Investment
Institute

Ninety One

Previously Investec
Asset Management

Dealing with the debt burden

Part of **The Great Shutdown and its medium-term effects** – a series from the Ninety One Investment Institute

April 2020

The fast view

Russell Silberston
Investment Strategist
– Macro-economic
and Policy Research

- The unprecedented policy action from governments globally to cushion the virus impact has led to significant extra debt being added to already high levels.
- The use of government debt in times of stress is not new, having been used extensively during times of war.
- If history repeats itself and households and corporations reduce consumption and increase savings, as they did in 2008, then governments will be forced to take up the slack – adding more to the debt burden.
- This debt will need to be repaid eventually. Money invested in government debt is diverting resources from other more productive activities. It will burden generations to come unless something is done.
- Most options to reduce this burden are unlikely, unpopular or unrealistic. But we believe financial repression – the capping of bond yields via central bank yield curve control, regulations that require the financial sector to hold more government bonds and keeping real yields negative – is the most likely outcome.
- Understanding why this is the case is a crucial part of our Investment Institute research, which we explore in this paper.

Introduction

As the world economy convulses from the effects of widespread restrictions on physical movement and everyday activity, many governments have stepped in to protect the labour market and working capital until economic normality begins to return. This, of course, is exactly the right response, but the increased spending raises questions over what happens to the debt incurred, especially as liabilities were already at high levels following the global financial crisis (GFC).

But it isn't just governments that face high debt; both corporate and household borrowing have also been increasing steadily in recent years, buoyed by historically low interest rates.

In this paper we set out our thoughts on the consequences of this debt build up and suggest some ways to deal with it in the years ahead.

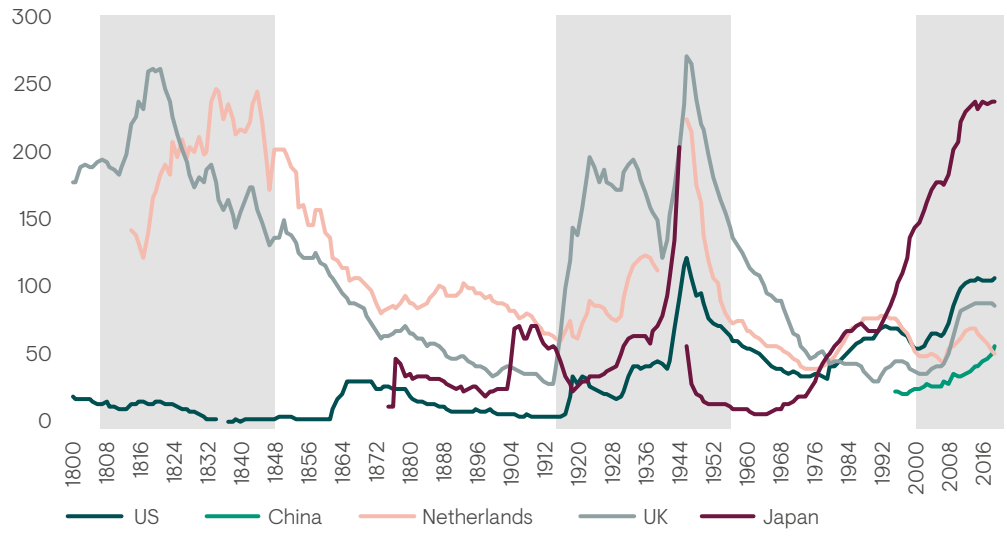
There's nothing new about debt

Corporate and household debt has a long history. The earliest recorded reference to debt was around the year 1800 BCE when Hammurabi, a Babylonian king, set out a number of laws governing the expected behaviour of his subjects, one of which managed the relation between debtor and creditor. With interest rates ranging between 33 1/3% for grain loans and 20% for silver loans, a wide range of collateral could be posted, with any movable object – including wives and children being eligible. Hammurabi's capping of interest rates is a theme that is repeated throughout history and has its contemporary equivalent in the Bank of Japan's current practice of yield curve control.

