

## METHOD OF CALCULATION OF ACCRUED INTEREST AND COUPON FOR MEDIUM/LONG TERM GOVERNMENT BONDS

### Calculation of Coupon

#### **BTPs/BTP€is/CCTs**

For coupon payments on BTPs, BTP€is, CCTs the Issuer considers all periods equal among each other (30/360). For example, for fixed-rate securities issued on 1 January, with an annual coupon of 4%, the Issuer will pay a coupon of 2% each semester, regardless of the actual duration of the semester; in fact, on 1 July and 1 January of each year the same coupon will be paid. Specifically for coupon payments on CCTs the procedure takes into account the gross annual simple yield of the 6 month BOT issued in the last auction preceding the accruing of coupon, then the yield is divided by 2 and the spread of 0.15% is added. The result is rounded to the 2nd decimals.

#### **CCTs-eu**

For CCTs-eu the calculation of coupon payments follow the market convention Actual/360. Therefore, for example, if the gross annual simple yield is equal to 1,803% and the actual days of the referring semester are 183, the coupon payment will be equal to:

$$1,803\% * (183 / 360) = 0,917\%.$$

If the coupon payment day is a holiday, it will be settled the following working day without the addition of accrued interest. The gross annual rate will be rounded to the third decimal place, with 0.0005 rounded upwards to the third decimal.

### Calculation of accrued interest

The investor that trades Government securities on the secondary market or purchases them on the primary market must also pay the fraction of the current maturing coupon from the last coupon payment to the purchase settlement date.

#### **BTPs/BTP€is/CCTs**

For transaction regarding BTPs/BTP€is/CCTs executed on the secondary market, in order to calculate the accrued interest, the actual/actual market convention applies.

This also applies to the payment of accrued interest in case of issuance on the primary market of Government securities with the settlement date subsequent to the accrual date (i.e. the date from which interest begins to mature).

For example, for a tranche settling on 1 February of a security issued with an accrual date of 1 January, the accrued interest will be calculated taking into account the actual days between the two dates in relation to the actual days of the reference semester.

Let's assume wanting to buy a bond with six-month coupons and a gross annual yield of 3%, with payment date on 15/10/2009. If we buy with the settlement date 15/01/2010, we should pay the following accrued interest:

$$\frac{92}{182} * \frac{0.03}{2} * 1000 = 7.582418 \text{ per 1000 euro}$$

**Example 1 – Buying on primary market**

where **92** are the days between 15 October 2009 and 15 January 2010 and **182** the days between 15 October 2009 and 15 April 2010, the coupon payment date.

The accrued interest is rounded to the 6<sup>th</sup> decimal per 1000 euros of capital, for the issuance of Government securities through ordinary auctions and in exchange transactions. On the secondary market, however, the convention of 5 decimals per 100 euros of capital applies (and therefore the accrued interest payable will be 0.75824 per 100 euros) as well as in syndicated issuance and for exchange transactions carried out on the electronic trading platform.

### **CCTs-*eu***

For transactions regarding CCTs-*eu* executed on the secondary market or in case of issue on the primary market with settlement date posterior to the accrual date, in order to calculate the accrued interest, the actual/360 market convention applies.

Let's assume wanting to buy a CCT*eu* with six-month coupons and a current gross annual simple yield of 1.803%, with payment date on 15/06/2010. If we buy with the settlement date 16/07/2010, we should pay the following accrued interest:

$$0.01803 * \frac{31}{360} * 1000 = 1.552583 \text{ per 1000 euro}$$

**Example 2 – Buying on primary market**

where **31** are the days between 15 June and 16 July.

The accrued interest is rounded to the 6<sup>th</sup> decimal per 1000 euros of capital, for the issuance of Government securities through ordinary auctions and in exchange transactions. On the secondary market, however, the convention of 5 decimal per 100 euros of capital applies (and therefore the accrued interest payable will be 0.15526 per 100 euros) as well as in syndicated transactions and for exchange transactions carried out on the electronic trading platform.

### **Calculation of coupons in the case of new issues with an initial "short coupon"<sup>1</sup>**

A “short coupon” is when a newly issued Government security has its first coupon payment before the conventional six month period. In this case, at the coupon payment date the investor will receive a coupon proportional to its maturity.

<sup>1</sup> For the time being the Treasury is not planning to adopt the short coupon also for floater or inflation-linked bonds (CCTs, CCTs-*eu*, BTP*€i*).

For example, the 15 April 2015 bond, with a 3% coupon, with accrual and settlement date on 15 January 2010, has as its first coupon a short coupon – because it is three-months rather than six months – and therefore on 15 April 2010, the Treasury pays a coupon equal to 0.741758 (per 100 euros of capital). In fact:

$$\frac{90}{182} * \frac{0.03}{2} * 100 = 0.741758 \text{ per 100 euro}$$

**Example 3 – Buying on primary or secondary market**

where **90** are the days between the accrual date of the security (15 January 2010) and the following coupon date (15 April 2010) and **182** are the days between 15 October 2009 and 15 April 2010, regarding to the reference semester.

The first short coupon is calculated on the basis of an accuracy of 6 decimal places per 100 euros of capital.

It's worth reminding that all the coupons after the first are paid normally and in full (in our case with a semi-annual coupon of 1.50%).

### **Calculation of accrued interest with "short coupons"**

If a coupon bond with a short coupon is purchased on the secondary market or issued via auction after the accrual date, the procedure to calculate accrued interest is identical to Example 1, with the important difference that the length of the maturity period is not 6 months, but the actual number of days between the date the coupon begins to mature (accrual date) and the coupon payment date. For example, if we consider the same bond as in Example 3, but with a settlement date on 16 February 2010, we will have the accrued interest equal to 2.637362 (per 1000 euros of capital):

$$\frac{32}{90} * (0,741758\%) * 1000 = 2,637362 \text{ per 1000 euro}$$

(a)                      (b)

**Example 4 – Buying on primary market**

where the first fraction **(a)** is the effective maturity of the coupon (**32** days between 15 January and 16 February and **90** days of total maturity from 15 January to 15 April) that is multiplied by the product **(b)** of the short coupon as calculated in Example 3.