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Beyond the Debt Controversy

Fiscal and monetary policy for the post-pandemic era

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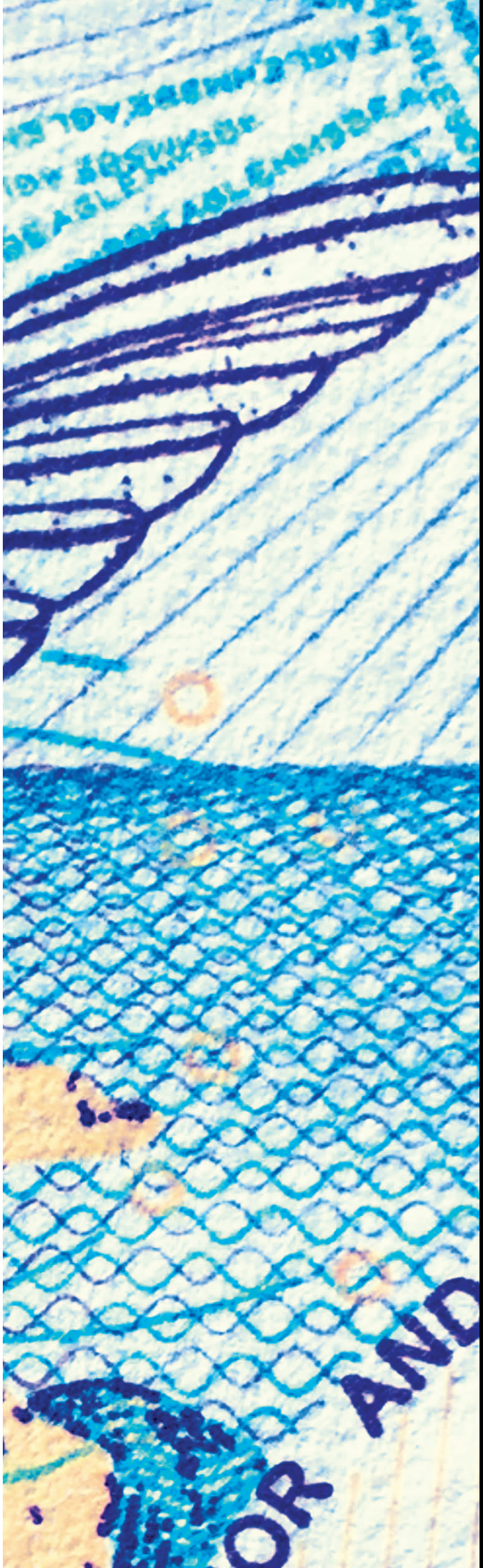

