

Annex B

Context for decisions on the Debt Management Office's financing remit

Introduction

- B.1 This annex provides the context for the government's decisions on gilt and Treasury bill issuance in 2020-21, setting out the qualitative and quantitative considerations that have influenced them.
- B.2 The government's decisions on the structure of the financing remit, which are taken annually, are made in accordance with the debt management objective, the debt management framework and wider policy considerations (see Chapter 2).
- B.3 In determining the overall structure of the financing remit, the government assesses the costs and risks of debt issuance by maturity and type of instrument. Decisions on the composition of debt issuance are also informed by an assessment of investor demand for debt instruments by maturity and type as reported by stakeholders, and as manifested in the shape of the nominal and real yield curves, as well as the government's appetite for risk.
- B.4 Alongside these considerations, the government takes into account the practical implications of issuance (for example, the scheduling of operations throughout the year).

Demand

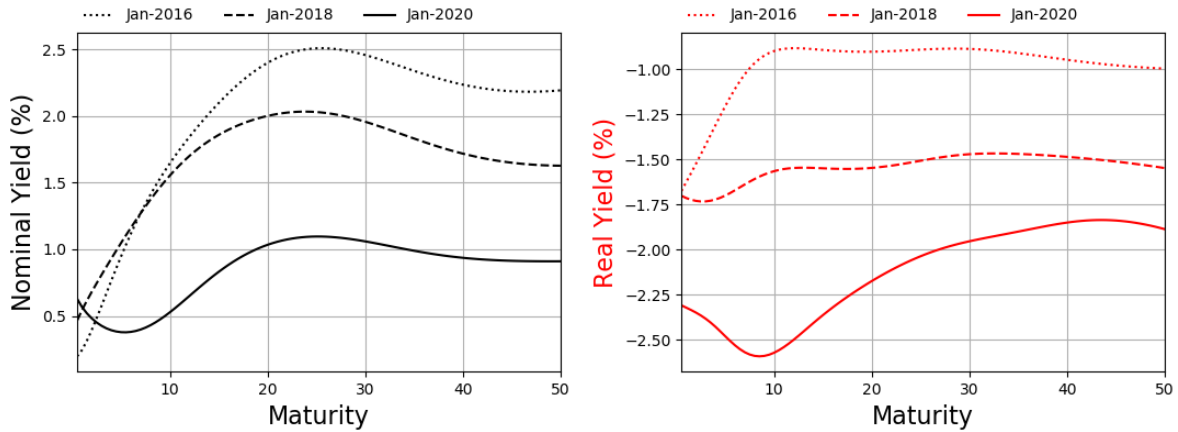
- B.5 Both Gilt-Edged Market Makers (GEMMs) and end-investors have reported ongoing demand for all instrument types. This includes demand for shorter-dated gilts, not least given the large redemptions in 2020-21; for medium gilts as a key liquidity point; and for duration in the form of long-dated conventional gilts. Ongoing demand has also been expressed for index-linked gilts, although market participants have indicated that there is likely to be continued uncertainty about the potential impact on the market arising from the government's and UK Statistics Authority's (UKSA's) consultation on RPI reform in the early part of the financial year.

Cost

- B.6 This section evaluates the relative cost effectiveness of different types of gilt issuance. Chart B.1 displays the shapes of the nominal and real spot yield curves as of end-January 2016, 2018 and 2020. Both nominal and real yield

curves have shifted downward over the years. The steepness of the curve has also been declining, especially for nominal gilts.

Chart B.1 Nominal and real spot yield curves (as of end-January 2016, 2018 and 2020)



