Office for National Statistics

The calculation of interest payable on government gilts

Explains the recording of interest payable to holders of UK government gilts in the UK public sector finances.

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1 . Introduction

Since mid-2021, the level of interest costs on government debt has risen sharply. In May 2022, central government debt interest payable was £7.6 billion, compared with £4.5 billion a year earlier. In their March 2022 Economic and fiscal outlook monthly profiles (XLSX, 98.8 KB) published 12 May 2022, official forecasts from the Office for Budget Responsibility (OBR) indicated that interest costs may rise further in June 2022 to around £19.7 billion. They have also signalled that economic developments since the March 2022 forecast mean the out-turn may be higher than their forecast.

Almost all the change in debt interest costs on the UK's stock of government gilts over this period is a result of rises in Retail Price Index (RPI) inflation pushing up the interest payable on index-linked gilts.

This methodology sets out how interest payable to holders of UK government gilts is recorded in the UK public sector finances. This recording treatment follows the international guidance adopted for UK statistics. More information is provided in Monthly statistics on the public sector finances: a methodological guide.

2 . Background

When government spending exceeds its income, government must finance the difference between these flows with borrowing. On a cash basis, the difference between government spending and income is known as the net cash requirement. Government finances the net cash requirement by selling financial instruments – most of which are known as gilts.

However, cash spending and income can be "lumpy", with variable time lags, and so the net cash requirement can consequently give a misleading impression of the health of the fiscal position. For this reason, public sector finances net borrowing is compiled on an accrued rather than a cash basis. On an accrued basis, government income is generally recorded when the economic activity that gives rise to that income takes place, and government spending is recorded at the point at which the liability is created.

For instance, a cash measure of government income would record a considerable increase in months when large businesses pay their corporation tax bills. However, as this tax liability arose over the months leading up to the payment of tax – when the corporate profits were actually made – the accrued measures of income in public sector finances would spread that same corporation tax payment over the months prior to payment.

Note that, in some cases, the cash measure of receipts is used for both the cash and accrued estimates. This is notably the case for self-assessment income tax, which tends to arrive in January and July each year. In these cases, it is judged that the available in-year information is not strong enough to reach an accurate accrued recording and that the "lumpy" cash recording is preferable.

Government debt interest costs can be measured on both a cash and an accrued basis. There are several components of debt interest, but the differences between the cash and the accrued estimates reflect differences in the timing of recording, which are themselves consistent with the nature of government debt and, in particular, the type of gilts issued by government.

3 . UK government gilts

UK government gilts are financial instruments in which the government borrows money from investors in exchange for regular interest payments known as "coupons". The interest rate on gilts varies from issue to issue. At the end of the life of the gilt – "at maturity" – government repays the original sum of money borrowed, known as the "principal". These gilts are issued on behalf of government by the Debt Management Office (DMO), which is an executive agency of HM Treasury.

There are two types of gilt in circulation: conventional gilts and those that are index linked.

Conventional gilts

Holders of conventional gilts receive a fixed cash interest (or coupon) payment from government every six months until the maturity date, at which point the holder receives the final coupon payment and the return of the principal (the original sum invested). Conventional gilts accounted for around three quarters, or £1,500.0 billion, of the UK government's stock of debt in March 2022, as described in our Public sector finances, UK: March 2022 release.

In cash terms, interest payments on each conventional gilt arise every six months, with no payments due in the intervening months. For any specific gilt, this gives rise to a "lumpy" monthly payments profile. As gilts are issued throughout the year, total cash interest paid on all conventional gilts in issuance is smoother and reflects the timing of these payments for all conventional gilts in issue.

On an accruals basis in the public sector finances, the interest due on each conventional gilt is recorded evenly over the life of the gilt, regardless of when the payments are actually made. In practical terms, this means that each six-monthly cash interest payment made is "spread back" over the preceding six months. Rather than reflecting the incidence of payment dates, this payment profile consequently captures the government's liability to pay debt interest as it arises.

At maturity, the repayment of the principal is recorded as an outlay in cash terms. This outlay reflects the face – or redemption – value of the gilt.

