

# Share Class Currency Return Methodology

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The Bloomberg benchmark indices measure the total return of a basket of fixed income instruments in the securities' "Local Currency", defined as the currency denomination of the coupon and principal payments, and in a "Base Currency" (with the option to reflect hedging or not) that represents the fund reporting currency.

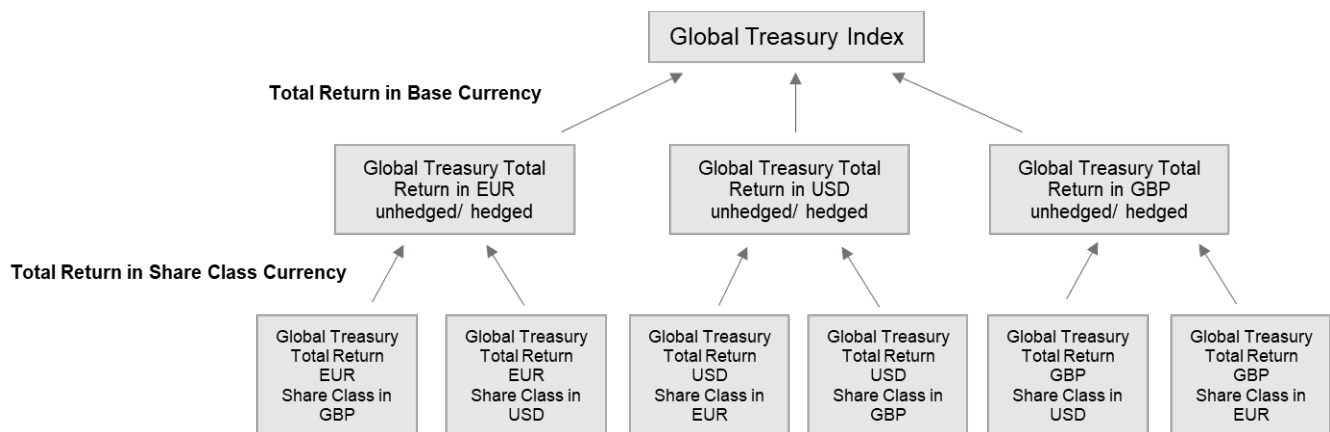
As an alternative to offering independent funds that track a market with different Base Currencies, asset managers can offer a Currency Share Class of an existing fund. By offering Currency Share Classes, rather than separate funds in different currencies, asset managers and investors can potentially benefit from economies of scale from a portfolio management perspective. The size of the underlying fund is larger, and the setup costs for additional sub-funds are removed. The operational costs with regard to valuation, compliance and reporting are reduced.

The Currency Share Class reflects the return in the Share Class Currency of investing in the Base Currency of a fund, with the option to reflect hedging or not.

As an example, the Global Treasury Index contains Treasury bonds denominated in 25 local currencies. The Total Return of the index can be represented in a single Base Currency, e.g. USD, EUR or GBP.

This Base Currency Total Return, on an unhedged or hedged basis, represents the change in value of the underlying securities, and the relative return of the Local Currency to the Base Currency.

The Share Class Return represents the return of the Share Class Currency relative to the Base Currency, and can deviate from the return of the Share Class Currency relative to a direct investment in the securities in their local currency.



The Base Currency Unhedged Total Return calculation assumes an investor buys a bond denominated in a Foreign Currency at the beginning of the month, sells the bond at the end of the month, and converts the Foreign Currency proceeds back into the Base Currency.

Similarly, the Share Class Unhedged Total Return assumes an investor buys the index in the Base Currency at the beginning of the month, sells the index at the end of the month, and converts the Base Currency proceeds back into the Share Class Currency. The investor's (Share Class Currency) realized (Unhedged) Total Return on investment is:

*Share Class Currency Unhedged Total Return*

$$= (1 + \text{Base Currency Total Return}) * (1 + \text{FX Appreciation}_{\text{Base Currency/Share Class Currency}}) - 1$$

Where:

$$\text{FX Appreciation} = \frac{FX_{\text{end}} - FX_{\text{beg}}}{FX_{\text{beg}}}$$

$FX_{\text{beg}}$  and  $FX_{\text{end}}$  are the Share Class Currency values of one unit of the Base Currency at the beginning and the end of the return period, respectively.

The Base Currency Hedged Total Return calculations assumes an investor buys a bond denominated in a Foreign Currency at the beginning of the month, sells the bond at the end of the month, and converts the Foreign Currency proceeds back into the Base Currency, while also entering into an FX Forward position going short the bond's Local Currency and long the Base Currency.

Similarly, the Share Class Hedged Total Return assumes an investor buys the index in the Base Currency and sells an equal amount of FX Forwards in the Share Class Currency at the beginning of the month, then sells the index and closes the FX Forward at the

end of the month, converting the Base Currency proceeds back into the Share Class Currency and realizing the P&L from the FX Forward. The investor's (Share Class Currency) realized (Hedged) Total Return on investment is:

$$\text{Share Class Currency Hedged Total Return} = \text{Local Return} + \text{Currency Share Class Total Return (Unhedged)} + \text{Forward Return}$$

Where:

$$\text{Currency Share Class Total Return} = (1 + \text{Base Currency Total Return}) * (1 + \text{FX Appreciation}_{\text{Base Currency/Share Class Currency}}) - 1$$

$$\text{Forward Return} = \frac{\text{Forward Value} - \text{FX}_{\text{Base Currency/Share Class Currency}}}{\text{FX}_{\text{Base Currency/Share Class Currency}}}$$

The Share Class Hedged Total Return differs from the Base Currency Hedged Total Return calculation as it makes no assumption of an expected local currency bond return. As the Share Class of the fund is purchasing the Base Currency fund, not the underlying security, any expected local currency bond return should be accounted for in the Base Currency return of the fund.

FX<sub>beg</sub> and FX<sub>end</sub> are the *Share Class Currency* values of one unit of the *Base Currency* at the beginning and the end of the return period, respectively.

The Forward Value is the 1 month Forward of the Base Currency / Share Class Currency.

Intra-month this Forward Rate is prorated to unwind an FX Forward contract where day (i) is an interpolation between the Spot ( $S_B$ ) and 1- month Forward Rates ( $F_{B,1M}$ ) at the beginning of the month. A 30-day contract is assumed regardless of actual days.

$$F_t = S_B + (F_{B,1M} - S_B) * \frac{\text{Number of calendar days passed}}{30}$$

FX rates used are WM 4pm London.

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