# CHANGES TO GILT MARKET TRADING CONVENTIONS

## A paper by the Bank of England and HM Treasury

This paper lists the decisions the authorities have made about the implementation of changes to gilt market conventions, following extensive consultation with gilt market participants and other parties. The Bank of England, HM Treasury, and the Debt Management Office (DMO) project team have collaborated closely in planning these conventions changes, which will take effect after the DMO assumes responsibility for the government's debt management.

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## I: INTRODUCTION

1 The Bank of England has consulted gilt market participants on a number of possible changes to market conventions.[1] Most of these changes will be implemented in the coming year. This paper sets out the implementation details of the changes to: (i) the special ex-dividend period; (ii) the daycount and rounding conventions used for the calculation of accrued interest; and (iii) the introduction of trading in decimals.[2] Bank of England and HM Treasury officials and the DMO project team have collaborated in producing this paper and implementing these market changes, which will take effect after the transfer of government debt management to the DMO.[3]

2 Section II of the paper sets out the abolition of the special ex-dividend period which will take effect from 31 July 1998.

3 Two other conventions changes, both of which will align gilt market conventions with those in other key European markets, will be implemented on 1 November 1998: the daycount convention used in the gilt market for the calculation of accrued interest will switch from an ‘actual/365’ to an ‘actual/actual’ basis, and gilt prices will switch from trading in increments of £1/32 per £100 to decimals. Section III sets out how the cut-over in accrued interest will work. This Section also explains the change to the rounding of the calculation of accrued interest to 6 decimal places. Section IV then sets out the implications of decimal trading in the gilt market.

4 The status of the proposal to abolish the ex-dividend period for gilts held in CGO is outlined in Section V.

5 Further details on how the transition to the new conventions will work and a list of stocks indicating their dividend dates under current arrangements are given in appendices to this paper.

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[1] The Bank issued two consultative documents entitled “Gilt Market Conventions: Daycounts and Decimals” and “The Ex-dividend Period for Gilt-Edged Securities” in February 1997. The results of these consultations were announced in a press notice on 30 May 1997.

[2] Definitions of relevant terms are given in Appendix I to this paper.

[3] The Debt Management Office (DMO) will take over responsibility for UK debt management and gilt market oversight from 1 April 1998. Questions pertaining to the implementation of changes to gilt market conventions should be directed to the DMO from this date onward; please telephone 0171-862-6500 for further details.

## II: ABOLITION OF THE SPECIAL EX-DIVIDEND PERIOD

### (a) Background

6 The "special ex-dividend" period is the period of 21 calendar days prior to the ex-dividend date.[4] During this period parties to a transaction may agree bilaterally, under Stock Exchange Rules, to trade on an ex-dividend basis, with the purchaser taking delivery of the gilt without the right to the next dividend payment.

7 Last year's consultation indicated strong market support for the removal of the special ex-dividend facility, and recent developments in the gilt market strengthen the case for change. Arrangements for the "special ex-dividend period" will end as of 31 July 1998, so that after that date no stock will enter a special ex-dividend period (but stocks which are already in their special ex-dividend period prior to this date will continue their special ex-dividend periods to their normal conclusions). From 31 July, trades should only be expected to settle on an ex-dividend basis during the ex-dividend period. At other times during the dividend cycle the dividend will be paid to the buyer, as registration will occur before the ex-dividend date.

8 This change will be implemented through a change to London Stock Exchange Rules. The Exchange announced on 18 February 1998 that Rule 2.14 will be amended. The revised rule will take effect on 31 July 1998, other than in the case of those stocks which have already entered their special ex-dividend period before this date.

### (b) Benefits of the Change

9 Abolition of the special ex-dividend period should contribute to risk reduction in the gilt market. As special ex-divdend sales are made without the purchaser acquiring the right to the next dividend payment, the seller incurs a credit exposure until the purchaser actually provides the interest payment. With the end of special ex-dividend arrangements, fewer trades will give rise to credit exposures on dividend payments.

