Information for private investors

January 2015

ORB

Accrued interest – a guide for private investors

Introduction

This guide provides an introduction to accrued interest for private investors wishing to trade bonds on London Stock Exchange's electronic Order book for Retail Bonds (ORB). It provides summary information on the various calculation methods and gives worked examples.

This guide may serve as a companion to the publication *Trading Bonds on London Stock Exchange - A Guide for Private Investors*, which gives an overview of the various types of bonds available and of the types of issuers, in addition to providing introductory information on bond pricing and yields.

More detailed information about accrued interest on gilts can be found in the document *Accrued interest on conventional and index-linked gilts.*

Clean and Dirty Prices

Following the standard quoting convention in the professional bond markets, prices on ORB are quoted on a 'clean' basis. A 'clean' price is one where accrued interest is not included. When investors buy a bond, they pay the bond's 'dirty' price, which is the clean price plus the accrued interest.

When a bond is traded between coupon payment dates, accrued interest is paid to compensate the seller for the period during which he has held the bond, but for which he received no interest from the bond issuer (as the seller will not be holding the bond when the next coupon payment date arrives). Because both the seller and the buyer will only have held the bond for part of the interest-earning period, but the buyer will receive the full coupon by holding the bond on the coupon date, the buyer compensates the seller with a pro-rata share of the next coupon payable.

Calculating Accrued Interest

A simplified example will highlight how the accrued interest amount for a particular bond is calculated. If a bond pays an annual coupon of 8%, the bond holder will receive an interest payment of £80 each year for a £1,000 nominal holding in that bond.

However, if the bond holder chooses to sell the bond halfway through the year, he will have accrued six months of interest (£40) which will be received by the buyer of the bond (the buyer will receive the full coupon amount of £80 at the end of the annual coupon period).

At the time of settlement of the bond trade, the bond buyer compensates the bond seller by paying the accrued interest. The bond buyer does this by paying the 'dirty' price. For simplicity, if we assume that the bond in our example trades at par value, the 'clean' price would be £100 (because bonds are quoted in terms of £100 nominal, or as a percentage of par). The dirty price, reflecting the £40 per £1,000 nominal, would therefore be £104.

Day Count Conventions

In practice of course, these calculations can be considerably more complex. The bond will most likely not be trading at par value and the formula applied to calculate the exact proportion of the coupon period for which the bond seller is eligible to receive interest will vary depending on the terms of the bond.

There is a variety of methods for determining both the number of days assumed to be in the coupon period as well as the number of days within that coupon period on which accrued interest is payable to the seller. The 'day count convention' applied when calculating accrued interest is specific to the terms of a particular bond. For corporate bonds, this information is specified in the bond's prospectus.

The main day count conventions applied when calculating accrued interest are: ACT/ACT, 30/360, ACT/360 and ACT/365.

ACT/ACT

For gilts and many corporate bonds, the standard day count convention is ACT/ACT. This means that the calculation takes the actual number of days on which the seller has accrued interest (the period between the previous coupon date and the settlement date of the bond trade) and divides this by the actual number of days in the interest period to determine which proportion of the coupon amount should accrue to the bond seller.

For ACT/ACT, the formula to calculate the accrued interest per £100 nominal is:

$$\text{Accrued Interest} = \frac{\text{actual days between previous coupon and settlement date}}{\text{actual days in coupon period}} \times \text{coupon amount}$$

ACT/ACT Example (annual coupon): Vodafone corporate bond	**ACT/ACT Example (semi-annual coupon): UK gilt**
Bond identifiers	**ORB identifiers**
Name: Vodafone Group PLC 5.90% NTS 26/11/32	**Name: UNITED KINGDOM 4% TREASURY GILT 07/03/22**
TIDM: VO32	**TIDM: TR22**
ISIN: XS0158715713	**ISIN: GB00B3KJDQ49**
Coupon date: 26 November	**Coupon date: 7 March and 7 September**
Annual Coupon: 5.90%	**Annual Coupon: 4%**
Trade Date: 30 March 2015 (T+2 settlement on 1 April 2015)	**Trade Date: 8 April 2015 (T+1 settlement on 9 April 2015)**
Clean Price: 126.12	**Clean Price: 115.48**
Accrued Interest = 126 (period between 26 Nov 2014 and 1 Apr 2015) / 365 (period between 26 Nov 2014 and 26 Nov 2015) x 5.9	**Accrued Interest = 33 (period between 7 Mar 2015 and 9 Apr 2015) / 184 (period between 7 Mar and 7 Sep 2015) x 4/2**
= 2.0367	**= 0.3587**
Dirty price = 128.1567 (clean price of 126.12 + accrued interest)	**Dirty price = 115.8387 (clean price of 115.48 + accrued interest)**

The annual coupon rate is the interest rate paid by the bond and is shown by the percentage figure in the bond's name. The coupon amount is the interest payable for a particular coupon period. Thus, for ACT/ACT bonds where interest is paid semi-annually, as is the case for UK gilts, the coupon amount will be half the annual coupon rate.

