Performance attribution with respect to interest rates, FX, carry, and residual market risks

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Abstract

We develop a method to decompose the PnL of a portfolio of assets into four parts:

(a) PnL due to FX rate changes,

(b) PnL due to interest rate changes,

(c) carry gain due to time passing,

(d) PnL due to residual market risk changes (credit risk, liquidity risk, volatility risk etc.).

We demonstrate the usefulness of our approach by decomposing the performance of an FX- and interest rate-hedged negative basis position in our fund XAIA Credit Basis II, and we apply the methodology to decompose the performance of our fund XAIA Credit Debt Capital in the first quarter of 2022 into PnL contributions of the single positions.

1 Introduction

Let A_t denote the price of an asset at time t, and denote by χ_t the price of one unit of the asset's currency in EUR. We assume that the asset is subject to reinvestment, which means that potential coupon or dividend payments (if present at all) are immediately re-invested into the asset. But we comment on the general case of distributing assets, or even a whole portfolio of assets with frequent rebalancing, below in Section 3 as well. The value $A_t\,\chi_t$ equals the EUR price of the asset at time t. We are interested in a decomposition of the EUR PnL of the asset in a time period $(t, T]$. Intuitively, we analyze this PnL at the time point T, and the EUR PnL $P^{(A)}_{(t,T]}$ of the asset in the period $(t, T]$ is given by

$$P^{(A)}_{(t,T]} := A_T\,\chi_T - A_t\,\chi_t. \tag{1}$$

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