10 Gilts which are in their special ex-dividend period during the specified delivery period are not deliverable into LIFFE's Long Gilt and Five Year Gilt contracts. Abolition of special ex-dividend trading will make this restriction redundant; therefore all gilts in the deliverable basket will remain deliverable throughout the delivery month.

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[4] The "ex-dividend date" is the latest date that transfers of gilts can be registered in order that the new holder receives the next dividend directly from the Bank of England Registrar. The period between the ex-dividend date and the date on which the dividend is due is called the "ex-dividend period" and exists to facilitate the preparation and despatch of dividend payments. During the ex-dividend period the stock is said to trade "ex-div" as purchasers do not acquire the right to the next dividend payment.

11 Several changes have reduced the previous incentives for some holders to seek to avoid receiving coupon payments.

- From 6 April 1998, it will be possible to receive interest gross on all gilts, removing the tax incentive to dispose of dividends which were subject to withholding tax.

- The gilt strips facility, introduced on 8 December 1997, also enables gilt holders to manage coupon income more exactly. Holders of strippable stock can sell unwanted coupon strips, and purchasers can obtain exactly those coupon strips they desire.

- Dealing for forward settlement is now readily available through the upgraded Central Gilts Office (CGO) system. This enables parties to a transaction to agree to forward date settlement of a trade into the ex-dividend period.

**(c) Implementation**

12 The abolition of special ex-dividend arrangements will take effect through a change to Stock Exchange Rule 2.14. The amended rule will state that member firms "shall not on Exchange effect a special ex dividend transaction in a gilt-edged security". The Stock Exchange has announced that the amended Rule 2.14 will take effect from 31 July 1998.

13 LIFFE contract specifications for the Long Gilt and Five Year Gilt contracts have been revised to incorporate the abolition of the special ex dividend period. From the September 1998 delivery month onwards, all gilts will be eligible for delivery throughout the delivery month.

14 A list of stocks showing special ex-dividend periods (before implementation) and ex-dividend dates is given in Appendix II to this paper.

15 Transactions for the purchase or sale of gilts input into the CGO system will not be affected by this change.[5]

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[5] The CGO provides users with an information field indicating the "special ex-dividend date". This will remain for some time after special ex-dividend arrangements are abolished, until the appropriate system change can be made, but the information in this field will no longer be pertinent. This will have no impact on the processing carried out by the CGO system.

## III: CHANGES TO THE CALCULATION OF ACCRUED INTEREST

### (a) Daycount Convention Background

16 The daycount convention is part of the formula used to calculate the accrued interest payable to the seller by the buyer when gilts are traded between dividend payments.

17 The gilt market at present uses the 'actual/365' daycount convention; accrued interest is calculated by multiplying the value of the semi-annual interest payment by the number of days between the last dividend date and the settlement date, and dividing by 182.5.[6] Because conventional gilt dividends are paid semi-annually, half the annual coupon on a conventional gilt is paid on each dividend date, regardless of the exact number of days since the previous dividend date.[7] Individual dividend periods may vary between 181 and 184 days.

18 Under the new 'actual/actual' convention, each semi-annual interest payment is multiplied by the number of days between the last dividend date and the settlement date, and divided by the actual number of days in the dividend period.[8] During the ex-dividend period, however, the formula used to calculate accrued interest is slightly different; both formulae are given in Appendix III.

19 Following consultation, the Bank intends that this change will be implemented on 1 November 1998, which was widely favoured as the implementation date, so that the new convention will be in place in time for the beginning of EMU. The lead time to the implementation of the change ensures that all stocks will be in a new dividend period between now and the time of the change.

20 The change will take place on a common date for all gilts. All trades settling before the implementation date will use the 'actual/365' convention; trades settling on or after the implementation date will use the new 'actual/actual' convention. This ensures that all gilts will be subject to the same daycount convention at all times.[9]

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[6] An exception to this is during the ex-dividend period, when a different formula applies. See paragraph 18.

[7] The frequency and dates of coupon payments on gilts will remain unchanged.

[8] The only difference between 'actual/actual' and 'actual/365' is that the number of days in the numerator will be divided by the actual number of days in the coupon period rather than 182.5.

[9] The alternative method would entail changing the rate of accrual for each stock on its own coupon date, implying that the market would be trading on a mixture of conventions for six months.

