

Calculation example for nominal bonds

The calculation example below shows how the settlement amount is calculated for a nominal bond. The example is based on the document "Calculation principles for the Swedish Money- and Bond market" from the Swedish Securities Dealers Association on April 2, 2001.

Calculation of the settlement amount

In order to calculate the settlement amount, we first calculate the price. That is done by discounting all future cash flows with the yield. Based on this price, we calculate the clean price by subtracting the accrued interest and rounding off the result to three decimal points. The settlement amount is calculated by adding back the accrued interest on the clean price and then multiplying by the face value. The settlement amount is rounded off to the nearest krona.

Example

Bond: 1053
 Coupon: 3,50%
 Trade date: March 13, 2023
 Settlement date*: March 15, 2023
 Maturity date: March 30, 2039
 Day-count convention: 30E/360
 Number of days to next coupon, $d = 15$
 Number of years to maturity from next coupon date, $n = 16$
 Yield, $y = 2,261\%$
 Face value: SEK 100 M

$$\begin{aligned}
 \text{Price}^{**} &= \frac{\text{Coupon in SEK}}{(1+y)^{d/360}} + \frac{\text{Coupon in SEK}}{(1+y)^{d/360+1}} + \dots + \frac{\text{Nom. amount} + \text{Coupon in SEK}}{(1+y)^{d/360+n}} \\
 &= \frac{3,5}{(1+0,02261)^{15/360}} + \frac{3,5}{(1+0,02261)^{15/360+1}} + \dots + \frac{100 + 3,5}{(1+0,02261)^{15/360+16}} \\
 &= 119,868167 \dots
 \end{aligned}$$

$$\text{Accrued interest} = \frac{360-d}{360} \times \text{Coupon in SEK}$$

* Settlement occurs two business days after the trade date.

** The price of a bond is calculated for the nominal amount of SEK 100.

$$= \frac{360 - 15}{360} \cdot 3,50 = 3,354167 \dots$$

$$\text{Clean price} = \text{Round}[\text{Price} - \text{Accrued interest}; 3]$$

$$= 119,868167 \dots - 3,354167 \dots = 116,514$$

$$\text{Settlement amount} = \text{Round}\left[(\text{Clean price} + \text{Accrued interest}) \times \frac{\text{Face value}}{100}; 0 \right]$$

$$= (116,514 + 3,354167 \dots) \cdot \frac{\text{SEK } 100 \text{ M}}{100} = 119\,868\,167$$