

## Box B Interest rate rises and Covid-19 government debts

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The £300 billion deficit in 2020–21 did not seem to present a significant financing problem for the government.<sup>2</sup> Over the same period a further £440 billion of government debt purchases were authorised as part of the Bank of England’s quantitative easing programme. This took the Monetary Policy Committee’s (MPC) target for government debt purchases through the Asset Purchase Facility (APF) to £875 billion, or some 40 per cent of public sector net debt outstanding, though the face value of holdings is lower.<sup>3</sup>

The increase in government debt will translate into an increased sensitivity of any debt service costs to interest rate changes, though the level of service costs remains low (see Figure 1.23 on page 26). This March, the Office for Budget Responsibility (OBR) projected the annual direct cost of one percentage point higher interest rates was over £20 billion after five years (see Table 3 below), something also alluded to by the Chancellor in his Budget speech,<sup>4</sup> and ten-year treasury yields rose by around 50 basis points in the first few months of 2021. But it is the cause of the increase in interest rates that matters when we consider the effect on the fiscal balance. Should any rises in gilt yields be driven by higher growth, tax receipts will increase, and the debt burden may fall despite rising borrowing costs. For example, as a rule of thumb, with a tax-GDP ratio in the region of 40 per cent, one per cent higher nominal GDP would equate to an increase in tax receipts in the region of £10 billion per year.

To place interest rate rises of the order cited by the Chancellor in their economic context, we used the Institute’s NiGEM model to simulate two scenarios in which rate rises of one percentage point may take place: (i) a positive GDP shock and (ii) a negative term premia shock. No other variables are shocked, and we assume that in both cases the stock of QE each year is unchanged from the OBR baseline – a strong assumption, but one which also underpins the OBR estimates of rising interest rate costs so is preserved here to aid comparison.

These simulations and further NIESR analysis suggest that:

- A positive demand shock will benefit the public finances immediately, but that this benefit may be reduced by the large stock of quantitative easing, as higher interest rates will be paid on reserves.
- A shock to term premia will raise long-term interest rates and impair the public finances accordingly but gradually as new debt is issued or rolled over. If Bank Rate is unaffected, the stock of QE has no negative fiscal impact.
- What matters for the public finances is the nature of the shock, the stock of QE purchases and the fiscal framework. Given the low level of long-term funding costs, any negative impacts are likely to be a small proportion of GDP.
- Should HM Treasury remain concerned about fiscal risks from interest rate volatility there are steps they can take to limit this, which could involve draining reserves or swapping them for short term T-bills.

## Two scenarios

In our first stylised scenario we use a baseline model without a quantitative easing channel to simulate a strong increase in consumption expenditure that leads to a persistent rise in inflation and an immediate and dramatic rise in Bank Rate which, in turn, feeds through immediately to long-term rates. This takes the form of a calibrated shock to household consumption of 4 per cent, falling gradually to 2 per cent over the forecast period, implying a household savings rate sharply lower but firmly within the range described in the discussion on page 14.

In the second scenario, instead of a demand-driven boom, there is a loss of confidence in the UK’s monetary-fiscal framework such that investors demand increased compensation for holding UK gilts. This raises the term premia by a sufficient degree to match the rises in long-term rates in Scenario 1. This credibility shock has a negative impact

<sup>1</sup> The author would like to thank Jagjit Chadha for helpful comments.

<sup>2</sup> See Chadha et al (2021)

<sup>3</sup> See, for example, Giles, C. and Stubbington, T. ‘Investors sceptical over Bank of England’s QE programme’, Financial Times 5 January 2021, which reported that “investors believe the central bank’s quantitative easing programme is a thinly veiled attempt to finance the government’s deficit to keep its borrowing costs down”.

<sup>4</sup> OBR ‘Economic and Fiscal Outlook’, March 2021, supplementary fiscal table 3.23

on the UK economy and the Bank of England responds by slightly reducing short-term interest rates.<sup>5</sup> As in the first scenario we begin by assuming no quantitative easing effects.