Government debt in the modern sense has its roots in medieval Italy, where wealthy citizens were forced to make loans to the city states, often for defence. In Venice, where state loans were recorded as early as the twelfth century, each lender received a share of the debt, the price of which was often quoted. While the loans were perpetuals, interest was paid at 5% and it was within the power of the state to redeem the debt from time to time.

This use of government debt to fund wars is another theme repeated through history, with the majority of the peaks in Figure 1 associated with major conflicts.

Figure 1: When conflicts occur, debt to GDP soars



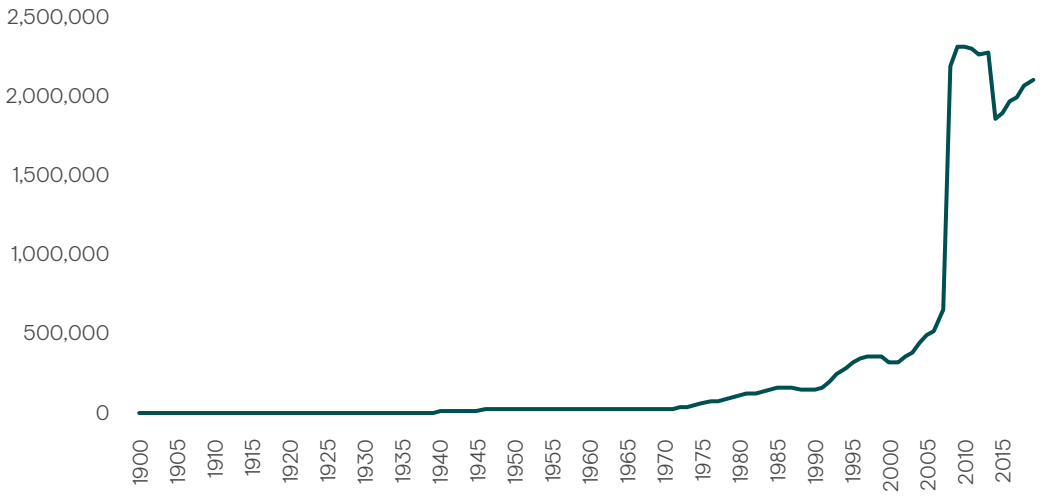
Source: IMF datamapper.

The UK, for example, saw huge spikes in debt associated with the Napoleonic Wars, the First World War and the Second World War. The Netherlands, as a proxy for the eurozone, also saw a huge debt surge in WWII and an earlier one associated with the Belgian Revolution. The debt Japan accumulated during WWII stood at 200% of GDP but the government defaulted on its own citizens, imposing a 100% war indemnity special tax at the same time as the Bank of Japan printing huge amounts of bank notes. By the time GDP could be recorded again, debt to GDP stood at 56%. This was the last time an advanced economy defaulted on its debt in such a drastic fashion. Japanese government debt now stands well above the levels reached at the height of the conflict.

In cash terms, debt really took off when the supply of money was unshackled, with President Nixon's decision to break the US dollar's link to gold in 1971, heralding the era of fiat currency. This act, coupled with widespread financialisation saw an explosion in debt across the household, corporate and government sectors, facilitated by a newly empowered financial sector.

The scale of this can be illustrated by the growth in the nominal value of UK public debt, which grew by £35 billion between 1900 and 1971 and £2 trillion between 1971 and 2019.