Table 1 shows a simplified example of the interest costs for a hypothetical conventional gilt: specifically, a gilt with a £1,000 face value, paying interest at 3% per year at six-month intervals, with a maturity of one year. The total interest payable over the lifetime of the gilt under the cash and accrued measures is equal. However, the timing of the recording differs, with a smoother recording in the accrued method reflecting the continuous nature of the underlying liability.

Table 1: An example of how the interest paid on a conventional gilt with a 3% coupon rate is calculated

Time Period	Principal (£)	Cash coupon (£)	Accrued interest (£)
Jan	1,000.0	0.0	2.5
Feb	1,000.0	0.0	2.5
Mar	1,000.0	0.0	2.5
Apr	1,000.0	0.0	2.5
May	1,000.0	0.0	2.5
Jun	1,000.0	15.0	2.5
Jul	1,000.0	0.0	2.5
Aug	1,000.0	0.0	2.5
Sep	1,000.0	0.0	2.5
Oct	1,000.0	0.0	2.5
Nov	1,000.0	0.0	2.5
Dec	1,000.0	15.0	2.5
Total interest paid over the life of the gilt	-	30.0	30.0

Source: Office for National Statistics – Public sector finances

Notes

1. Figures may not sum due to rounding

The calculation of interest payable on government gilts (XLSX, 46.1KB)) extends this example to show the interest costs with a maturity extended to five years.

Index-linked gilts

As with conventional gilts, the holders of index-linked gilts receive interest (or coupon payments) from government every six months until the maturity date, at which point the holder receives the final coupon payment and repayment of the principal. However, the value of the coupons and the principal received by the investor can change over time, moving in line with the Retail Prices Index (RPI) measure of inflation. This means that the coupon payments and the principal take into account changes in prices and offer a higher real return than conventional gilts. Index-linked gilts accounted for around a quarter, or £503.7 billion, of the UK government's stock of debt in March 2022, as described in our Public sector finances, UK: March 2022 release.

In cash terms, interest payments on a specific index-linked gilt will be recorded every six months when they are paid. The amount paid depends on the interest rate of the gilt and on changes in the RPI between issue and the payment date. No payments are recorded in the intervening months, giving rise to a lumpy payment profile for any specific gilt.

The Debt Management Office (DMO) has published an explanatory document (PDF, 169 KB) setting out how the uplift on the coupon and principal is calculated. This varies depending on the period during which the gilt was issued (with considerable differences before and after 2005) and on the specific conditions of the gilt in question.

At maturity, the "uplifted" principal – adjusted by changes in the RPI – is repaid to the investor. The final cash interest payment consequently reflects both the uplifted coupon payment and the uplift on the principal. This gives rise to a large increase in the cash measure of interest costs on any specific gilt at the point of maturity.

As index-linked gilts are issued throughout the year, the profile of total interest paid on all index-linked gilts is smoother than for any individual gilt, and the total value reflects the timing of these specific payments.

The accruals recording of these flows in the public sector finances differs from the cash recording in two respects.

Firstly, the six-monthly coupon payments (reflecting the uplifted coupon rate) to the holders of a specific gilt are spread over the preceding months. This takes account of movements in the RPI and means that the accrued interest costs represent the ongoing changes in the government's liability rather than the dates of cash payments.

Secondly, consistent with international guidance, we record the uplift in the gilt's principal as an interest cost each month. While the cash measure only records this cost at the point of maturity, the accruals method records this cost at the point the change in liability occurs.

This treatment of the uplift on the principal of index-linked gilts causes large differences between the cash and accruals recording of index-linked debt interest. The cash series consequently measures the payments of interest that the government has to finance in each period, while the accrued measure more accurately captures changes in the government's debt interest liability.

Table 2 shows a simplified example of the interest costs for a hypothetical index-linked gilt with a £1,000 face value, paying interest at 3% per year at six-month intervals, assuming a 2% inflation rate and a maturity of one year. As with the conventional gilt, the total interest payable over the lifetime of the gilt under the cash and accrued measures is equal, but the timing of the recording differs.