**(b) Benefits of the Daycount Change**

21 The change will yield two benefits.

22 First, the ‘actual/actual’ convention is more accurate than ‘actual/365’. This will eliminate the risk of a possible anomaly if the ex-dividend period is abolished. Under ‘actual/365’ the interest that has accrued on a bond the day before a dividend payment could exceed the actual dividend payment.

23 Second, the prospect that the same convention will be widely used in international bond markets should promote trading and transparency in pricing. The results of last year’s market consultation showed strong support for the change to an ‘actual/actual’ daycount convention. The convention is already used for the two floating rate gilts. It is used in the US and French markets. It has been recommended as European ‘best practice’ for use in all bond markets by the European Commission’s Giovannini Group (see Appendix IV: many EU member states plan to switch to the ‘actual/actual’ daycount convention in stage III of EMU). The change to ‘actual/actual’ also builds on the recommendations of the Report of the Working Group on the Gilts Market after EMU and is consistent with the recommendations of the Bank’s Working Group on Market Conventions in London Financial Markets after EMU.[10]

**(c) Benefits of the Rounding Change**

24 From 1 November 1998 accrued interest will be calculated to 6 (rather than to 5) decimal places.[11] This reflects the response to a consultation conducted by the Bank in February 1998.

25 Currently the accrued interest on gilts is rounded to the nearest 5$^{th}$ decimal place. This is consistent with the number of decimal places to which clean prices are rounded with trading in £1/32, but from 1 November gilt trading will be conducted in decimals.

26 As gilt strip prices are rounded to 6 decimal places, calculating accrued interest to 6 decimal places would ensure that the market in coupon gilts trades similarly to the strips market. The change would also facilitate trading in yield terms in coupon gilts if this is how both participants wish to trade. The dirty price for all gilts calculated using the price/yield formulae will be calculated to 6 decimal places (as strips prices are); the clean price can most accurately be derived from this if accrued interest is calculated with the same rounding basis.

**(d) Implementation**

27 Accrued interest calculations on all gilts will change on 1 November 1998, the implementation date of the daycount change. All gilt trades that settle before 1 November will use the ‘actual/365’ convention in the calculation of accrued interest, and those trades settling

[10] These reports were published in the third and fourth issues respectively of the Bank’s “Practical Issues Arising from the Introduction of the Euro”, December 1996 and April 1997. Copies are available from the Bank of England.

[11] In practice no trades will settle on 1 November since this date falls on a Sunday.

after 1 November will come with accrued interest calculated using the new 'actual/actual' daycount convention. This ensures that all gilts will be subject to the same conventions at all times.

28 This change will have two consequences for accrued interest calculations over the cut-over date: (i) it will lead to a rise or fall in the rate of accrual on each stock; and (ii) it will lead to a one-off jump in the amount of accrued interest - either upwards or downwards. More details (including examples) on the effects of these changes are given in Appendix V.

29 The authorities will implement these changes in official operations. The DMO project team intends that after 1 November gilt auction stock and taps will settle using the new daycount convention. Non-standard first dividend payments on new issues will be calculated using the 'actual/actual' convention.

30 In the interests of consistency, the DMO project team intends that non-standard first dividends will be given to six (rather than four) decimal places from 1 November.

31 The paper on price/yield formulae for the gilt market, entitled "Bank of England Formulae for Calculating Gilt Prices from Yields", will be updated to take account of the changes to gilt market conventions. This paper provides settlement formulae for those market participants wishing to trade on a yield basis. The DMO project team plan on issuing an updated formulae paper providing the new price/yield formulae in due course. The updated formulae should not be used until the new daycount convention comes into effect. The formulae in the *current* version of the paper, which was issued in December 1997, will come into effect on 1 April 1998.[12]

32 The change in the calculation of accrued interest will be followed exactly for computations of accrued interest made for the Accrued Interest Scheme for gilt taxation (ss 710-728 ICTA 1988).[13] Personal holders will calculate accrued interest differently on either side of the change-over date. Individuals selling gilts after 1 November 1998 which are in a dividend period which began before the 1 November cut-over to the 'actual/actual' daycount convention, should calculate accrued interest on an 'actual/actual' basis. Stock Exchange contract notes will provide the correct information, so in practice individuals will not have to perform complex calculations.