Figure 2: Growth in nominal value of UK public debt (£ millions)

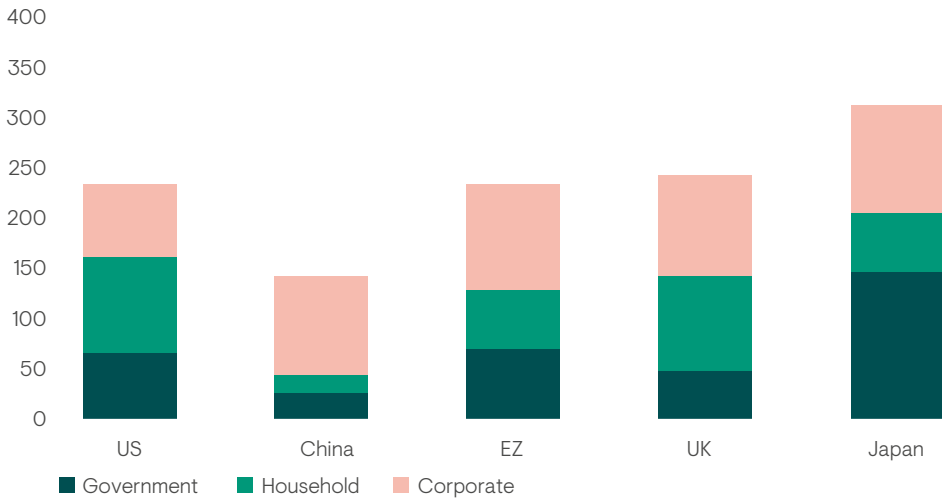


Source: Bank of England, Office for National Statistics.

The recent build up in debt and the additional burden of COVID-19

On the eve of the global financial crisis (GFC), the high levels of corporate and household debt in western economies reflected the long credit boom of the financial cycle upswing. This boom had started with financial liberalisation and a demographic tailwind from baby boomers moving through their life cycle. Government debt, on the other hand, was well contained, having been boosted by the tax receipts and high economic growth associated with the buoyant conditions.

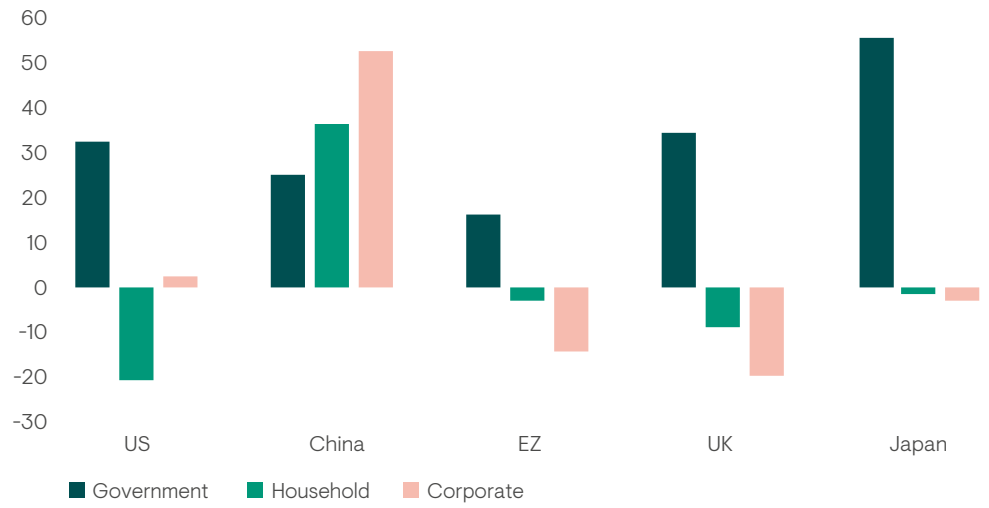
Figure 3: Debt as a percentage of GDP as at December 2008



Source: BIS & Ninety One calculations.