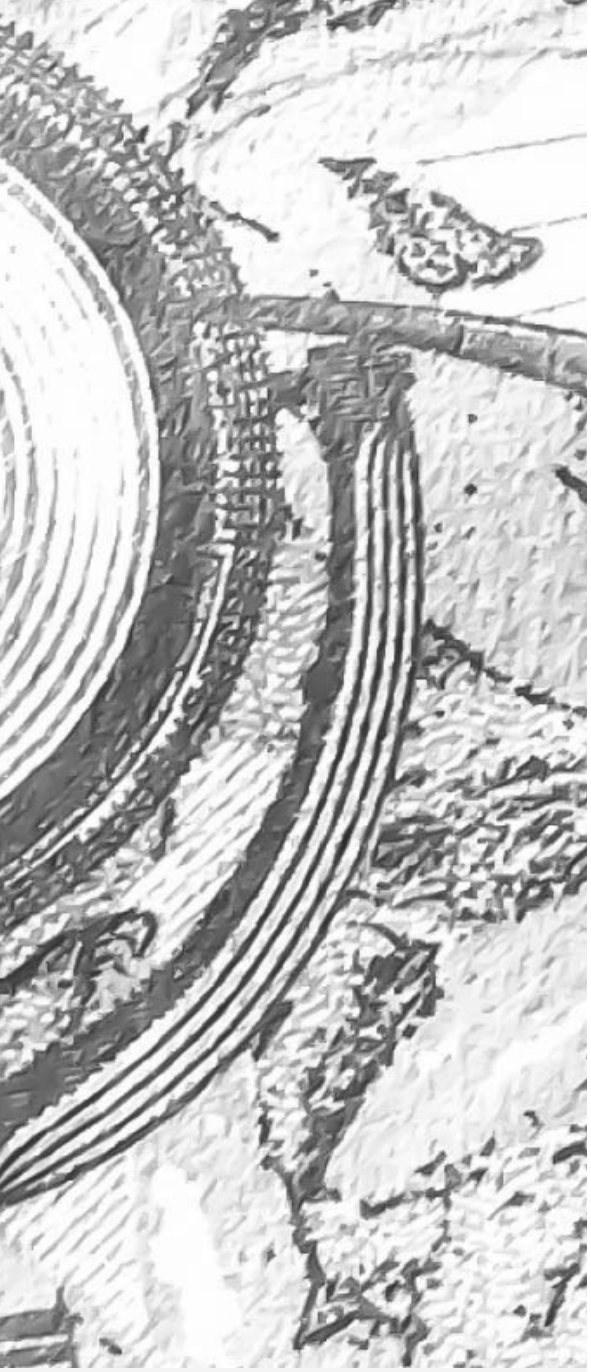

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Summary

In the years since the financial crisis, a heated debate has broken out amongst macroeconomists about the appropriate roles of fiscal and monetary policy in managing public sector debt. Fiscal policy involves government's taxation and spending plans. Monetary policy is concerned with interest rates and the money supply. The controversy has centred in particular on the question of government's capacity to engage in deficit spending in times of need.

On one side, proponents of 'sound finance' call for fiscal prudence to control the level of the deficit. On the other, advocates of 'functional finance' argue that a government which issues its own currency can never run out of money.

This argument has a particular salience in the context of the investment needs associated with meeting ambitious climate change goals and 'levelling up' the inequalities between different communities and regions in the UK. Both of these tasks will require significant public investment at a time when public finances have already been stretched by the pandemic.

This briefing introduces the main lines of argument on both sides of the controversy. It finds that:

- a return to fiscal austerity in the aftermath of the pandemic would be both dangerous and unjustified;
- the sovereign ability of government to create money at will exists; but it is circumscribed by legitimate concerns about its monetary and distributional impacts;
- the mechanisms through which money creation takes place matter and need urgent attention if they are not to destabilise the economy;
- fiscal and monetary policy must move beyond ideology and offer greater flexibility in the post-pandemic era.

This paper is part of the *An Economy That Works* briefing series and can be accessed online via the APPG website: **limits2growth.org.uk/publications**.

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> **History, despite its wrenching pain**
> **Cannot be unlived, but if faced**
> **With courage, need not be lived again.**
>
> Maya Angelou, 1993

A perfect storm

The UK Government is facing three significant macroeconomic challenges in the aftermath of what the Office for Budget Responsibility (OBR) has called 'the largest peacetime economic and fiscal shock in three centuries'.[1]

One of these is a rise in sovereign debt. At the turn of this century, public sector debt stood at 27% of the Gross Domestic Product (GDP). It is expected to reach 107% of GDP this financial year. Most of that eighty-percentage point rise took place in the space of just four years – during the financial crisis of 2007-8 and during the global pandemic of 2020-21. The debt-to-GDP ratio may have to rise further to meet the continuing costs of the pandemic.[2]

A second challenge flows from the scale of public investment needed to make the transition to a net zero carbon economy and to 'level up' the UK regions. The OBR has estimated that, in an 'early-action' scenario, the cumulative investment costs of reaching net zero emissions by 2050 could add 20 per cent of the GDP to public sector net debt by the middle of the century. Failure to take early action, on the other hand, could bring the public debt to 289% of the GDP by the end of the century.[3] The Centre for Cities has suggested levelling up the UK regions could turn out to be as expensive as the reunification of Germany, which cost an estimated €2 trillion (£1.7 trillion).[4]

A third emerging challenge lies in the potential costs of 'servicing' debt in the face of inflationary pressures and rising interest rates. Over recent decades, the costs of servicing the public sector debt have fallen substantially—from 3.8% of the GDP in 1980/1 to 0.9% of the GDP in 2020/1—mainly as a result of a historical fall in real interest rates in an era of low inflationary pressure.[5] But there are uncomfortable indications that this may be about to change. Rising food prices, a shortage of workers and a surge in wholesale gas and electricity prices saw the Consumer Prices Index surge by 3.2% in the twelve months to August 2021.[6] Further price rises are predicted, placing increased pressure on the Bank of England to raise interest rates.[7]

Inappropriate policy responses have the potential to reinforce these challenges in pernicious ways. Rising debt could squeeze the perceived 'fiscal space'[8] for early investment in net zero leading to much higher debt later. Rising interest rates would increase the cost of borrowing, putting further pressure on the public purse and making private sector decarbonisation investments more expensive. Policy decisions to curb public spending could hold back investment in net zero and reduce social investment where it is most needed. Avoiding a 'perfect storm' of adverse conditions will require a clear-sighted and flexible approach to fiscal and monetary policy if social and environmental goals are to be navigated safely.

The aim of this briefing is to frame the macroeconomic context of these challenges, to argue against austerity and to propose a new and essential 'flexibility' in fiscal and monetary policy for the post-pandemic era. The starting point for that exercise is a controversy around sovereign debt which has haunted macroeconomics for well over a decade.