33 The change to rounding accrued interest to 6 decimal places will also take place from 1 November.

34 It is intended that GEMMA reference prices will be published to 6 (rather than 5) decimal places from 1 November.

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[12]Copies of the formulae paper are available from the Bank of England, and on the Bank's web-site page. From 1 April 1998, these formulae will be provided by the Debt Management Office. The formulae are referred to in Stock Exchange Rules 6.28 and 6.29.

[13] See Appendix I for a definition of the Accrued Interest Scheme for gilts.

## IV: GILT TRADING IN DECIMALS

### (a) Background

35 On 1 November 1998 gilt prices will switch from being quoted in £1/32 per £100 to being quoted in decimals.

### (b) Benefits of the Change

36 Trading in decimals has several advantages. It will be easier for some automated systems to handle gilt prices. It will also reduce the potential for errors in translating prices from fractions (in particular for subdivisions of 1/32) to decimals and vice versa. Decimals will enable finer bidding in gilt auctions.

37 Decimalisation will bring the gilt market into line with other key European bond markets.

38 LIFFE's contract specifications for the Long Gilt and Five Year Gilt contracts have been revised in anticipation of the change to decimal pricing. Thus this change should facilitate comparisons between the cash and futures markets.

### (c) Implementation

39 On 1 November gilt prices will begin to be quoted in decimals. Associated with this change are a number of related issues.

- The DMO project team plan that auction bidding will be to 2 decimal places, and that non-competitive prices will be rounded down to 2 decimal places.

- Gilt-Edged Market Makers (GEMMs) will be expected to report reference prices to the DMO to not fewer than two decimal places (rather than 1/32nd ticks) from 1 November.

40 The new Five Year Gilt futures contract launched by LIFFE on 26 February is quoted in decimals. In addition, to facilitate the rollover to the September 1998 delivery month, LIFFE have revised the contract specifications for the June 1998 Long Gilt delivery month to allow for an overnight switch from being quoted in fractions to being quoted in decimals over the weekend of the 9th and 10th May.

## V: FUTURE DEVELOPMENTS

41 The consultation last year on changes to gilt market conventions also included the possible abolition of the ex-dividend period for gilts held in CGO. Of those who responded to the consultation, a large majority favoured the abolition of the ex-dividend period. No decision has yet been made on whether or when to proceed with this change, as its implementation requires considerable technical and operational changes for CGO and the Bank's Registrar's Department. Market participants will then need sufficient lead time to prepare their systems as well.

**APPENDIX I:**

**DEFINITIONS**

- The ex-dividend date. The "ex-dividend date" is the latest date that transfers of gilts can be registered in order that the new holder receives the next dividend payment directly from the Bank of England Registrar.

- The ex-dividend period. The period between the ex-dividend date and the date on which the dividend is due is called the "ex-dividend period" and exists to facilitate the preparation and despatch of dividend payments. During the ex-dividend period the stock is said to trade "ex-div" as purchasers do not acquire the right to the next dividend payment.

- The special ex-dividend period. The "special ex-dividend period" is the period of 21 calendar days prior to the ex-dividend date. During this period parties to a transaction may agree bilaterally to trade on an ex-dividend basis, with the purchaser thus deciding to take delivery of the gilt without the right to the next dividend payment.

- Daycount conventions. The daycount convention is part of the formula used to calculate the accrued interest payable to the seller by the buyer when gilts are traded between dividend payments. The calculation of accrued interest must take into account the timing of dividend payments on the basis of agreed 'daycount conventions'.

- The Accrued Interest Scheme. The Accrued Interest Scheme (ss 710-728 ICTA 1988) produces a charge to income tax, and allows a corresponding relief, on an amount equivalent to the interest transferred in a transactions in an interest-bearing security. The effect is to tax each investor on the amount of interest which accrues while they own a security.