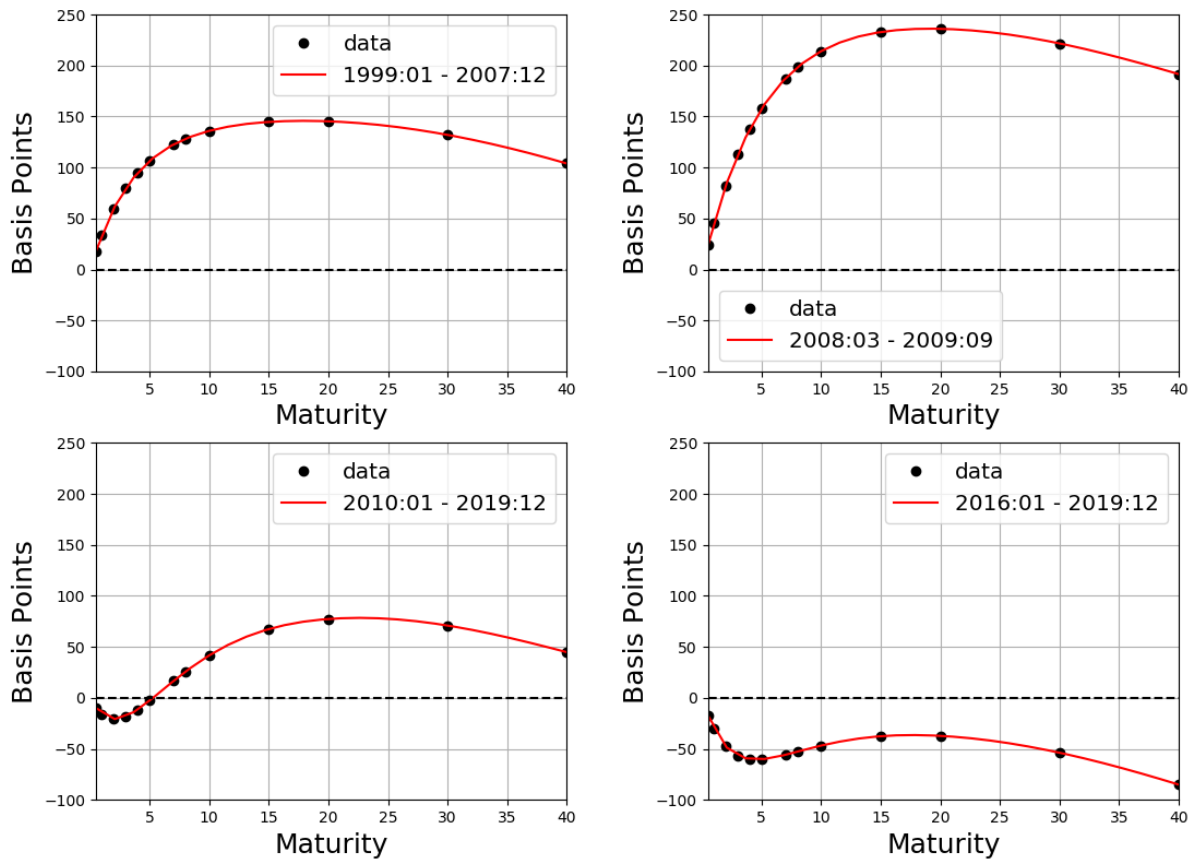
Source: DMO.

B.7 Yields on long-term bonds can be decomposed into two components: a 'risk neutral' yield and a risk premium. The former corresponds to the average expected future short-term interest rates over the life of the bond. The latter is normally thought of as the additional return that risk-averse investors demand as compensation for the possibility of capital loss if a bond is sold before maturity and, in the case of conventional bonds, the risk of the bond value being eroded by inflation. The risk premium may also be determined by supply and demand imbalances for a specific instrument.¹ It is usually cost-effective for a government to issue at maturities where the risk premium demanded by investors is lowest relative to other maturities.

B.8 Risk premia are typically maturity-specific and time-varying. Several factors contribute to the variation and trends in risk premia, among which are changes in investors' risk preferences and expectations, and unanticipated macroeconomic shocks. Chart B.2 displays the term structure of risk premia, with each individual panel showing a selected time period. The top left panel is the period before the financial crisis when yields and risk premia were higher than today. Risk premia increased during the global financial crisis (top right panel). Since then there has been a steady decline and they are currently at historically low levels across all maturities (bottom right panel). This suggests that conventional gilts across the maturity spectrum are currently more cost-effective than has historically been the case.

¹ More generally, the risk premium can be decomposed into several components, including: (i) a premium which compensates investors for duration risk that increases for longer maturity investments; (ii) a credit and default risk premium; (iii) a liquidity discount or premium owing to the different levels of liquidity in some bonds or maturities, which enhances or restricts investors' ability to hedge; and (iv) an inflation risk premium to compensate investors in nominal bonds for uncertainty owing to inflation.

Chart B.2 The term structure of risk premia in the UK conventional gilt market over selected sample periods²