Death by Numbers

Shortly after the financial crisis of 2007/8, two Harvard economists, Carmen Reinhart and Kenneth Rogoff, published what was to become a famous (and later infamous) paper about the public debt. *Growth in a Time of Debt* argued that when a country's 'gross external debt'[9] reaches 60% of the Gross Domestic Product (GDP), growth in the GDP is reduced by 2% and when it reaches 90% of GDP, economic growth is 'roughly cut in half'.[10] The paper appeared to provide strong support for—and certainly motivated—the emerging pro-austerity policies enacted by governments across the world in the years following the financial crisis.[11]

A couple of years later a 28-year old graduate student named Thomas Herndon was trying to replicate Reinhart and Rogoff's findings using their original spreadsheet. When he couldn't do it, he took the problem to his supervisor Robert Pollin, who told him to go back and try again. Still he failed. Eventually they discovered that the original analysis contained 'coding errors, selective exclusion of available data, and unconventional weighting of summary statistics'. In short, the numbers were wrong. Once they had reworked the analysis, Herendon, Pollin and co-author Michael Ash concluded that the average growth rate for countries with debt to GDP ratios higher than 90% is 'not dramatically different' from that of countries with lower debt burdens.[12]

Since then, economists have weighed in on both sides of the argument. The International Monetary Fund (IMF) initially appeared to support Reinhart and Rogoff, suggesting in 2013 that the most 'critical fiscal

policy requirements' are a 'persistent but gradual consolidation and, for the United States and Japan, the design and implementation of comprehensive medium-term deficit-reduction plans'.[13] Others continued to criticise Reinhart and Rogoff's work, pointing out, amongst other things, that it lacked a coherent theory of sovereign currency and that any correlation between high debt ratios and the economic growth rate could as easily support the reverse causality as the one the authors drew from it.[14]

The IMF later changed its position on the controversy. A paper published in 2014 concluded that there is 'no magic threshold' above which a nation's debt dramatically compromises its medium-term economic prospects.[15] The impacts of debt depend inherently on country conditions and on the fiscal and monetary frameworks in place. The evidence seems to support that view. Japan's debt ratio has been over 200% for well over a decade and jumped from 235% in 2019 to more than 256% during the pandemic.[16] Germany's ratio would have been around 180% already in 2015, had it used the same accounting metric as the Office for National Statistics does here.[17] And the debt to GDP ratio in the UK today is still very far from being at an all-time historical high (*Figure 1*).

This may seem like an arcane dispute between warring economists about arbitrary numbers. But numbers have consequences. Nobel prize-winning economist Paul Krugman suggested that austerity politics was sold to the public under false pretences. The Reinhart and Rogoff results allowed politicians to insist that austerity was not a choice but an economic necessity. The evidence in support of that claim was flawed at best. 'Policy makers abandoned the unemployed and turned to austerity because they wanted to,' claimed Krugman. 'Not because they had to.'[18]

Numbers matter. Government responses to economic shock have a profound impact on society. In a detailed analysis of economic recovery across eight countries, Oxford economist David Stuckler and Stanford epidemiologist Sanjay Basu maintained that pro-austerity policies enacted to reduce fiscal deficits had a devastating impact on public health.[20] A recent study published in the British Medical Journal appears to confirm that finding for the UK. Austerity policies enacted in the wake of the financial crisis are estimated to have cost the lives of more than 57,000 people in this country between 2010 and 2014.[21] Stuckler and Basu conclude that such pernicious outcomes were entirely avoidable. 'Even amid the worst economic disasters,' they wrote, 'negative public health effects are not inevitable: it's how communities respond to challenges of debt and market turmoil that counts.'

That mistakes were made in the aftermath of the financial crisis is now barely in question. What remains at stake is how we should respond, as the country emerges from the coronavirus crisis and seeks to address the profound challenge of combatting climate change and levelling up the regions. An informed position on the nature of fiscal spending, the role of the fiscal deficit and the sustainability of the public debt is vital to that task.