**APPENDIX II:**

**LIST OF STOCKS INDICATING SPECIAL EX-DIVIDEND PERIODS IN RELATION TO CUT-OVER ON 31 JULY 1998**

| Dividend date | Ex div date | Special ex dividend date | Stock |
|---|---|---|---|
| 01-Aug-1998 | 23-Jul-1998 | 02-Jul-1998 | 4 Consolidated |
| 06-Aug-1998 | 28-Jul-1998 | 07-Jul-1998 | 9 Treasury 2012 |
| 10-Aug-1998 | 30-Jul-1998 | 09-Jul-1998 | 6 Treasury 1999 |
| 10-Aug-1998 | 30-Jul-1998 | 09-Jul-1998 | 9 3/4 Conversion 2001 |
| 16-Aug-1998 | 06-Aug-1998 | 16-Jul-1998 | 2 1/2 I-L Treasury 2013 |
| 23-Aug-1998 | 13-Aug-1998 | 23-Jul-1998 | 2 1/2 I-L Treasury 2011 |
| 25-Aug-1998 | 14-Aug-1998 | 24-Jul-1998 | 8 3/4 Treasury 2017 |
| 26-Aug-1998 | 17-Aug-1998 | 27-Jul-1998 | 10 Treasury 2001 |
| 27-Aug-1998 | 18-Aug-1998 | 28-Jul-1998 | 9 3/4 Treasury 2002 |

**Cut over on 31 July 1998** —— **Special ex-dividend period no longer applicable** ——

*(special ex-dividend dates under previous arrangements)*

| | | | |
|---|---|---|---|
| 03-Sep-1998 | 24-Aug-1998 | *03-Aug-1998* | 9 Conversion 2000 |
| 08-Sep-1998 | 27-Aug-1998 | *06-Aug-1998* | 10 Treasury 2003 |
| 08-Sep-1998 | 27-Aug-1998 | *06-Aug-1998* | 7 3/4 Treasury 2006 |
| 10-Sep-1998 | 01-Sep-1998 | *11-Aug-1998* | 5 1/2 Treasury 2008-2012 |
| 11-Sep-1998 | 02-Sep-1998 | *12-Aug-1998* | Floating Rate 1999 |
| 15-Sep-1998 | n/a | *n/a* | 2 1/2 Treasury 1986-2016 |
| 19-Sep-1998 | 10-Sep-1998 | *20-Aug-1998* | 11 1/2 Treasury 2001-2004 |
| 20-Sep-1998 | 10-Sep-1998 | *20-Aug-1998* | 10 1/2 Exchequer 2005 |
| 24-Sep-1998 | 15-Sep-1998 | *25-Aug-1998* | 2 1/2 I-L Treasury 2001 |
| 25-Sep-1998 | 16-Sep-1998 | *26-Aug-1998* | 8 Treasury 2009 |
| 26-Sep-1998 | 17-Sep-1998 | *27-Aug-1998* | 12 1/4 Exchequer 1999 |
| 26-Sep-1998 | 17-Sep-1998 | *27-Aug-1998* | 13 1/2 Treasury 2004-2008 |
| 27-Sep-1998 | 17-Sep-1998 | *27-Aug-1998* | 8 Treasury 2013 |
| 30-Sep-1998 | 21-Sep-1998 | *01-Sep-1998* | 15 1/2 Treasury 1998 |
| 01-Oct-1998 | 22-Sep-1998 | *01-Sep-1998* | 2 1/2 Treasury |
| 01-Oct-1998 | 22-Sep-1998 | *01-Sep-1998* | 3 1/2 Conversion |
| 05-Oct-1998 | 24-Sep-1998 | *03-Sep-1998* | 8 Treasury 2002-2006 |
| 05-Oct-1998 | 24-Sep-1998 | *03-Sep-1998* | 2 3/4 Annuities |
| 05-Oct-1998 | 24-Sep-1998 | *03-Sep-1998* | 2 1/2 Consolidated |
| 05-Oct-1998 | 24-Sep-1998 | *03-Sep-1998* | 2 1/2 Annuities |
| 05-Oct-1998 | 24-Sep-1998 | *03-Sep-1998* | 3 Treasury |
| 08-Oct-1998 | n/a | *n/a* | Floating Rate 2001 |
| 11-Oct-1998 | 01-Oct-1998 | *10-Sep-1998* | 10 Conversion 2002 |
| 13-Oct-1998 | 02-Oct-1998 | *11-Sep-1998* | 9 Treasury 2008 |
| 16-Oct-1998 | 07-Oct-1998 | *16-Sep-1998* | 2 1/2 I-L Treasury 2020 |
| 18-Oct-1998 | 08-Oct-1998 | *17-Sep-1998* | 9 1/2 Conversion 2005 |
| 21-Oct-1998 | 12-Oct-1998 | *21-Sep-1998* | 4 3/8 I-L Treasury 2004 |
| 25-Oct-1998 | 15-Oct-1998 | *24-Sep-1998* | 9 1/2 Conversion 2004 |