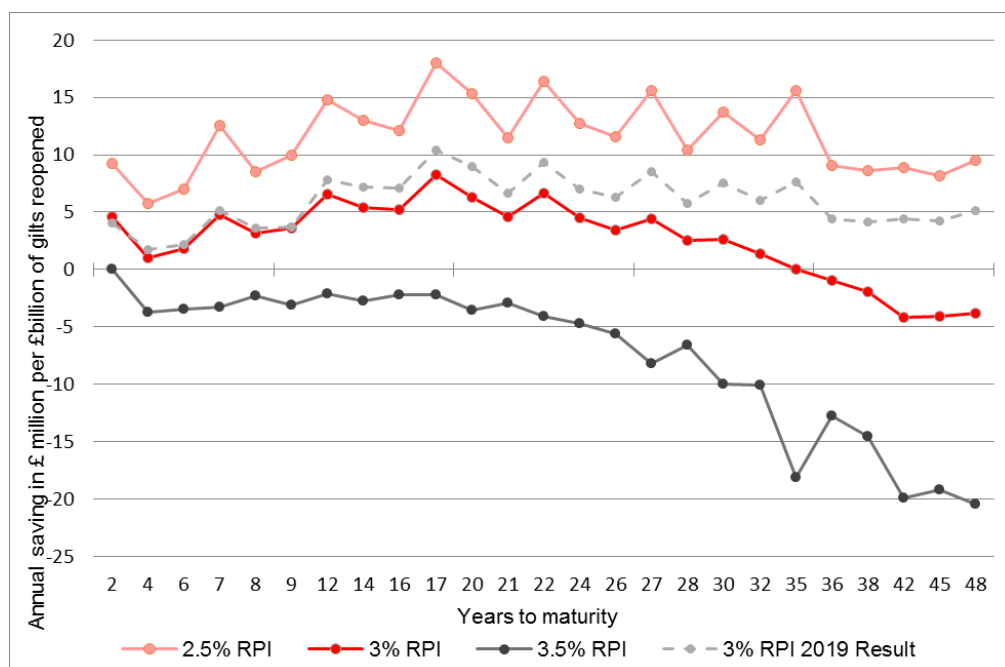
Source: DMO.

- B.9** The government undertakes an evaluation of the relative cost-effectiveness of inflation-linked gilts ('ILGs'), in addition to its analysis of conventional gilts. ILGs differ from conventional gilts as both the principal and coupon payments are linked to the value of the Retail Prices Index ('RPI'). One motivation for issuing ILGs is that investors are willing to pay a premium for the protection from inflation that these securities provide.
- B.10** The difference between the yield on a nominal and on an ILG of the same maturity is referred to as the breakeven inflation rate ('BEIR'). The BEIR can be seen as the rate of inflation at which investments in ILGs and conventional gilts would result in the same return. The BEIR can be decomposed into an expected inflation component and two additional factors: the additional premium investors are willing to pay for protection against inflation, and the discount they require for holding less liquid bonds. Consequently, one possible way to assess the cost-effectiveness of ILG issuance relative to conventional gilts is to compare actual inflation outturns with market-implied BEIRs. To illustrate, if we assume that the future average RPI rate is 3% (i.e. equal to the historical average) then a BEIR of 3.25% would suggest the investor is paying a premium of 25 basis points over conventional gilts. The government benefits from the premium but also

² Averages over selected time period of time-varying risk premia based on the AFNS model of Christensen, J. H., Diebold, F. X., & Rudebusch, G. D. (2011). The affine arbitrage-free class of Nelson–Siegel term structure models. *Journal of Econometrics*, 164(1), 4-20

bears the risk that future RPI inflation might be higher than 3.25% on average.

Chart B.3 The cost-effectiveness of index-linked gilts under different RPI assumptions (end-January 2020)



Source: DMO.

B.11 Chart B.3 illustrates potential savings from ILG issuance under several RPI inflation scenarios.³ At end-January 2020, it shows that, under the assumption that the RPI remains constant at 3% over the life of the bond, ILGs offer better value to the government than equivalent maturity conventional gilts with an initial maturity of up to around 35 years. The expected cost-effectiveness of longer maturity ILGs has declined as BEIRs have fallen since 2019 (grey dotted line in Chart B.3).

Risk

B.12 In the context of the long-term focus of the debt management objective, the other key determinant in the government's decisions on debt issuance by maturity and type of instrument is its assessment of risk. In reaching a decision on the overall structure of the remit, the government considers the risks to which the Exchequer is exposed through its debt issuance decisions and assesses the relative importance of each risk in accordance with its risk appetite.

B.13 The government places a high weight on minimising near-term exposure to refinancing risk. This exposure is managed partly by maintaining a sizeable proportion of long-dated debt in the portfolio, which reduces the need to refinance debt frequently. The government places importance on avoiding, when practicable, large concentrations of redemptions in any one year. To

³ For a detailed description of the methodology used in this type of analyses, see Knight (2013). "Assessing the Cost Effectiveness of Index-linked Bond Issuance". OECD Working Papers on Sovereign Borrowing and Public Debt Management No.7.

achieve this, the government will issue debt across a range of maturities, smoothing the profile of gilt redemptions.