However, as the GFC tightened credit conditions and economies began to falter the paradox of thrift asserted itself; logically, it made sense for households and corporations to seek to reduce their borrowing and leverage through higher savings. But if they all did this at the same time, then economies would suffer long, drawn-out recessions as money was diverted from consumption and investment toward savings. Another way to think about this behaviour is that as the act of borrowing brings forward future consumption, it follows that when the good times are deemed to be over, consumers hunker down and retrench. Governments, of course, then step in to offset the worst effects of this by increasing spending through both fiscal packages and automatic stabilisers. The effects of this compositional shift are illustrated in Figure 4 where, outside China, household and corporate debt as a percent of GDP remained unchanged or lower in the 10+ years following the GFC but government debt grew much higher. China, however, chose to do things differently and unleashed an enormous stimulus package in order to keep growth on track with her targets, encouraging all sectors of the economy to leverage up.

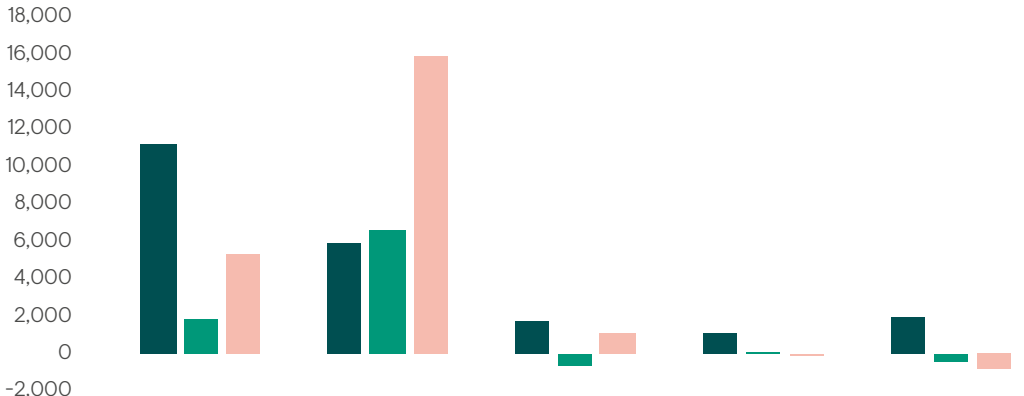
Figure 4: Change in nominal value of debt to GDP 2008-19



Source: BIS & Ninety One calculations.

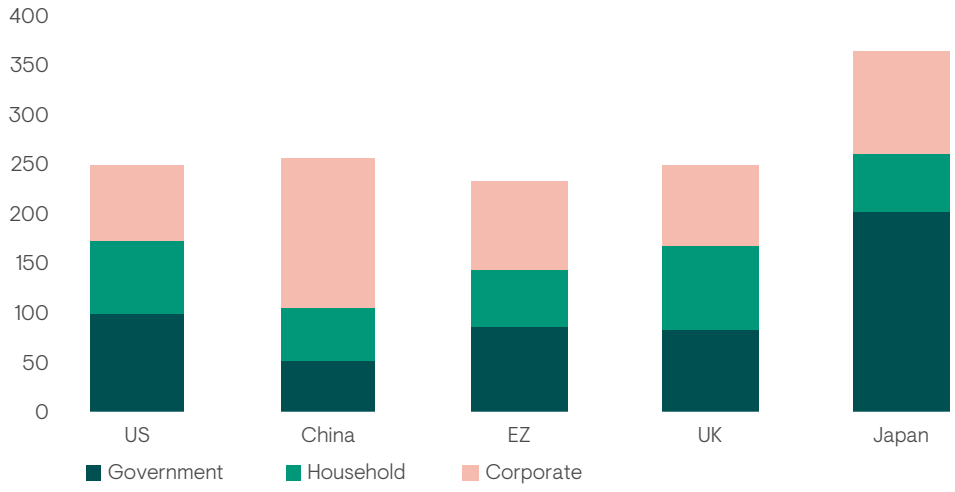
In nominal terms, China has increased borrowing by US$28 trillion, $10 trillion more than the US. The majority of this has been corporate borrowing, although given the structure of the Chinese economy, much of this will be state owned enterprises, so can also be considered a proxy for government borrowing.

