Títulos Públicos Federais

NTN-B

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The price of an NTN-B is given by the following formula [1]:

$$P_{t,T} = \left[\sum_{i=1}^{n} \frac{\text{VNA}_t \times \left[(1,06)^{\frac{1}{2}} - 1 \right]}{(1 + y_t)^{\frac{(t_i - t)}{252}}} \right] + \frac{\text{VNA}_t}{(1 + y_t)^{\frac{(T-t)}{252}}}$$

The VNA (Updated Nominal Value, translated from the portuguese Valor Nominal Atualizado) at t is the value of the VNA at date t, which is calculated in the following way:

$$\text{VNA}_t = \text{VNA}_k^b \times (1 + i_t)^{\frac{\Delta_b}{\Delta_m}} \, ,$$

where VNA_k^b is the VNA at the base date k, i_t is the projected inflation (or current inflation, if released) at date t, Δ_b is the number of days between the base date and the date t and Δ_m is the number of days between the VNA_k^b and VNA_{k+1}^b. The calculation of days between two dates can be done using calendar days (STN) or business days (market). The base date k, in VNA_k^b, corresponds to the 15th day of a particular month. For example, if $k = 15/01/2021$, then $(k+1) = 15/02/2021$, and so on. For each date $t \in [k, k+1)$, the base date is k, and the VNA for that date is VNA_k^b.

We know need to choose a simple investment strategy in the NTN-B market, our first asset universe. First we need to define the performance measure that we will use to evaluate the strategies.

Bibliography

[1]   José Valentim. *Renda Fixa Aplicada ao Mercado Brasileiro*. 1st ed. IMPA, 2022.