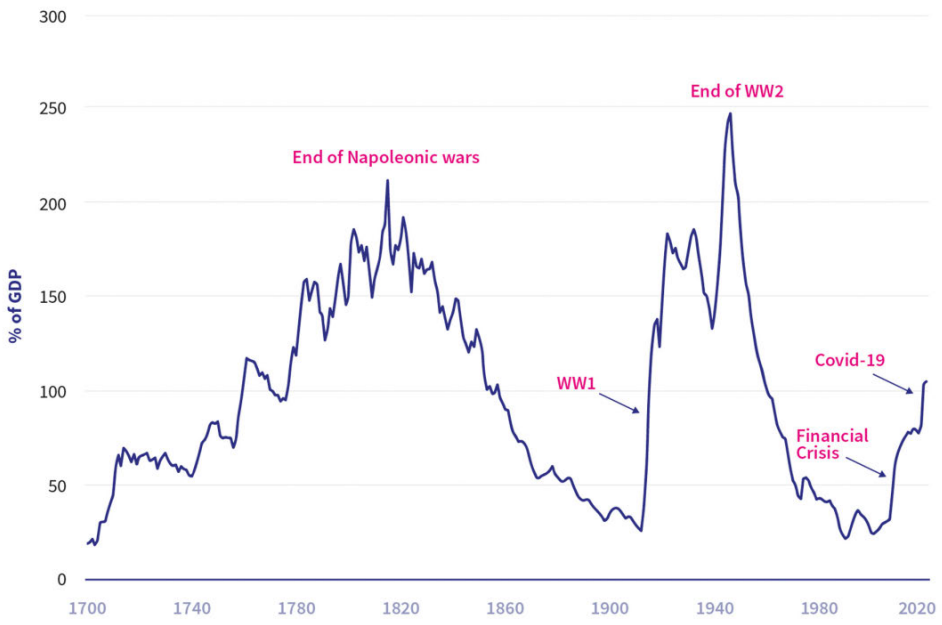

Figure 1
UK Public Sector Debt as a Proportion of GDP (1700-2021)
Source: Data from Bank of England (1700-1920), Office for National Statistics (1921-2019), OBR (2020-21)[19]

> Government responses to economic shock have a profound impact on society.

Government is not a household

It's never particularly surprising to find economists disagreeing with each other. But there are reasons why the Reinhart and Rogoff affair struck such a powerful chord both inside and outside the economics profession. Principal amongst these is that it re-ignited a much longer running dispute between two radically opposed views on the role of fiscal spending and the responsibility of government to curb that spending when debt is running high.

The argument goes back (at least) to John Maynard Keynes' insistence that stimulus spending is essential in order to stabilise the economy in the face of an economic downturn. 'The boom, not the slump, is the right time for austerity at the Treasury,' he wrote in 1937.[22] The same insight was echoed in Franklin D Roosevelt's 'New Deal' in the US during the 1930s, one of the earliest and most extensive stimulus programmes on record.[23] It also informs more recent arguments in favour of a Green New Deal.[24]

Modern Monetary Theory (MMT) is one recent incarnation of this view. Borrowing from a school of thought known as post-Keynesian economics, it argues that governments should 'set their fiscal position [ie decide their levels of taxation and spending] at whatever level is consistent with price stability and full employment, regardless of current debt or deficits'.[25] The economist Abba Lerner, writing in 1943, described this as 'functional finance'.[26] Fiscal policy should be judged, he said, not on the basis of a particular number that emerges from the fiscal budget each year, but on the basis of how well government spending itself functions to deliver desired economic and social outcomes.

Not surprisingly, advocates of functional finance have been amongst the most vociferous opponents of austerity over the last decade. Though tempting as a strategy, they argue, austerity is not only unsavoury in terms of its social impacts but it can also backfire spectacularly in its aim to tame the public debt. Fiscal deficits contribute to private sector surpluses. Further, they can have a 'multiplier' effect on the economy. In other words, government spending can have a financial impact greater than the monetary value of the spending itself. Conversely, a reduction in government spending can lead to falling output greater than the value of the cuts. In other words, slashing the deficit can lead, perversely, to an increase in the debt-to-GDP ratio.[27]

Functional finance stands in stark contrast to a mainstream view which Lerner called 'sound finance', in deference to the rules of sound finance that clearly apply to households and (to some extent) firms. As a household becomes increasingly indebted, the prospect of future spending is severely constrained and in the worst case scenario its assets are at risk of foreclosure. Governments are only ever able to spend what they can raise in taxes or borrow from commercial markets, according to this analogy. Borrowing is regarded as a tax on the future to be avoided if at all possible. Sound finance means that government should always aim to 'balance its books' and keeping deficit spending in check so that the public debt doesn't spiral out of control.

One of most famous claims from post-Keynesian economics is that the 'government is not a household'. It can never 'run out of money' in the same way that a household or a firm can—so long as it issues its own sovereign currency. In her timely book *The Deficit Myth*, published during the early days of the global pandemic, US economist Stephanie Kelton describes this insight as a 'Copernican shift' away from the conventional view espoused by the sound finance model. Rather than chasing after the 'misguided goal' of a balanced budget, she argues, we should be 'pursuing the promise of harnessing… public money, or sovereign currency, to balance the economy so that prosperity is broadly shared.'[28]

The claim that government can finance its spending through money creation has attracted a good deal of anger and sometimes ridicule from conventional economists and politicians. In a speech to the Conservative Party Conference in 1983, Margaret Thatcher once declared that 'if the state wishes to spend more it can only do so by borrowing your savings or by taxing you more. And it's no good thinking that someone else will pay. That someone else is you.' In direct contrast to the functional finance, she insisted 'there is no such thing as public money. There is only taxpayers' money.' [29]

Three decades later, an unkind meme was to cast MMT as an acronym for the 'Magic Money Tree' from which, according to legend, it's possible to spend at will. In response to requests to find the means to increase nurses' pay, former Prime Minister Theresa May famously employed this meme, declaring: 'there is no Magic Money Tree'.[30] But this position too was lampooned by those with long enough memories to recall that the Treasury made interventions in support of the banking sector in excess of £1 trillion in the immediate aftermath of the financial crash, financed primarily by the Bank of England purchasing failing assets using newly created central bank reserves—a process (almost) as close to unfettered sovereign money creation as it is possible to find.[31]

The heat generated by this central claim can be unhelpful to policy makers trying to shed light on complex macroeconomic debates about fiscal policy, deficit and the public debt. Even as we recognise that the current level of UK public debt remains relatively low by historical standards (*Figure 1*), it is vital to understand the extent to which the claims and counter-claims in the debate are valid.