- B.14** The government is mindful of the long-term inflation exposure in the public finances and gives due consideration to ensuring inflation risk is prudently managed. The government will manage this exposure through its decisions on the appropriate balance between index-linked and conventional gilts in its debt issuance in the coming years.
- B.15** Prudent debt management is also served by promoting sustainable market access, which the remit is designed to support. The government places significant importance on encouraging the development of a deep, liquid and efficient gilt market and a diverse investor base in order to maintain continuous access to cost-effective financing in all market conditions.
- B.16** Promoting these features of the gilt market will also serve to minimise debt costs to the government because investors reward an issuer for providing a continuous and ready market and a globally recognised benchmark product.

Modelling of cost, interest rate and refinancing risk

- B.17** The analysis underpinning the government's decisions on its issuance strategy includes the evaluation of likely future paths of the yield curve and other macroeconomic variables. Evaluating possible future economic outcomes can be useful as a way to investigate the medium-term implications of likely issuance strategies in terms of debt interest cost.
- B.18** Debt interest cost is defined as the cost of the coupon and redemption payments associated with government debt, accrued over the life of each bond, measured in terms of the relevant yield. A plausible measure of risk associated with each issuance strategy is the standard deviation of debt interest cost, reflecting potential variation in future gilt yields.
- B.19** Simulations of expected values of debt interest cost and corresponding confidence intervals are generated by the Debt Management Office's ('DMO') Portfolio Simulation Tool ('PST'). This maps the yield curve density forecasts, obtained via a vector autoregressive ('VAR') model, to a debt interest cost distribution. The metrics resulting from this analysis combine the impact of a plausible issuance strategy for financing new government debt with the existing characteristics of the debt portfolio inherited from previous financial years.
- B.20** Forecasts of debt interest costs are carried out over a 15-year horizon. The chosen horizon is close to the average maturity of the gilt portfolio, and therefore captures a rollover of approximately half of it.
- B.21** As an example, Table B.1 shows the issuance skew planned by the DMO at the start of 2019-20, which was well diversified across maturity ranges.

Table B.1: Gilt issuance strategy composition for 2019-20 (%)¹

	Short conventional	Medium conventional	Long conventional	Index-linked	Unallocated
Issuance skew for 2019-20	25.8	21.7	27.0	19.1	6.4

¹ Figures may not sum due to rounding. Maturities are defined as follows: short (1-7 years), medium (7-15 years), and long (over 15 years).

Source: DMO.

B.22 The resulting forecast distribution of debt interest costs is shown in Chart B.4. It is assumed for the purposes of modelling that the 2019-20 issuance maturity skew is repeated for the next 15 years.

Chart B.4 Debt service cost forecast distribution (Gaussian)¹

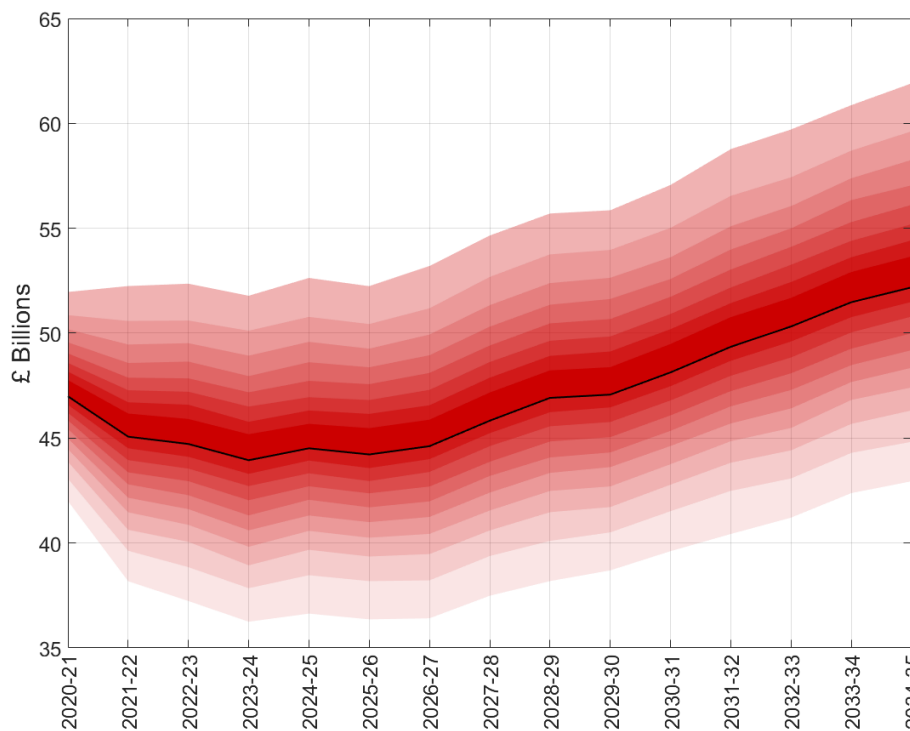


Chart B.5

¹ This is net of the Bank of England's Asset Purchase Facility.