**APPENDIX III:**

## FORMULAE FOR THE CALCULATION OF ACCRUED INTEREST USING THE ACTUAL/ACTUAL DAYCOUNT CONVENTION

The accrued interest on semi-annual paying conventional gilts will be calculated as follows, and rounded to the nearest 6th decimal place[14]:

(1) *Standard dividend periods*

$$AI = \begin{cases} \frac{t}{s} \times \frac{c}{2} & \text{if the settlement date occurs on or before the ex-dividend date} \\ \left(\frac{t}{s} - 1\right) \times \frac{c}{2} & \text{if the settlement date occurs after the ex-dividend date} \end{cases}$$

Where:

$AI$ = Accrued interest per £100 nominal of the gilt.

$c$ = Coupon per £100 nominal of the gilt.

$t$ = Number of calendar days from the last dividend date to the settlement date.

$s$ = Number of calendar days in the full coupon period in which the settlement

(2) *Short first dividend periods*

$$AI = \begin{cases} \frac{t^*}{s} \times \frac{c}{2} & \text{if the settlement date occurs on or before the ex-dividend date} \\ \left(\frac{t^* - r}{s}\right) \times \frac{c}{2} & \text{if the settlement date occurs after the ex-dividend date} \end{cases}$$

Where:

$AI$ = Accrued interest per £100 nominal of the gilt.

$c$ = Coupon per £100 nominal of the gilt.

$t^*$ = Number of calendar days from the issue date to the settlement date.

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[14] The accrued interest on other types of gilt will be calculated along the same principles.

$s$ = Number of calendar days in the full coupon period in which the settlement date occurs

$r$ = Number of calendar days from the <u>issue</u> date to the next (short) coupon date.

(3) *Long first dividend periods*

The correct method for the calculation of accrued interest here is set out below; it is defined by splitting the period between the issue date and the dividend payment into the bond's coupon periods. Note that this will lead to a change in the rate of accrual on the theoretical coupon payment date between the issue date and the (long) first dividend payment.

$$AI = \begin{cases} \dfrac{t}{s_1} \times \dfrac{c}{2} & \text{if the settlement date occurs during the first coupon period} \\ \left( \dfrac{r_1}{s_1} + \dfrac{r_2}{s_2} \right) \times \dfrac{c}{2} & \text{if the settlement date occurs during the second coupon period on or before the ex - dividend date} \\ \left( \dfrac{r_2}{s_2} - 1 \right) \times \dfrac{c}{2} & \text{if the settlement date occurs during the second coupon period after the ex - dividend date} \end{cases}$$

Where: $AI$ = Accrued interest per £100 nominal of the gilt.

$c$ = Coupon per £100 nominal of the gilt.

$t$ = Number of calendar days from the <u>issue</u> date to the settlement date in the first coupon period (this term only applies if the gilt settles in the first coupon period).

$s_1$ = Number of calendar days in the full coupon period in which the <u>issue</u> date occurs.

$s_2$ = Number of calendar days in the full coupon period after the coupon period in which the <u>issue</u> date occurs.

$r_1$ = Number of calendar days from the issue date to the next (theoretical) coupon date.

$r_2$ = Number of calendar days from the (theoretical) coupon date after the <u>issue</u> date to the settlement date in the coupon period after the coupon period in which the <u>issue</u> date occurs (this term only applies if the gilt settles in the second coupon period).