Figure 5: Change in nominal value of debt 2008-19 (US$ billions)



	US	China	EZ	UK	Japan
Government	11,200.3	5,872.8	1,744.0	1,127.7	1,946.9
Household	1,850.6	6,571.2	-675.8	112.2	-442.2
Corporate	5,297.6	15,906.0	1,112.5	-150.7	-785.2

Figure 6: Outstanding debt as at September 2019 (% of GDP)



Source Figure 5 &6: BIS & Ninety One calculations.

As the COVID-19 crisis was establishing itself, outstanding debt across the three principal sectors stood at between 230% and 360% in our five major economic blocs, with China modestly ahead of the US at 257%. In response to the enormous economic downdraught that the widespread shutdowns will cause, governments and policymakers have reacted quickly and aggressively in order to maintain the integrity of financial markets, working capital and the labour market. However, this will cause government debt to rise even further, with the latest IMF Fiscal Monitor projecting large rises in government debt over the coming year. The extent of these increases can be seen in Table 1.

Table 1: Gross government debt to GDP (%)

	2018	2019	2020	2021
US	106.9	109.0	131.1	131.9
China	49.1	54.4	64.9	70.1
Eurozone	85.9	84.1	97.4	95.6
UK	85.7	85.4	95.7	95.8
Japan	236.5	237.4	251.9	247.6

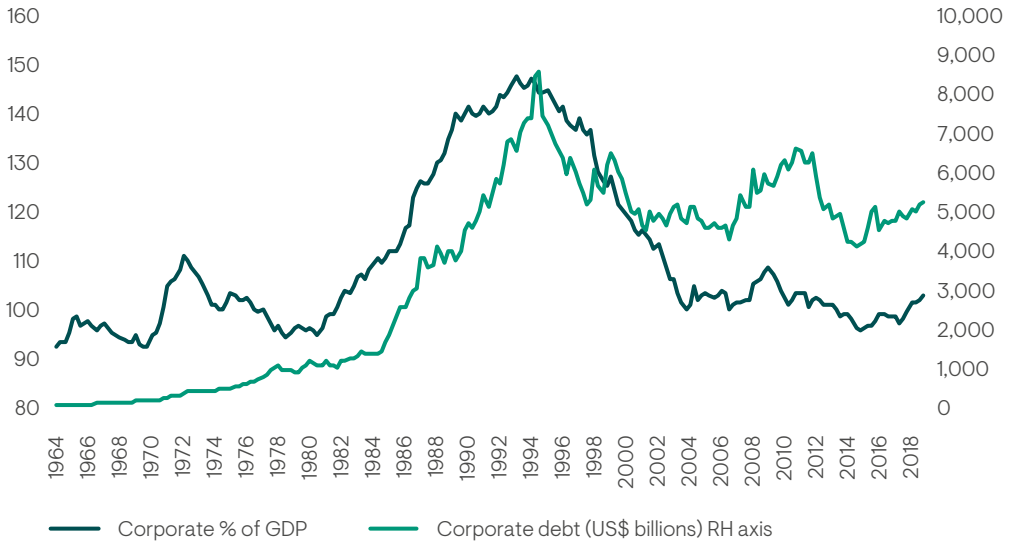
Source: IMF Fiscal Monitor, April 2020.

In his wide-ranging survey of debt and the nature of money 'Paper Promises,' journalist and author Philip Coggan described an age-old battle between creditors and debtors, where "the former want to be paid back with interest in sound money" but "in times of crisis, the debtors cannot afford to do so." Coggan was writing in the aftermath of the GFC, but, as we have seen, since then debt has risen even further. Now, with COVID-19 devasting government balance sheets, that battle is going to be at the forefront of investors' minds.

Does it matter?

For household and corporate borrowers, the danger is that the paradox of thrift reasserts itself yet again, and so corporate treasurers and families decide to de-leverage and build up savings. Japan is a classic example of this, and as detailed in his study of Japanese corporate behaviour 'The Holy Grail of Macroeconomics' Richard Koo notes that a large external shock can change behaviour drastically, monetary policy becomes ineffective and the sole focus of Chief Financial Officers is balance sheet repair and ultimately corporate survival.