To leave policy-making to ideology is to risk floundering in the 'perfect storm' to which we alluded at the outset. In the remainder of this briefing we attempt a nuanced view of the opposing arguments—identifying where the conflicting theories of sound and functional finance meet in practice and where they differ. And where they offer pragmatic guidance for fiscal and monetary policy in the post-pandemic era.

Austerity policies enacted in the wake of the financial crisis are estimated to have cost the lives of more than 57,000 people.

Beyond the Magic Money Tree

Perhaps the most surprising aspect of the debt controversy is that its most contentious claim turns out to be more or less true; but recognising this does not in itself resolve the controversy. There is a money tree. But it's not necessarily magic.

A government which issues its own sovereign currency can always issue more of it, more or less at will. During the last two years both the Bank of England and the US Federal Reserve have used this ability extensively—and creatively—to bankroll their respective governments' Covid-19 rescue packages. The ECB has done the same in Europe.

In the US, the Fed announced on March 23rd 2020 that it would be willing to buy unlimited amounts of Treasury bonds to support 'smooth market functioning.' Four days later, Congress passed the Coronavirus Aid, Relief and Economic Security (CARES) Act committing the government to a $2.2 trillion stimulus package. Since that time, the Fed has disbursed $3.7 trillion from a possible $6.75 trillion support programme and in the process absorbed almost all the new US debt that the government has issued.[32]

On the 19th March 2020, three days after the UK entered its first coronavirus lockdown, the Bank of England's Asset Purchase Facility (APF) issued an inconspicuous 'market notice' following a special meeting of the Monetary Policy Committee (MPC). Its impact was the UK equivalent of the Fed's announcement.[33] The MPC was decidedly more cautious than the Fed in the scale of its operations at that point, offering a further reduction in the Base Rate and an extension of its quantitative easing (QE) programme—buying government and corporate bonds on the secondary bond market.

But the APF's 'market notice' also contained a commitment to 'keep under review the case for participating in the primary market'. This somewhat arcane pledge demonstrated an unexpected willingness to purchase bonds directly from the Treasury rather than from the secondary market—something that had been outlawed by the EU's Maastricht Treaty and considered too risky under the sound finance model for decades. A few weeks later the Treasury and the Bank announced an agreement to 'temporarily extend' the government's Ways & Means account at the Bank—effectively an overdraft facility—providing a similar capability for government to spend as and when it needed.[34]

It sounded innocuous. But it was a significant step towards acknowledging the ability of the Bank directly to finance government spending. What happened during the Covid-19 lockdown amounted to a further rolling back of the principles of sound finance that had begun already in 2008. A former chief economist of the asset management company Pimco described it as 'an epic moment' signalling a 'breaking down' of the 'church-and-state separation of the fiscal and monetary authority'. Kelton argues that it was simply a revelation of what was already the case. A government that issues its own sovereign currency can always issue more of it. The New York Times talked about it as the removal of a fig leaf.[35]

But behind the fig leaf lie two significant problems. One is associated with the quantity of new money created. The other is associated with the form in which it is created. Neither is necessarily unsurmountable. But both have to be taken seriously.

The perils of 'printing money'

The most obvious issue—the one that is immediately raised by opponents of functional finance and forms the basis for the conventional separation between Bank and Treasury—is the danger of inflation, perhaps even hyperinflation, if governments are able to 'print' all the money they need. The conventional wisdom argues that the political incentives to do this are too high. And the impacts, in the worst case scenarios, are potentially disastrous. When too much money is chasing too few goods, prices tend to rise. From a 'sound finance' perspective, the principal remit of the central bank is to achieve 'price stability' by controlling the interest rate—the cost of borrowing money and servicing debt. A swift and sudden rise in interest rates rise could lead to escalating servicing costs and spiralling debt.

In historical terms, as we have already noted, the cost of servicing the public debt is currently very low, in

spite of recent rises in the debt to GDP ratio. This is in part a consequence of QE itself, which has replaced £875 billion worth of long-term government bonds (over a third of the public sector debt) attracting an interest rate of around 2% with central bank reserves which are subject to an interest rate of only 0.1%. The impact of this has been to save the government an estimated £17 billion in interest payments.[36] But even without these operations, debt servicing costs would have fallen. The years since the financial crisis have been a period of historically low interest rates with very few inflationary pressures.