Figure B1 shows the resultant increases and decreases in public borrowing; Figure B2 shows the effect on the government's interest payments as a share of GDP. Any additional interest costs in the first scenario are comfortably outweighed by the positive fiscal consequences of higher growth: public sector borrowing is £15 billion lower in the first year and £4 billion lower after five years. Rising interest rates tend to dampen expansion, but overall the public finances are better off as a result of the positive consumption shock and public sector debt is lower (see Table 1).

The second scenario might be of greater concern, especially as it is associated with lower nominal GDP which effectively raises the level of debt relative to the economy. However, total interest payments are a small proportion of GDP under any scenario, and the size of the shock – at around an additional 0.3 percentage points of GDP – is even smaller.<sup>6</sup> Fiscal pressures may be greater in this situation, however, which relates to our discussion of the fiscal framework on pages 26–7.

## Introducing the fiscal effects of quantitative easing

These results notably do not include the effects of the build-up of a large stock of government debt held by the Bank of England after four rounds of quantitative easing. Effectively this has led to around a third of UK government debt being re-financed at short term rates. This distorts the fiscal calculus because Asset Purchase Facility acquisitions are made in exchange for newly-created Bank of England reserves which, since 2008, pay interest at Bank Rate. The APF returns to the Treasury any profit it makes on the margin between that and the interest rates on its gilt holdings<sup>7</sup>. NIESR discussion of this issue can be found in Allen (2021), which seeks to address the resultant interest rate volatility of government debt. Any effect which QE has had on economic growth and government gilt rates over the past ten years – not modelled here – should also be factored into any estimates of its overall long-run fiscal impacts.<sup>8</sup>

We can add to the above 'No QE' results and the impact of the APF holding a proportion of debt which is remunerated at Bank Rate. By separating the debt stock into these two portions a 'QE effect' is calculated and added to the modelled scenarios' changes to the public finances.<sup>9</sup> Figures B3 and B4 show the fiscal consequences of the QE holdings compared with the previous scenarios, as well as the net impact on the public finances of the shock with QE effect overlaid.

In Scenario 1, the remuneration of reserves following a rise in Bank Rate would negate much or all of the fiscal benefit from the shock, though the net 'costs' would also still be, at around £2 billion annually after five years, an order of magnitude smaller than headline figures from the OBR projections of the direct costs of interest rate rises (see Table 3).

Note though that in considering the impact of quantitative easing, any losses which did materialise now must be set against the significant savings which QE has already produced for the government. Its estimated fiscal benefit for 2021–22 has been forecast by the OBR at £17.8 billion and £110 billion of transfers have already been made from the APF to HM Treasury between 2013 and 2020. In a sense any future losses have been funded.

<sup>5</sup> This makes little difference to the results in Figure B3, where the 'QE effect' comes from the small but gradually increasing return to the APF from maturing gilts which are rolled over at higher interest rates. Tax rates and the real exchange rate are treated as exogenous for the forecast period in both cases.

<sup>6</sup> Much of the early 2021 rise in yields is likely to have been driven by similar rises in US treasuries, so strictly speaking the pertinent question may be whether they will be *accompanied* by higher UK growth in future, rather than whether they are *driven* by expectations of it.

<sup>7</sup> After reinvesting the proceeds of redeemed gilts and a 'redemption loss' which arises from gilts having been purchased above par. For more information see Office for Budget Responsibility, 'The direct fiscal consequences of unconventional monetary policies', March 2019, in particular footnotes 8 and 10, and Section 3.1 of the Independent Evaluation Office 'IEO evaluation of the Bank of England's approach to quantitative easing', January 2021.

<sup>8</sup> See Chadha, J., Corrado, L., Meaning, J. and Schuler, T. (forthcoming) 'Monetary and fiscal complementarity in the Covid-19 pandemic', Centre for Macroeconomics working paper

<sup>9</sup> Although interest rates may fall below zero, we do not assume that this is imposed on bank reserves: if it were the positive fiscal impact of QE in Scenario 2 would be slightly greater. We also assume that APF gilts are representative of the debt stock as a whole: in fact they exclude index-linked gilts but have longer-than-average maturity, which act as small biases in opposing directions.