Figure 7: Japanese corporate debt



Source: BIS & Ninety One calculations.

Remarkably, twenty four years after the peak of Japanese company borrowing, in nominal terms it remains 38% lower despite having been accelerating moderately again in recent years. Expressed as a percentage of GDP, it remains at levels last seen in the late 1970s.

It is far too soon to determine if other major economies see a similar reaction to their debt piles and much will depend on the assets that sit on the other side of the balance sheet from the liability. In the United States, for example, much of the borrowing has gone to fund share buybacks and merger and acquisitions. It seems reasonable to argue that we are reaching the end of the trend to ever-higher corporate leverage from a number of vantage points ; interest rates are at or nearing likely lower bounds, leverage levels and even interest cover for a broad swath of US companies are already at historically unsustainable levels; and there is increasing discomfort with the role financial engineering as such an important source of growth and shareholder returns. This doesn't mean that US corporate leverage, for example, will follow the same path that we have seen in Japan, but even a flattening of that trend would mark a substantial shift relative to the last ten years.

Another difference from the Japanese experience is the growth of intangible assets relative to tangible ones. The US really stands out relative to history and to other markets as tangible assets now make up less than 30% of the book value, making it particularly vulnerable to a reassessment of the value of those intangible assets – especially 'goodwill,' which would normally see some impairment over the course of a recession. Other intangibles such as patents, trademarks, capitalised research and development (R&D) and deferred tax assets also display a greater degree of subjectivity than the value of tangible assets.

However, the key lesson from Koo's work is that behaviour can change quickly, and the scale of the economic downturn is certainly dramatic enough to prompt such a change. The optimistic view is that the situation in Japan may well have been unique given the scale of the drawdown in asset prices against which much of the borrowing was secured and other central banks have learnt from Japan's mistakes by supporting asset prices. The level of existing corporate debt to GDP is detailed in Table 2, which sets out the existing nominal value of outstanding credit to non-financial corporations as a percent of their GDP and compares to the peak levels experienced over the history of the Bank for International Settlements dataset.

Table 2: Nominal value of outstanding credit to non-financial corporations

	% of GDP	% at peak	Date
US	75.3	75.3	Sep-19
China	150.4	162.0	Mar-16
Eurozone	89.4	106.6	Jun-10
UK	81.5	101.2	Dec-08
Japan	102.9	147.6	Dec-93

Source: BIS, as at September 2019.

In aggregate, households are in a much better place with debt being modest compared to assets. But the distribution of these is very uneven with many households having only limited savings. The shock of COVID-19, and the speed with which it has changed behaviour and activity, suggest a precautionary build up in savings is inevitable as families make themselves more resilient to future shocks.

That leaves governments to take up the slack, both through stimulus plans and automatic stabilisers. And it is not at all clear if the size of this debt matters, as the nature of government debt is radically different to corporate or household debt. Governments have only limited physical assets on their balance sheets, and as such their debt can be thought of as a tax on current and future taxpayers. Those championing Modern Monetary Theory, for example, do not believe there are constraints on the borrowing ability of a country that prints its own currency as default is impossible, and taxes are only used to slow inflation. MMT was described by The Economist as "like watching a football match with friends who insist the ball remains stationary while every other element in the game, including the pitch and goalposts, moves around it." Or more succinctly, "spending is the accelerator, taxation the brakes." Others, however, believe that excessive government borrowing can crowd out the public sector. In their paper, 'Growth in a Time of Debt', economists Carmen Reinhart and Ken Rogoff illustrated that historically when government debt rises above 90% of GDP, economic growth becomes much harder, raising the prospect of default.[1] However, their study covered the period from 1946 to 2009, an era when real and nominal interest rates were much higher. With nominal interest rates at or below zero, the cost of funding debt is minimal, and so is no obvious constraint on borrowing.