The question of whether this will continue was one of the three challenges at the outset of this paper. The Office for National Statistics describes the current price rises as 'temporary'. And it is clear that, in spite of recent increases, inflation remains low in historical terms (*Figure 2*). Not since before the second world war has the trend level of inflation been as low as it has been in the UK since the early 1990s. So the immediate pressure of inflation-driven interest rate hikes doesn't suggest reasons for panic. But recent increases in the consumer prices index should certainly caution against complacency. From a precautionary point of view, it is vital to have an appropriate mechanism for ensuring both that inflation doesn't spiral and for protecting government against the impacts of those pressures on the costs of servicing public debt.

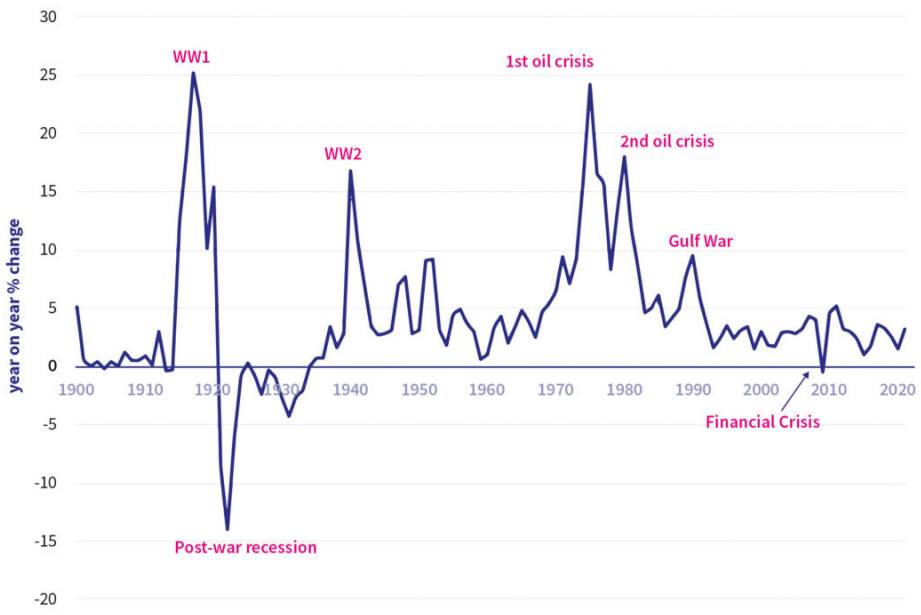

Figure 2
Annual Percentage Change in the Retail Price Index (1900 – 2021)
Source: Data from the ONS[37]

In the longer term, the sustainability of the public debt tends to be driven by the difference between the rate of return (r) on 'safe' assets like government debt and the rate of economic growth (g) in the economy.[38] When r is consistently greater than g, debt servicing costs are rising and the debt-to-GDP ratio tends to escalate. When r is less than g, debt servicing costs remain manageable and the debt-to-GDP ratio (eventually) stabilises. A Bank of England paper recently undertook a fascinating calculation of the historical value of r – g over the course of more than seven centuries (*Figure 3*) and concluded that there is what they called a 'supra-secular' declining trend in r – g in which r has been less than g (on trend) for almost a century.

If this trend continues to hold, it suggests that the public debt is on a sustainable course. But whether it continues or not, the fundamental point remains true. For as long as it is possible to control the interest rate on public debt, for instance by having the bank purchase the debt with central bank reserves, there is little risk of an uncontrollable rise in debt servicing costs. But to achieve this, as we shall see, requires careful attention to the framing of both fiscal and monetary policy.