30/360 and 30E/360

Many corporate bonds use the 30/360 day count convention. This approach always assumes a fixed number of 360 days in the annual coupon period rather than an actual number of days. Similarly, when calculating the number of days on which accrued interest is payable, it assumes 30 days for each month, even where months in the period may have 28, 29 or 31 days.

30E/360 Example: BT corporate bond	**Example: 30E/360 and 30/360 Variations**
ORB identifiers **Name: BRITISH TELECOMMUNICATIONS PLC 5.75% BDS 17/12/28** **TIDM: 72NS** **ISIN: XS0097283096** **Coupon date: 7 December** **Annual Coupon: 5.75%** **Trade Date: 12 August 2015 (T+2 settlement on 14 August 2015)** **Clean Price: 105.20** **Accrued = 248* x 5.75** **Interest 360** **= 3.9611** **Dirty price = 109.16** ***248 days is calculated as 30 days in each full month (January to July 2015) + 24 days in December 2014 + 14 days in August 2015.**	**Coupon date: 14 March** **Annual Coupon: 4.25%** **Trade Date: 27 August 2015 (T+2 settlement on 31 August 2010)** **Clean Price: 93.75** **Because the settlement day falls on the 31st of the month, the 30E/360 convention assumes 167 days in the accrued interest period giving accrued interest of 1.9715 per £100 nominal and therefore a dirty price of 95.7215. The 30/360 convention, however, assumes 168 days in the accrued interest period generating accrued interest of 1.9833 and therefore a dirty price of 95.7333.**

In the Eurobond market, the standard version of this convention is known as 30E/360, as seen in the example above. This '30 European' convention means that when one of the calculation dates (either the previous coupon date or the settlement date) falls on the 31st of the month, it is assumed to be the 30th for the purposes of the calculation. In the US markets, the 30/360 convention uses slightly different assumptions. Like the European 30E/360 convention, where the first date (the previous coupon date) falls on the 31st of the month, this is taken to be the 30th. However where the second date (the settlement date) falls on the 31st, if the start date is earlier than 30th, the second date will be equal to the 1st of the following month, otherwise the second date will be taken as the 30th of the month.

Most of the time, the 30/360 and 30E/360 calculations will return the same values for accrued interest calculations. Only where a settlement date falls on the 31st of the month will there be minor differences in the accrued interest values returned.

ACT/360 and ACT/365

Some corporate and supranational bonds use the ACT/360 or the ACT/365 convention. Just as in the ACT/ACT convention, the number of days on which interest is accrued is taken as the actual number of days between the previous coupon and the trade settlement date. However the interest period is always taken to be a fixed number of days, 360 or 365, rather than the actual number of days in the coupon year.

Information for private investors

January 2015

ACT/365 Example: European Investment Bank supranational floating rate bond

ORB identifiers

Name: EUROPEAN INVESTMENT BANK FLTG RTE BDS 19/02/15

TIDM: 96ML

ISIN: XS0487944752

Coupon date: 19 February, 19 May, 19 August, 19 November

Annual Coupon: variable, reset quarterly based on 3 month Sterling Libor + 0.1%

Trade Date: 4 August 2010 (T+2 settlement on 6 August)

Clean Price: 99.98

Accrued = $\frac{79 \text{ (period between 19 May 2010 and 6 Aug 2010)}}{365} \times 0.79594^*$
Interest

= 0.1723

Dirty price = 100.1523

***This rate was fixed on 19 May 2010 based on that day's 3 month Sterling Libor rate of 0.69594 + 0.1%. This coupon is reset quarterly on the coupon dates. Because the accrued interest calculation uses a full year in the denominator, the annual coupon rate is used and there is no need to divide the coupon rate by four to reflect the quarterly coupon.**

Further Information

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