**Table 1** Scenario 1 - Demand recovery

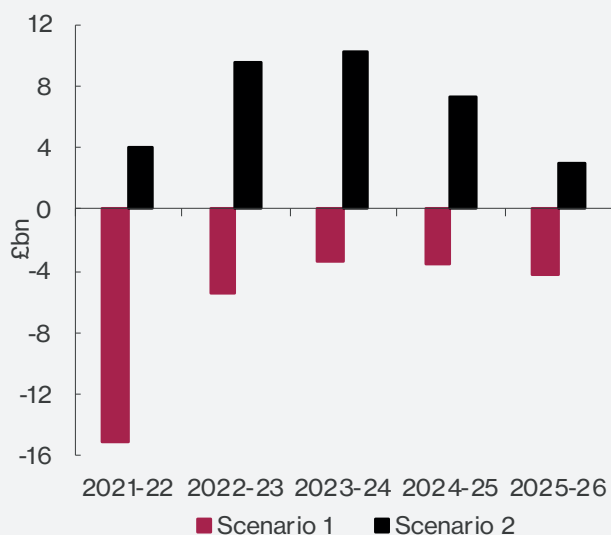
percentage point difference from baseline

Fiscal year	Bank Rate	Long-term rate	CPI inflation	Government borrowing as a share of GDP	Government debt as a share of GDP	Government debt interest as a share of GDP
2021-22	0.8	0.9	0.2	-0.8	-2.1	0.0
2022-23	1.1	0.9	0.7	-0.3	-2.5	0.1
2023-24	1.0	0.9	0.6	-0.2	-3.2	0.1
2024-25	1.0	0.8	0.4	-0.2	-3.7	0.1
2025-26	0.9	0.8	0.3	-0.3	-4.0	0.2

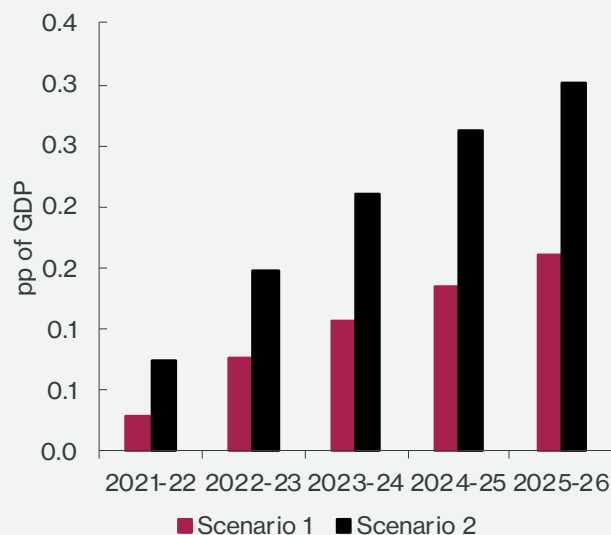
**Table 2** Scenario 2 – Term Premia shock

percentage point difference from baseline

Fiscal year	Bank Rate	Long-term rate	CPI inflation	Government borrowing as a share of GDP	Government debt as a share of GDP	Government debt interest as a share of GDP
2021-22	-0.1	0.9	0.0	0.2	0.5	0.1
2022-23	-0.2	0.9	-0.2	0.5	1.6	0.1
2023-24	-0.2	0.9	-0.5	0.5	2.7	0.2
2024-25	-0.3	0.8	-0.6	0.4	3.5	0.3
2025-26	-0.4	0.8	-0.4	0.2	3.8	0.3

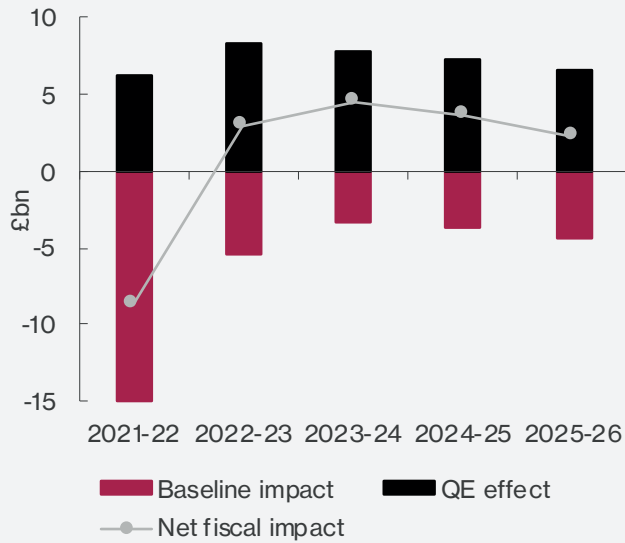
**Figure B1** Impact on public sector borrowing of shock scenarios 1 and 2

Source: NIGEM simulation.