## APPENDIX IV:

## CONVENTIONING INTENTIONS OF EU MEMBER STATES WISHING TO JOIN EMU ON 1 JANUARY 1999 (Note: Final decisions have not yet been taken)

| Country | Current conventions for bonds | Conventions for new bonds issued after Stage 3 begins | Conventions for existing redenominated bonds after Stage 3 begins |
|---|---|---|---|
| Austria | 30/360, national holidays, annual coupon | Act/act, Target business days, annual coupon | Act/act, Target business days, annual coupon |
| Belgium | 30/360, national holidays, annual coupon | Act/act, Target business days, annual coupon | Act/act, Target business days, annual coupon |
| Finland | 30/360, national holidays, annual coupon | Probably act/act, Target business days, annual coupon | Probably Act/act, probably Target business days, annual coupon |
| France | Act/act, national holidays, annual coupon | Act/act, business days under discussion, annual coupon | Act/act, business days under study, annual coupon |
| Germany | 30/360, national holidays, annual coupon | Act/act, business days under discussion, annual coupon | Not yet decided apart from annual coupon |
| Ireland | Earlier issues: 30/365, national holidays, semi-annual coupons;<br>Recent issues: act/act, national holidays, annual coupons | Act/act, probably Target business days, annual coupon | Act/act, probably Target business days, annual coupon for recent issues, semi-annual for earlier issues |
| Italy | 30/360, national holidays, semi annual coupons | Act/act, Target business days, semi annual coupon | Act/act, Target business days, semi annual coupon |
| Luxembourg | 30/360, national holidays, annual coupons | Act/act, Target business days, annual coupon | Act/act, Target business days, annual coupon |
| Netherlands | 30/360, national holidays, annual coupons | Act/act, Target business days, annual coupon | To be discussed with the market, Target business days, annual coupon |
| Portugal | Act/act for primary market, 30/360 for secondary market, national holidays, annual and semi annual coupons | Act/act, Target business days, annual coupon | Probably Act/act, business days under study, annual and semi annual coupons |
| Spain | Act/365, national holidays, annual coupons | Act/act, probably Target business days, annual coupon | Act/act, probably Target business days, annual coupon |

**APPENDIX V:**

## THE CUT-OVER TO THE NEW DAYCOUNT CONVENTION

*The jump in accrued interest*

The implementation date of the daycount change is 1 November 1998. All trades settling before 1 November will use the 'actual/365' convention in the calculation of accrued interest, and those trades settling after 1 November will use the 'actual/actual' convention[15]. This change will have two consequences for accrued interest calculations over the cut-over date: (i) it will lead to a rise or fall in the rate of accrual; and (ii) it will lead to a one-off jump in the amount of accrued interest – either upwards or downwards.

For ease of exposition the cutover here is described for a semi-annual paying conventional gilt in a standard dividend period; the principles readily extend to all other types of gilt (**note that there will be no jump in the accrued interest for Floating Rate Gilts, which already trade using the 'actual/actual' daycount convention**).

The following definitions apply for the examples below:

| | |
|---|---|
| $AI$ | = Accrued interest per £100 nominal of the gilt. |
| $c$ | = Coupon per £100 nominal of the gilt. |
| $t_{set}$ | = Number of calendar days from the last dividend date to the settlement date. |
| $s$ | = Number of calendar days in the full coupon period in which the settlement date occurs. |

(1) *The gilt is not settling in its ex-dividend period on 1 November*

For trades settling <u>before</u> 1 November, the formula for accrued interest will be given by

$$AI = \frac{t_{set}}{182.5} \times \frac{c}{2}$$

[15] In practice no trades will settle on 1 November since this date falls on a Sunday.