Source: DMO.

B.23 The central line of the fan chart represents the median debt interest cost across 10,000 simulations for each financial year. The shaded area depicts the forecast distribution around the median debt interest cost, with each colour area representing an additional 5% confidence band. The lightest shades of red at the top and at the bottom of the fan chart represent the 95th and 5th percentile band, respectively.

B.24 It should be noted that the debt interest simulations in Chart B.4 reflect the combination of simulated future yields and projected debt issuance, together with the unfolding of existing portfolio dynamics.

Gilt distribution

- B.25** Auctions will remain the primary method of issuance in 2020-21.
- B.26** Any type and maturity of gilt can be sold through syndication and the DMO will announce on a quarterly basis its planned syndication programme, which may include short and medium conventional gilt issuance if judged appropriate by the DMO.
- B.27** Reflecting the larger financing requirement in 2020-21 relative to 2019-20, the government expects to hold six syndicated offerings in 2020-21 of which two are planned to be for ILGs.
- B.28** Gilt tenders may be used in 2020-21 to issue any type and maturity of gilt. Further details are set out in the DMO's 2020-21 financing remit announcement.
- B.29** The scheduling of gilt operations during the course of 2020-21 takes into account the timing of gilt redemptions early in the financial year.
- B.30** The government remains committed to the GEMM model to distribute gilts through auctions, syndications and gilt tenders and the government recognises that GEMMs play an important role in helping to facilitate liquidity in the secondary market.

Gilt issuance by maturity and type in 2020-21

- B.31** In determining the split of gilt issuance, the government has considered its analysis of the relative cost-effectiveness of the different gilt types and maturities, its risk preferences including for the portfolio as well as the issuance programme, and the market feedback it has received.
- B.32** Continuing demand for short conventional gilts is anticipated, in particular owing to redemption reinvestment flows, which has been balanced against managing the government's near-term exposure to refinancing risk.
- B.33** In deciding the proportion of medium conventional gilts to issue, the government recognises the important role that medium conventional gilts (particularly at the 10-year maturity) play in facilitating the hedging of a wide range of gilt market exposures through the futures market, which helps underpin liquidity in the sector.
- B.34** Market feedback also suggests ongoing demand exists for long conventional gilts from domestic investors in particular. Additionally, in determining the amount of long-dated conventional gilts to issue, the government has taken into account the role of long conventional issuance in mitigating its near-term exposure to refinancing risk.
- B.35** For conventional gilts, the term premia analysis suggests that issuance across the maturity spectrum is more cost-effective than has historically been the case. Under market-implied inflation expectations, index-linked gilts are expected to be more cost-effective to issue than equivalent maturity conventional gilts with maturities of up to around 35 years.

- B.36** Issuing index-linked gilts has historically brought cost advantages for the government due to strong demand, and has built the UK's financial resilience by supporting both the UK's long average debt maturity and diversifying the investor base. Tying debt interest payments to inflation has also underscored the government's commitment to price stability in the period prior to central bank independence. However, the UK's relatively large stock of index-linked debt also increases the sensitivity of the public finances to inflation shocks, as highlighted in the OBR's 2017 'Fiscal risks report'.
- B.37** At Budget 2018 – and as part of the government's responsible approach to fiscal risk management – the government announced that it would look to reduce the proportion of index-linked gilt issuance in a measured fashion over the medium term. Consistent with this, the 2020-21 financing remit includes a reduction in index-linked gilt issuance compared to 2019-20.
- B.38** A modestly smaller proportion of issuance (but a slightly higher absolute amount) will be initially unallocated in 2020-21 compared with 2019-20. The main purpose of the unallocated portion of issuance is to give increased flexibility to the DMO to issue any type or maturity of gilt by any issuance method, while remaining consistent with the principles of openness, predictability and transparency.

Treasury bill issuance in 2020-21

- B.39** Treasury bills are used for both debt and cash management purposes. With regard to the former, changes to the Treasury bill stock have historically offered an efficient way to accommodate in-year changes to the financing requirement.
- B.40** The government does not target a planned end-year Treasury bill stock. Information on the outstanding stock of Treasury bills will continue to be published monthly in arrears on the DMO's website.⁴
- B.41** It is expected that net issuance of Treasury bills will make no contribution to debt financing in 2020-21.

⁴ www.dmo.gov.uk/data/treasury-bills