5 year's worth of returns were available, for the favourable, unfavourable and moderate scenarios that means adding history until the required RHP +5 years is reached (with a minimum of 10 years). The legislation allows manufacturers to use regulated benchmarks (indices) to construct the simulated returns (subject to licensing from the owner of the indices) or an appropriate proxy.

Does Morningstar create proxy performance history where the product does not have enough?

No, in those case Morningstar will request the manufacturer to send performance history prior to the first product return for the required amount of history.

Glossary

Key Information Document (KID)	A short form precontractual document that must be provided to a client of a retail packaged investment product prior to purchase. In the EU this replaced the Key Investor Information Document (KIID).
Key Investor Information Document (KIID)	A short form precontractual document that must be provided to a client of a retail packaged investment product prior to purchase. In the EU this has been replaced by the Key Information Document (KID).
Recommend Holding Period (RHP)	The minimum period the product manufacturer recommends the investor holds the product for.
Market Risk Measure (MRM)	An indication of the market risk of the product. This is on a scale between 1 and 7 with 1 being very low risk and 7 being very high risk.
Credit Risk Measure (CRM)	An indication of the credit risk of the product. This is on a scale between 1 and 7 with 1 being very low risk and 7 being very high risk.
Synthetic Risk Indicator (SRI)	An indication of the overall risk of the product. This is on a scale between 1 and 7 with 1 being very low risk and 7 being very high risk. This measure incorporates both the market risk measure (MRM) and credit risk measure (CRM).
UCITS	A fund that adheres to the rules for Undertakings for Collective Investment in Transferable Securities. It is an E.U. directive that establishes the terms under which a fund domiciled in one E.U. member state can be marketed in all E.U. countries. UK domiciled funds are no longer part of this pan-European UCITS system however, due to the strong brand recognition in the UK market, still carry the name "UK UCITS", if they follow similar rules to EU UCITS.
Non-UCIT Retail Scheme (NURS)	A UK open ended fund that does not follow the UCITs rules but can still be sold to retail investors.
Return	The percentage change in a continuing Scheme Holder's financial interest assuming the reinvestment of all distributions back into the Scheme (and no other acquisition or disposal/withdrawal) and adjusting for any capital re-Organisation.
Lognormal Return	The natural log of the return.
Standard Deviation	A statistical measurement of dispersion about an average, which, for a mutual fund, depicts how widely the returns varied over a certain period. Investors use the standard deviation of historical performance to try to predict the range of returns that are most likely for a given fund. When a fund has a high standard deviation, the predicted range of performance is wide, implying greater volatility. Standard deviation is most appropriate for measuring risk if it is for a fund that is an investor's only holding. The figure cannot be combined for more than one fund because the standard deviation for a portfolio of multiple funds is a function of not only the individual standard deviations, but also of the degree of correlation among the funds' returns. If a fund's returns follow a normal distribution, then approximately 68 percent of the time they will fall within one standard deviation of the mean return for the fund, and 95 percent of the time within two standard deviations.
Skewness	Skewness reflects the degree of asymmetry of a distribution curve. If the distribution curve has a longer left tail, the function has negative skewness. Otherwise, it has positive skewness. A normal distribution is symmetric with skewness 0. In lognormal case, the curve has a long right tail, so the skewness is positive.
Kurtosis	Kurtosis indicates the peakedness of a distribution curve. For normal distribution, Kurtosis is 3.
Value at Risk (VaR)	A measurement of the risk of loss for an investment over a given period based on a given confidence level under normal market conditions.
Var-Equivalent Volatility (VEV)	A measure of the volatility based upon a value at risk calculation.
Entry fee	The sales charge or one-time deduction from an initial investment made into the fund.
Ongoing Cost	The amount charged by the fund for re-occurring fees during the fiscal year. The ongoing charge will include adviser, administration, custodian, legal and any other fees that will typically not vary from year to year. It will not include any performance fees of transaction costs.

Performance fee	A fee chargeable to the investor if the fund exceeds certain performance targets in a set period. The performance target may be static or relative to a benchmark.
Transaction cost	The fee incurred in the trading of the fund's assets. Funds with a high turnover ratio or investing in illiquid or exotic markets usually face higher transaction costs.
Exit Fee	A fee charged to an investor when selling units or share in the fund.
Reduction in yield	The difference, expressed in percentage terms between the amount the client would have received over 1 year if no fees had been charged for the investment and the amount the client did receive after fees