For trades settling <u>on or after</u> 1 November, the formula for accrued interest will be given by

$$AI = \frac{t_{set}}{s} \times \frac{c}{2}$$

Hence on 1 November there will be a jump in the value of the accrued interest (as well as a kink in the rate of accrual). The jump is defined as the difference between the accrued interest on 1 November calculated on an act/act basis and that calculated on an act/365 basis, and is given by

$$JUMP_{1Nov} = \left( \frac{t_{1Nov}}{s} \times \frac{c}{2} \right) - \left( \frac{t_{1Nov}}{182.5} \times \frac{c}{2} \right)$$

$$= \left( t_{1Nov} \times \frac{c}{2} \right) \left( \frac{1}{s} - \frac{1}{182.5} \right)$$

A number of properties can be deduced from this formula:

- The direction of the jump (ie downwards or upwards) depends on whether *s*, the number of days in the coupon period spanning 1 November, is greater than or less than 182.5 (respectively).

- The magnitude of the jump (per £100 nominal of the gilt) depends on: [16]

(i) How far *s* (the actual length of the coupon period spanning 1 November) is from 182.5;

(ii) How long 1 November is after the last dividend date;

(iii) The coupon.

[16] The jump for all gilts having dividend dates on 7 June and 7 December will be downwards, since there are 183 calendar days between 7 June and 7 December 1998.

Example: consider a holding of 6% Treasury Stock 1999, whose last dividend date before 1 November is 10 August. In this example, $t_{1Nov}$ is equal to 83 and $s$ is equal to 184. Hence the jump in accrued interest (per £100 nominal) on 1 November (compared with the 'actual/365' convention) is given by[17]

$$JUMP_{1Nov} = \left(83 \times \frac{6}{2}\right)\left(\frac{1}{184} - \frac{1}{182.5}\right) = -£0.011123 \text{ per } £100 \text{ nominal}$$

The correct amount of accrued interest for trades settling on 1 November would be

$$AI = \frac{83}{184} \times \frac{6}{2} = £1.353261 \text{ per } £100 \text{ nominal}$$

(2) *The gilt is settling in its ex-dividend period on 1 November*[18]

For gilts which are in their ex-dividend period on 1 November, the formula for accrued interest for trades settling immediately before 1 November will be given by

$$AI = \frac{t_{set} - s}{182.5} \times \frac{c}{2}$$

[17] The exact jump will be very slightly different from this due to the change in the rounding convention for accrued interest from 5dp to 6dp on 1 November.

[18] This section only applies to the following two stocks: 7% Treasury Stock 2001 and 9 ¾% Conversion 2003.

For gilts which are in their ex-dividend period on 1 November, the formula for accrued interest for trades settling <u>on or immediately after</u> 1 November will be given by

$$AI = \left(\frac{t_{set}}{s} - 1\right) \times \frac{c}{2}$$

The jump is given by

$$JUMP_{1Nov} = \left(\left(\frac{t_{1Nov}}{s} - 1\right) \times \frac{c}{2}\right) - \left(\frac{t_{1Nov} - s}{182.5} \times \frac{c}{2}\right)$$

$$= \left((t_{1Nov} - s) \times \frac{c}{2}\right)\left(\frac{1}{s} - \frac{1}{182.5}\right)$$

<u>Example</u>: consider a holding of 9 3/4% Conversion 2003, whose last dividend date before 1 November is 7 May and which goes ex-dividend on 29 October. $t_{1Nov}$ is equal to 178 and $s$ is equal to 184. The jump in accrued interest (per £100 nominal) on 1 November is given by[19]

$$JUMP_{1Nov} = \left((178 - 184) \times \frac{9.75}{2}\right)\left(\frac{1}{184} - \frac{1}{182.5}\right) = +£0.001307 \text{ per } £100 \text{ nominal}$$

[19] The exact jump will be very slightly different from this due to the change in the rounding convention for accrued interest from 5dp to 6dp on 1 November.

The correct amount of accrued interest for trades settling on 1 November would be

$$AI = \left(\frac{178}{184} - 1\right) \times \frac{9.75}{2} = -£0.158967 \text{ per } £100 \text{ nominal}$$

*Diagrammatic representation*

The following diagram is an exaggerated illustration of how the changeover in the accrued interest calculation will work. It assumes that the gilt is not in its ex-dividend period on 1 November and that the jump in the accrued interest for trades settling on the cutover date is upwards (the mirror image will show the effect of a downwards fall in the accrued interest).