

## The Debt Vaccine

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The coronavirus pandemic has led to a tragic loss of life. It has also acted as a major shock to the economy. In 2020 the UK experienced its worst recession since the Great Frost of 1707. Its public finances have been hit especially hard, with the National Debt now exceeding £2 trillion in response to record levels of borrowing. Whether the statistics reflect mortality or macroeconomics, 2020 makes for grim reading.

However, whilst we would undoubtedly be better off without this terrible pandemic, given it has happened we should welcome the increase in government debt. Debt has done exactly what economic theory tells us it should do – act as a buffer in response to unexpected negative shocks. In a sense, government debt acts as an economic vaccine - protecting a weakened economy from shocks to economic health that higher taxes or expenditure would bring about. Just as the UK is celebrating its success at creating, producing and rolling out medical vaccines, so it should also celebrate its success at being able to increase its government debt. A world without Covid-19 is best but, in a world where it exists, we should celebrate both medical and economic vaccines.

Of course, the debt ‘vaccine’ doesn’t work forever. The pandemic has permanently lowered wealth and a cost has to be paid. What debt issuance does is provide time to pay it. Covid-19 will surely become a textbook example of a temporary shock to finances. Further, the textbooks make the point that in response to large temporary fiscal shocks, government debt should show long term swings. That of course raises a multitude of concerns including how, when and if that cost will be met, the danger of inflation, and worries of future government debt crises.

### *Reasons to be cheerful*

These are serious issues and we can turn to past UK government experience<sup>2</sup> as well as theory for guidance. Both provide reassurance that the current situation is not an economic catastrophe but, if managed appropriately, represents yet another episode in the story of long-run swings in UK government debt. Of course, past success is never a guarantee of future success but for a number of factors provides reassurance.

### *#1 – There is no firm limit to the size of government debt*

Debt is Janus like – looking both backwards and forwards. It reflects the whole historical path of shocks to the UK public finances and the government. It is also forward looking in that, assuming no default, the current market value of government debt equals the present discounted value of future primary surpluses. The result is that when bad shocks occur debt rises, which requires future action to bring it down again. Whether debt is too high depends

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<sup>1</sup> The standard disclaimer applied.

<sup>2</sup> Ellison, M. and A. J. Scott (2020), “Managing the UK National Debt 1694-2018”, American Economic Journal: Macroeconomics, Vol. 12(3), 227-257

on the sequence of past events and the path of future actions. Further, the longer the horizon over which governments can borrow, the easier it is for future actions to finance bad shocks. That in turn depends on the government's track record of not defaulting. Moreover, the more it is that the bad shocks pushing debt up are beyond government control rather than due to poor fiscal policy, the easier it is to finance a rise in debt.

Economics therefore provides no simple answer to the question of what is the optimal level of government debt. It really does depend. Other things being equal lower debt is a good thing, but in the world of public finances others things are rarely equal. In the midst of a pandemic even less so.

This explains why Macauley wrote that "at every stage in the growth of debt it has been seriously asserted by wise men that bankruptcy and ruin were at hand. Yet still the debt went on growing, and still bankruptcy and ruin were as remote as ever". It also accounts for why Adam Smith, whilst warning of the dangers of government debt, remarked in 1776 that "Great Britain seems to support with ease a debt burden which, half a century ago, nobody believed her capable of supporting".

## #2 – The data has been much higher

The history of UK National Debt reflects the changing fortunes of Britain and its empire. The debt-to-GDP ratio in Figure 1 rises from the beginning of the 18<sup>th</sup> century through a series of conflicts, peaking in 1815 at the end of the Napoleonic Wars (going even higher than the level Smith noted in 1776). Debt then falls for close to a century, before increasing abruptly in WWI and WWII, after which the fall continues until the global financial crisis of 2007-8. The red line on the right of the figure shows developments since the beginning of 2019, with the increased borrowing due to the Covid-19 pandemic apparent in the final uptick in the debt-to-GDP ratio to the end of December 2020.