Table 2: An example of interest paid on index-linked gilts for both cash and accrued

Month	RPI index	Cash coupon (£)	Cash uplift on principal (£)	Accrued coupon (£)	Cumulative uplift (£)	Accrued uplift on principal (£)	Total cash costs (£) Footnote 2	Total accrued costs (£) Footnote 3
Jan	100.00			2.52	0.00	0.00	0.00	2.52
Feb	100.17			2.52	1.65	1.65	0.00	4.17
Mar	100.33			2.52	3.31	1.65	0.00	4.18
Apr	100.50			2.52	4.96	1.66	0.00	4.18
May	100.66			2.52	6.62	1.66	0.00	4.18
Jun	100.83	15.12		2.52	8.29	1.66	15.12	4.18
Jul	101.00			2.55	9.95	1.67	0.00	4.21
Aug	101.16			2.55	11.62	1.67	0.00	4.21
Sep	101.33			2.55	13.29	1.67	0.00	4.22
Oct	101.50			2.55	14.96	1.67	0.00	4.22
Nov	101.66			2.55	16.64	1.68	0.00	4.22
Dec	101.83	15.27	18.32	2.55	18.32	1.68	33.59	4.22
Total interest paid over the life of the gilt	-	-	-	-	-	-	48.72	48.72

Source: Office for National Statistics – Public sector finances

Notes

1. Total cash costs equal cash coupon plus cash uplift on principal.
2. Accrued costs equal accrued coupon plus accrued uplift on principal.
3. Figures may not sum because of rounding.

The calculation of interest payable on government gilts (XLSX, 46.1KB) extends this example to show the interest costs with a maturity extended to five years.

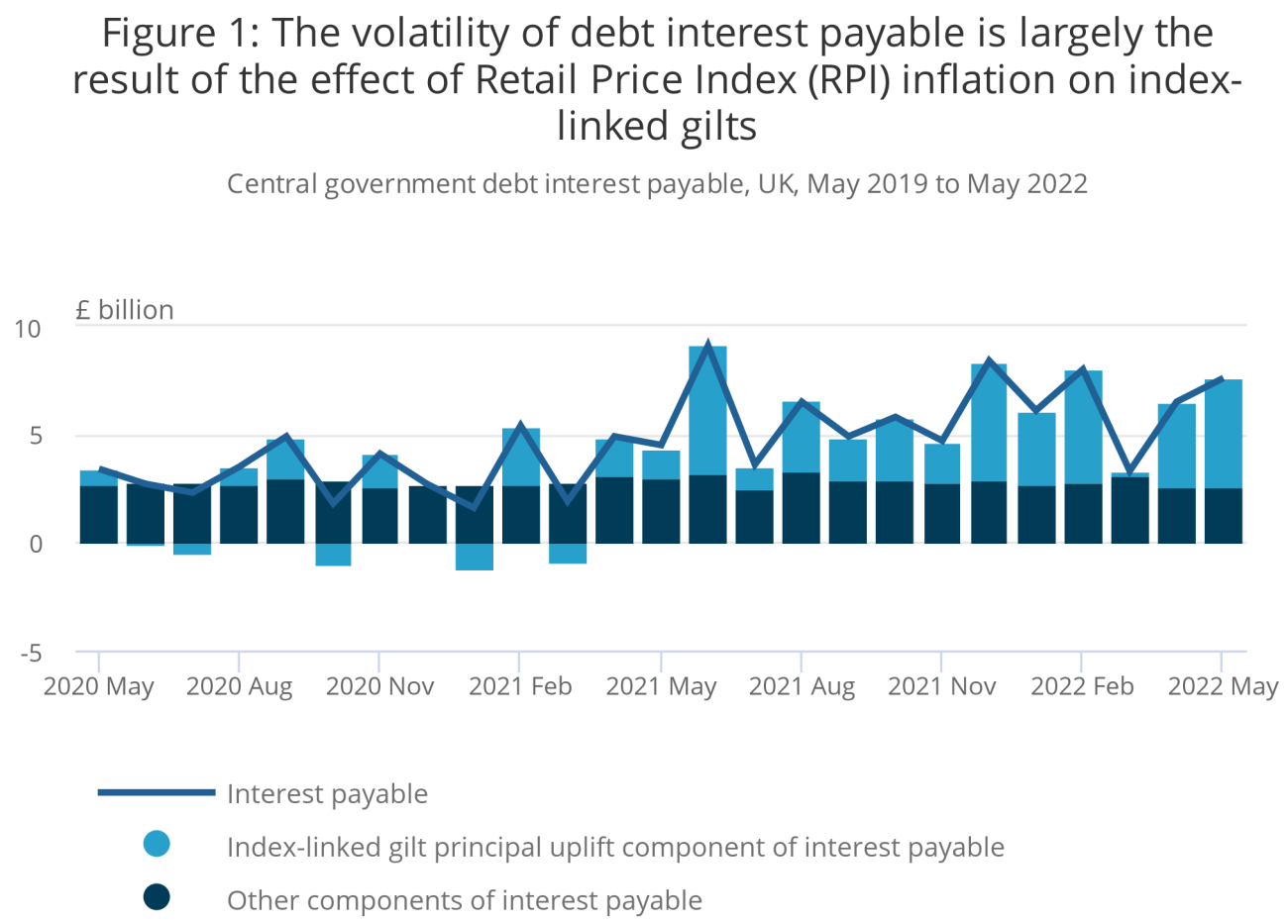
4 . Recent increases in central government debt interest payable