**Figure B2** Impact of government interest payments of shock scenarios 1 and 2

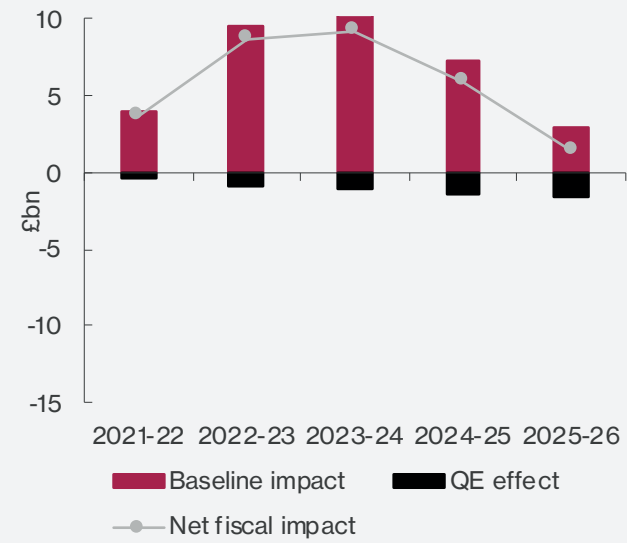
Source: NIGEM simulation.

**Figure B3** Impact on public borrowing under Scenario 1



Source: NIGEM simulation.

**Figure B4** Impact on public borrowing under Scenario 2



Source: NIGEM simulation.

**Table 3** Fiscal impacts of rises in short- and long-term interest rates

	£ billion				
	2021-22	2022-23	2023-24	2024-25	2025-26
<b>Direct fiscal impact (OBR)</b>					
1 percentage point increase in gilt rates	-1.1	-3.2	-5.1	-7.0	-8.9
1 percentage point increase in short rates	-11.7	-11.8	-11.8	-11.9	-11.9
<b>Net fiscal impact incorporating QE impact</b>					
Scenario 1: demand shock to all interest rates	8.8	-2.9	-4.4	-3.6	-2.3
Scenario 2: confidence shock to gilt rates	-2.5	-7.1	-7.6	-3.3	2.6

A key assumption in these calculations is that of an APF stock unchanged from the baseline scenario. In reality, faced with a need to tighten policy, the MPC may decide to sell APF gilts back to the private sector; indeed it may seem counterintuitive that the MPC would raise Bank Rate by as much as one percentage point without allowing its APF holdings to fall. Formerly it was policy “not to reduce the stock of purchased assets until Bank Rate reaches around 1.5 per cent” (Carney, 2018) but, since then, rates have fallen further and the APF has expanded further; Governor Bailey suggested in summer 2020 that bond sales could precede rate rises<sup>10</sup> and the policy is currently under review, as discussed in Box C.

More importantly, were short-term rates to rise this far and fast, the current QE framework would likely be called into question. Allen (2021) proposes to reduce reserves at floating rates ahead of time by exchanging them for newly-issued short-term gilts. Other proposed alternatives include the tiered remuneration of reserves (Lord Turner, quoted in Giles, 2021), creation of new central bank reserves (Kyriakopoulou et al, 2020) and Special Deposits or money creation (Holtham, Chapter 6 in Chadha, et al (2021)).

In the second scenario where the rise in gilt yields is driven by a term premia shock, there would be little incentive to unwind or change the QE framework. As shown in Figure B3, the fact that the rolling over of APF-held debt at higher rates makes the contribution of QE to the net fiscal impact of the shock a small but positive one, compared with a ‘no QE’ counterfactual.

<sup>10</sup> The same questions have been discussed by the US Federal Reserve: see ‘History of the FOMC’s Policy Normalization Discussions and Communications’, <https://www.federalreserve.gov/monetarypolicy/policy-normalization-discussions-communications-history.htm>

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## REFERENCES

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