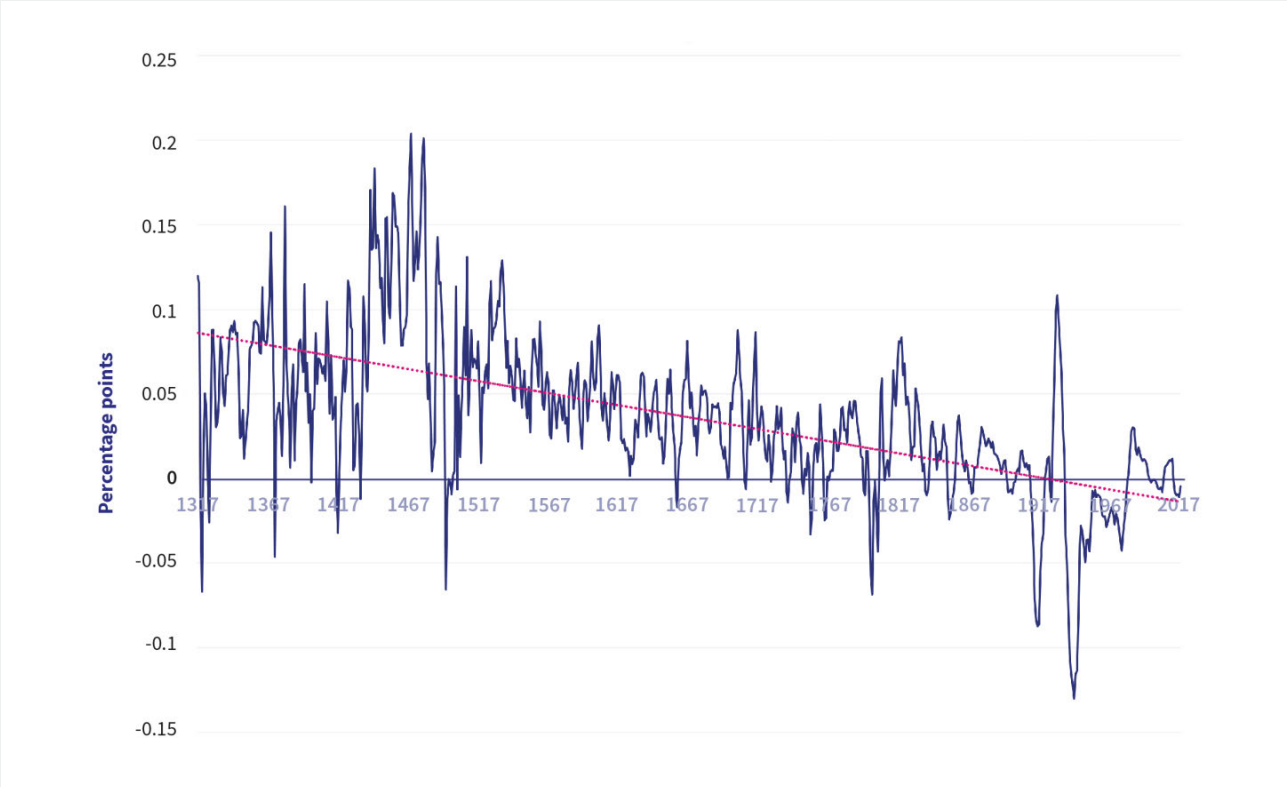

Figure 3
Very long term trend in r – g (1317-2018)
Source: data from the Bank of England[39]

The perils of not 'printing money'

The second pitfall to which the current incarnation of functional finance is exposed is a curious one. It has to do with the way in which central bank money creation is implemented.

Almost all of the QE in which the Bank of England has engaged in since 2008 has been achieved by purchasing existing assets (government and corporate bonds) on secondary markets in exchange for central bank reserves. This process has several theoretical advantages. Reserves are risk-free assets, whose ownership by financial institutions can sometimes be preferable to riskier loans. The increased supply of central bank reserves drives down the overnight lending rate and lowers the cost of borrowing throughout the economy. By soaking up bonds from the secondary market, QE ensures that primary bond issues are oversubscribed driving down the long term yield and the costs of public sector borrowing.

It looks like a win all round. At the time of the financial crisis, banks were generally very happy with this exchange. In improving their balance sheets they also improved their share prices—and indeed their remuneration packages—in ways that might otherwise have been impossible.

But there are also very clear dangers here, as a recent House of Lords inquiry has pointed out. In its current incarnations QE 'is reliant on a series of transmission mechanisms that operate primarily in and through financial markets', concluded the Economics Affairs Committee.[40] The impacts of these mechanisms on the borrowing costs, liquidity and solvency of banks may be clear enough. But the inquiry was sceptical about the longer-term impacts on the real (non-financial) economy. It was particularly troubled by the evidence that QE has increased wealth inequalities over the years that it has been operating. Wealth inequalities are higher in the UK than income inequalities and have been rising since the financial crisis.[41]

One of the declared aims of QE is to push up asset prices, improving the balance sheets of both financial and non-financial institutions. In a world in which the distribution of assets were perfectly equal, this would not matter. We do not live in such a world. Inflating or even underpinning asset prices in a world where the livelihoods of ordinary workers are threatened has the potential for perverse outcomes. The Economic Affairs Committee argued that the 'mechanisms through which quantitative easing effectively stabilised the financial system following the global financial crisis have benefited wealthy asset holders disproportionately by artificially inflating asset prices'.[42]

Underlying this problem is something surprising. The mechanism through which the Bank engages in monetary operations is, generally speaking, through the creation of central bank reserves. But reserves are a particular kind of currency held only by 'depository institutions' (banks). Today, as a result of this process, banks are often holding more assets than needed

to maintain liquidity or meet capital adequacy requirements. But more importantly the mechanism itself militates against a transfer of resources to ordinary citizens or to smaller non-financial corporations.