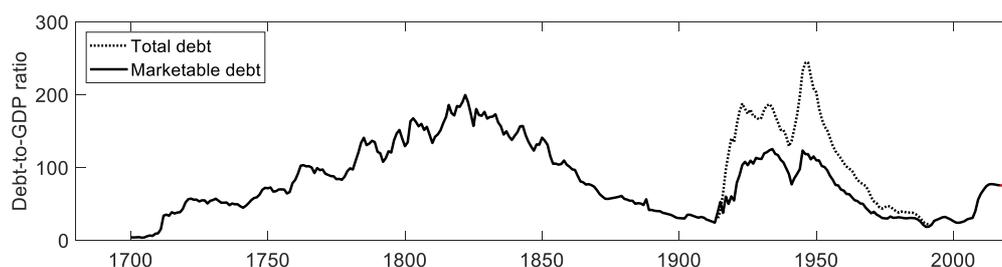


Figure 1: Face value of debt outstanding as a percentage of GDP

When seen in the light of long history, the effect of Covid-19 on the National Debt is discernible yet small. The debt-to-GDP ratio at the end of 2020 is still less than 40% of what it was at the end of WWII. Instrumental in this is the (hopefully) temporary nature of the pandemic, vaccines permitting. This contrasts with wars, which last several years, see productive capacity destroyed, and create demobilization costs for years even after they have ended.

### #3 – Long swings

As Figure 1 shows, government debt shows very long run swings in response to large temporary shocks. In fact, theory predicts that debt is the *last* macroeconomic variable to recover from major shocks.<sup>3</sup> Whilst the worst health impacts of a pandemic may end after a few years and the economy take a few more years after that to fully recover, it is government debt that should take the longest time to revert. In the face of a one in fifty year shock to public finances it is entirely appropriate to spread the adjustment over fifty years.

### #4 – The reproduction number $R$ for government debt is low

As epidemiological statistics push macroeconomic data off the front pages, attention has been focused on  $R$  – the rate at which the virus reproduces. Government debt has its own  $R$ , which depends on the primary surplus (revenue less non-interest government expenditure) and  $r-g$ , the growth-adjusted real interest rate. If the primary surplus is in balance then the behaviour of the debt-to-GDP ratio depends only on  $r-g$ . If  $r$  (the real interest rate) is high then debt will reproduce rapidly. If  $g$  (the growth of real GDP) is high then the debt-to-GDP ratio declines sharply.

Right now, the government is benefiting from very low real interest rates. In May 2020 the UK debt management office even managed to issue three-year gilts at a negative yield. The debt dynamics are also likely to be boosted by favourable  $g$ . Whilst there are concerns about the low level of UK trend growth in the aftermath of Covid-19, the economy is likely to see a sharp increase in GDP as the effects of lockdown are unwound (even if this is only partial).

The fact that the UK has experienced the worst recession since the Great Frost means it has the potential for a sharp recovery. For instance, in 2009 the UK government debt/GDP ratio rose from 55.2% to 69.7%. Of this increase 10.2% was due to new borrowing and 2.3% from a fall in GDP. Further recoveries from financial crises tend to be drawn out processes. By contrast, in 2020 the debt rose from 105.9% to 133.2% - nearly 20% from new borrowing and 10.5% due to the fall in GDP. Clearly this amount of borrowing is substantial, but given the expectation that growth will show a bounce back as government lockdown policies are relaxed, a rapid improvement can also be expected independently of the budget deficit. Based on the 2020 numbers a third of the rise in the debt-to-GDP ratio will be reversed if GDP returns close to its pre-pandemic level. The  $r-g$  term is likely to be very favourable in the very short term.