Figure 1 illustrates that the fluctuations in debt interest payable each month (recorded on an accrued basis) are usually the result of the Retail Price Index (RPI) inflation impact on index-linked gilts.

In June 2021, central government debt interest payable was £9.1 billion, the highest in any single month since records began in 1997. Official forecasts from the Office for Budget Responsibility (OBR) published in March 2022 indicate that interest costs may rise further in June 2022 to around £19.7 billion.

Figure 1: The volatility of debt interest payable is largely the result of the effect of Retail Price Index (RPI) inflation on index-linked gilts

Central government debt interest payable, UK, May 2019 to May 2022



Source: Office for National Statistics – Public sector finances

The inflation-linked portion of interest payable on most index-linked gilts is calculated using a three-month lagged RPI. For June 2022, this component will be calculated based on the RPI movement between March and April 2022, where the 11.1 index point growth was largely a result of increases in electricity and gas prices.

5 . Accounting for gilt auction prices

A further difference between the cash and accrued estimates in the public sector finances arises from differences between the price of gilts and their value.

Gilts are not necessarily purchased at their face value. They may have been sold at a discount (or premium), such that the value received is less than (or greater than) the face value. This can occur for a range of reasons, including investors' risk appetites.

Consistent with international guidance, only the redemption value (face value for conventional gilts and RPI-uplifted face value in the case of index-linked gilts) of the gilt contributes to our estimates of net debt. This means that our measure of public sector net debt, for instance, captures the government's precise payment liability – irrespective of whether a gilt was sold at a premium or a discount.

In cash terms, these premiums and discounts affect the net cash requirement in the month they arise. This means that if the government issues gilts at a premium in a month, then the difference between the gilt value and the amount of money received contributes to government revenue – interest payments received – in that month.

However, on an accrued basis in the public sector finances, we spread these differences over the lifetime of the gilt. If a gilt is sold at a discount (sometimes described as below par), this discount is considered as additional interest payable and distributed evenly over the lifetime of the gilt until it is redeemed. Conversely, if a gilt is sold at a premium (or above par), then this premium is deducted from interest payable over the lifetime of the gilt.

6 . Accounting for gilts held by the Bank of England Asset Purchase Facility Fund

As a part of its quantitative easing activities, the Bank of England Asset Purchase Facility Fund (APF) holds a quantity of conventional gilts. The interest payable by central government on these gilts is consolidated within the public sector, with the net interest payable over its operational costs of the APF being returned to central government.

7 . Other interest

Other relatively small amounts of interest that government pays out are scored to net borrowing as they accrue. These include interest on Treasury Bills and National Savings products.