Could it be otherwise? Is it possible to devise interventions by the central bank that put real cash in the hands of small-scale enterprise and households, without further risking greater inequality? The answer is clearly yes. Indeed some creative innovations along those lines were also introduced during the pandemic. One obvious way would be to actually print money and distribute that money to households. 'Helicopter money' in the more traditional sense. Another less cumbersome approach would be to allow citizens to hold accounts at the central bank – an idea that has had some surprising advocates. In 2018, *The Economist* wrote in favour of the idea, arguing that it could improve both consumer welfare and macroeconomic policy.[43]

> A return to a punitive austerity driven by outdated and rigid forms of monetary and fiscal policy would be disastrous.

The euphemism that QE involves 'printing money' draws its imagery from a time when the central bank increased the money supply by literally printing notes and minting coins. Notes and coins are a means of exchange right across society. Central bank reserves are not. The nature of this mechanism increases the risk of inequality. The perils of 'not printing money' may be larger than the perils of 'printing money'.

A call for 'Flexible Finance'

This briefing paper has explored the evidence and arguments surrounding the debt controversy that has haunted macroeconomic for decades and is critical in navigating the challenges of investing in a just transition to a net zero economy on a timescale short enough to maintain a decent chance of remaining within 1.5 degrees of global warming.

We have identified two apparently contrasting positions characterised by orthodox economics (sound finance) on the one hand and by post-Keynesian economics (functional finance) on the other. A key claim from the latter is its assertion that a government which issues its own sovereign currency can never 'run out of money'. We find in favour of that claim. But we also acknowledge that challenges exist both in avoiding inflationary pressures that might drive up the servicing costs of government debt and also in the particular form through which 'money creation' takes place in 'modern' QE schemes.

Mechanisms could clearly be designed to mitigate both of these dangers. Achieving that is going to rely on clear-sighted, innovative and flexible macroeconomic policy in the next few years as the government navigates the combined challenges of climate change, social inequality and macroeconomic stability.

Going beyond the currently heated debates about MMT is an important element in that process. Functional finance may appear to offer a radical departure from sound finance. It has certainly proved to be vociferous opponent of the dangerous drift towards austerity at a time when it is entirely unnecessary and counterproductive not only in macroeconomic terms but in delivering essential environmental and social goals.

But there is also a sense in which the difference between the two approaches is not so profound after all. In fact, two economists from the Institute for New Economic Thinking, Arjun Jayadev and J W Mason, have put forward an intriguing argument that the main point of distinction between the two approaches can be thought of as 'a different assignment of the two instruments of fiscal position and interest rate to the two targets of price stability and debt stability.'[44]

Sound finance allocates the task of maintaining debt stability to fiscal policy, placing on Treasury the responsibility to control the deficit so that debts don't spiral out of control. Price stability is the mandate of the central bank, who attempt to achieve it by manipulating the interest rate. Functional finance argues that restricting government's ability to spend is unnecessary and counterproductive. It allocates to monetary policy the task of managing debt sustainability (by keeping the interest rate low) and to fiscal policy the task of price stability (by paying attention to the inflationary potential of government spending).[45]

Our principal call here is for a greater degree of flexibility in the use of both monetary and fiscal policy and for better coordination between them. That flexibility should extend not only to the appropriate allocation of the respective targets of price stability and debt sustainability, but also to the precise mandates of the institutions involved in delivering those targets and the mechanisms through which they are achieved. In particular, these targets, mechanisms and mandates cannot be divorced from the urgency of meeting the environmental and social goals ahead.

One thing is clear. A return to a punitive austerity driven by outdated and rigid forms of monetary and fiscal policy would be disastrous right now. Ideological claims to prior authority cannot possibly guide us through the complexity of the challenges we are facing in the post-pandemic era.

Notes

1 OBR 2021. Fiscal Risks Report, p3. Office for Budgetary Responsibility. Online at: **https://obr.uk/frr/fiscal-risks-report-july-2021/**.
2 Ibid, p32.
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6 ONS 2021. Consumer Price Inflation UK, August 2021. Online at: **https://www.ons.gov.uk/economy/inflationandpriceindices/bulletins/consumerpriceinflation/august2021**.
7 Financial Times 2021. Investors crank up best on UK interest rate rises. Online at: **https://www.ft.com/content/1c0d0da5-2db8-4ec2-a577-0542317426c3**.
8 'Fiscal space' is defined by the IMF as 'the room in a government´s budget that allows it to provide resources for a desired purpose without jeopardizing the sustainability of its financial position or the stability of the economy'. See, eg: **https://www.imf.org/external/pubs/ft/fandd/2005/06/basics.htm**.
9 The gross external debt is that portion of the public debt which is held outside the country.
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$\Delta d = -s + d * [(r - g)/(1 + g)]$, where *d* is the debt-to-GDP ratio, s is the primary surplus as a share of GDP, *r* is the real interest rate on government liabilities and *g* is the real growth rate. See Jayadev and Mason 2018, op cit (Note 25).

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