### #5 – Funding is locked in

The UK is an outlier in international terms, with the average maturity of the National Debt around double that of most other OECD countries.<sup>4</sup> Whilst long-term funding is generally more expensive because of a term premium, it does help reduce the roll-over risk of financing

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<sup>3</sup> Marcet, A and A. J. Scott (2009), “Debt and deficit fluctuations and the structure of bond markets”, *Journal of Economic Theory*, Vol. 144(2), 473-501

<sup>4</sup> HM Treasury Debt Management Report 2019-20

debt. Just how much this benefits the UK is apparent in Figure 2, which shows how the maturity distribution of UK debt has evolved since fixed maturity bonds were first issued.

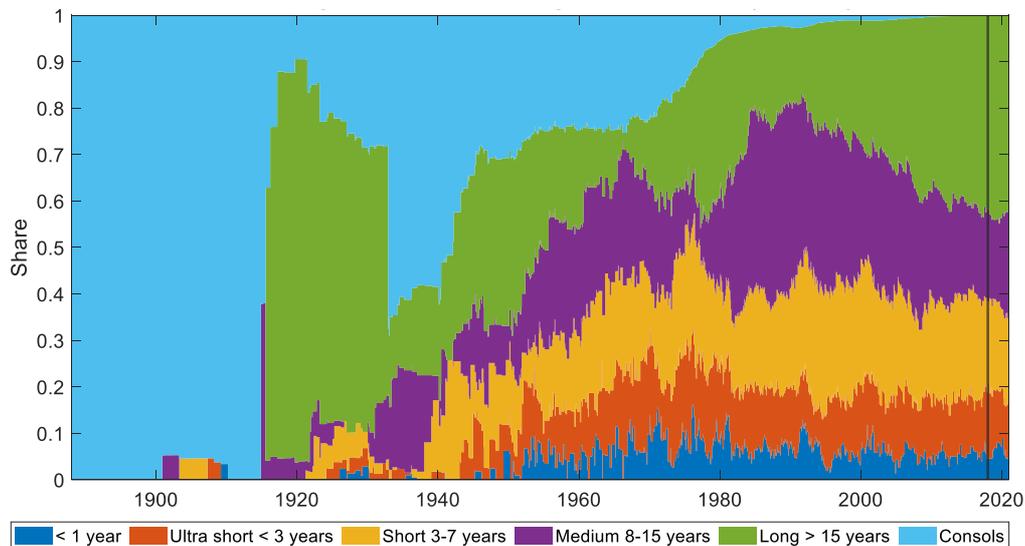


Figure 2: Percentage composition of UK National Debt by maturity

The switch to longer-term debt began with the issuance of 30- and 40-year gilts in the 1980s, and continued in the 2010s with new 50+ year bonds. This has vastly increased the share of the National Debt that is locked in for more than 15 years (the green area in Figure 2). Only a third of the National Debt is currently due to mature within the next 8 years and more than half of it matures after 2030.

### *Reasons to be worried*

The Janus like nature of debt is of course both its attraction as well as a source of concern. Like St. Augustine’s prayer, “Lord make me good but not yet” it affords current license at the expense of future promises that may not be delivered. It is this that leads to fear of what high levels of debt imply about the future. Concerns about rising funding costs are partly mitigated by the facts above around the long-term maturity of outstanding government obligations, but considerable concern exists around inflation and debt crises.

### *#1 – Is high debt a harbinger of inflation?*

Before WWI the UK government reduced the level of government debt after wars mainly through running primary surpluses over sustained periods of time.<sup>5</sup> During this time government bonds were mainly undated (perpetuals) providing a long-term horizon to bring public finances under control. A limited electoral franchise and a narrow group of bond holders helped provide a supportive political framework for long-term fiscal surpluses. Since 1914 declines in government debt after temporary surges have been brought about not by long running fiscal surpluses but by GDP growth and inflation. The contribution of inflation doesn’t necessarily mean high inflation, inflation of one or two percent per annum over 20 or

<sup>5</sup> Ellison, M. and A. J. Scott (2020), “Managing the UK National Debt 1694-2018”, American Economic Journal: Macroeconomics, Vol. 12(3), 227-257

30 years makes a substantial contribution to lowering the debt to GDP ratio. As Figure 1 shows, the most rapid reduction in government debt occurred between WWII and 1970, before the UK's rapid inflation in the 1970s. Modest inflation and sustained GDP growth have been the mechanism post WWII to bring down government debt from elevated levels.

## *#2 – Avoiding funding crises*

A constant concern around government debt is the fear of not being able to fund additional deficits, or to face rollover problems when maturing debt needs to be refinanced. This is undoubtedly one of the reasons why such funding problems have been rare for the UK. At critical moments the government has indeed faced funding problems. Perhaps the most dramatic relates to the issuance of the 1914 War Loan.<sup>6</sup> However, such funding crises are rare. In the face of a one in fifty or one hundred year pandemic it may be prudent to worry about other one in fifty/hundred year risks, such as a funding crises, but more imminent risks need to take precedence. The need to support the economy and promote growth to ensure long run fiscal sustainability is crucial. Given the current level of funding costs and the depth and liquidity in UK government debt market, concerns about disruptions to funding should not be dominant.

## *#3 – Debt is greater than it looks, be careful of long bonds*

According to the ONS, at the end of 2020 UK government debt stood at 99.4% of GDP. However, that is the face value of government debt. Because yields are so low (and below the coupon rate for most government bonds) the market value of government debt is actually considerably higher at 133% of GDP. The ratio between the market value and face value of government debt has never been so high.

The difference between these two valuations reflects the appreciation of long bond prices that has happened because of falling yields. The temptation is to look only at the face value of debt because the UK Debt Management Office tends only to buy back bonds at redemption. This in turn leads to a preference for issuing long term debt as in recent years the long end of the yield curve has been historically very low. However, the substantial appreciation of long bonds over the past decade has meant that long bonds have been an expensive way of financing the government debt. It would have been better to issue a sequence of shorter bonds and benefit from rising bond prices than issuing very long-term debt. This isn't just a feature of recent markets but a persistent feature of the 20<sup>th</sup> century. It may be that in the years ahead a bond market correction reverses this feature, but long bonds have earned investors high rates of return over time and made government funding more costly. This is the negative side of the UK debt maturity being so long.

The coronavirus pandemic has been a traumatic shock to the country's health and a permanent shock to its wealth. Thankfully, just as the UK has been able to rapidly roll out millions of vaccines to offer some hope of economic recovery, so too the Debt Management Office has been able to roll out billions of bonds that have helped provide economic respite.

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<sup>6</sup> <https://voxeu.org/content/extraordinary-story-britain-s-early-efforts-finance-first-world-war>

Economic theory and UK history is clear that in response to large temporary exogenous shocks the appropriate response is for governments to let debt take the strain and for that impact to be felt over decades. The lack of a definite ceiling to debt, the proven historical capacity to deal with even higher levels, the maturity profile of UK debt, the depth of liquidity and current level of interest rates all argue against treating the level of debt as a current binding constraint on economic policy now or in the immediate aftermath of the crisis.

Of course, risks remain from high debt. A recipient of a Covid-19 vaccine today receives protection from the most important current health threat. Similarly, a sharp rise in government debt helps protect the economy against the worst of the pandemic and provides a platform to deal with the shock over the long term. However, medical vaccines don't determine future behaviours or prevent being affected by other illnesses. Similarly, high levels of government debt don't rule out future policy mistakes. Strengthening the long-term framework of fiscal policy as well as the authority and independence of fiscal councils and central banks has to be part of a post-Covid policy response. Elevating the possibility of future policy mistakes is one of the side effects of the debt vaccine but it isn't however an argument not to use the debt vaccine. The world would be a better place without Covid-19 but in a world with Covid-19 the UK is better off with high government debt levels in the years ahead. Mistakes may lie ahead in the future. Letting debt increase dramatically in response to Covid-19 and taking decades to unwind the effect isn't one of them.