If we assume that debt has to be repaid, or at the very least refinanced, then it does matter. Money invested in government debt is diverting resources from other, potentially more productive activities and at the very minimum, we are burdening our children and their children with a liability. In other words, doing nothing does not seem feasible over any reasonable time frame.

—

1. Reinhart, C., Rogoff, K., "Growth in a Time of Debt", National Bureau of Economic Research Working Paper 15639, December 2011.

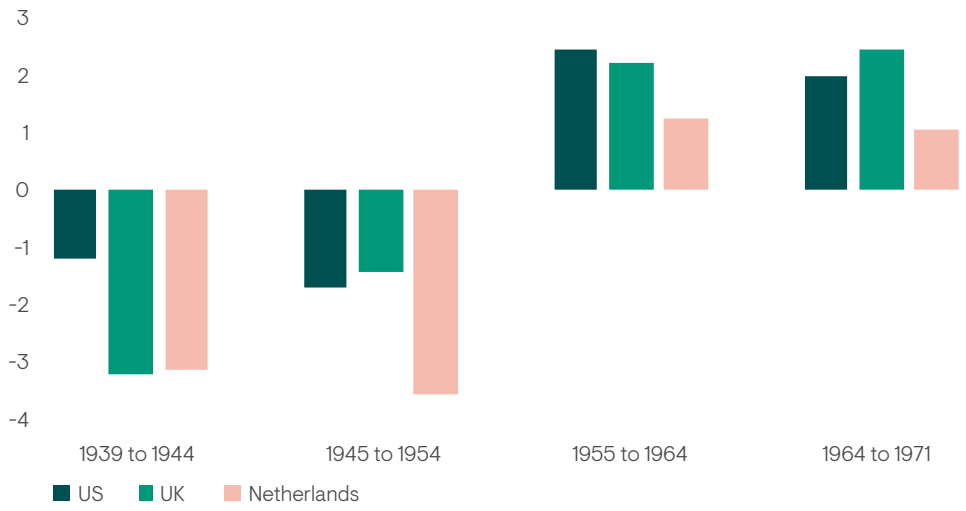
If this is the case, what are the options for reducing that burden in the years ahead?

1 Financial repression

Financial repression can be defined as government policies that channel funds to themselves at below market yielding rates that, in a deregulated market environment, would go elsewhere. It typically lacks transparency and historically has been very successful at reducing debt burdens when accompanied by inflation. Politically, repression is the least painful way to reduce debt and so seems highly likely to be pursued, as indeed it has in recent years. It is a great example of Coggan's battle between creditor and debtor.

In the aftermath of WWII, and as illustrated in Figure 1, several major economies had enormous debt burdens. It was also the dawn of a new International Monetary and Financial System that was conceived at Breton Woods, based around the US dollar but with fixed exchange rates and limited capital flows between countries. Nominal interest rates were low and savings were largely stuck at home. Investors had little choice, therefore, other than to buy government debt. As can clearly be seen in Figure 8, in real terms, interest rates were kept at negative levels throughout the war and for the following ten years. Initially, this was implemented by pegging long rates, most famously by the Federal Reserve, an arrangement that lasted until 1951 . It was only once these restrictions were lifted that market rates began to rise, but even then, real rates were lower than GDP growth, such that the real burden of government debt eroded through time.

Figure 8: Real bond yields, 1939 to 1971 (%)



Source: IMF and Ninety One calculations.

It seems inevitable that repression will be utilised again to aid fund government debt burdens, most likely through regulation or central bank operations aimed at pegging interest rates.

One of the post-GFC regulations imposed on the banking sector was the requirement to hold much higher levels of high-quality liquid assets, which largely consists of short-dated government debt.

Another possible tool to impose repression is yield curve control (YCC), a concept we now know to be thousands of years old. In its more modern form, and as just noted, it was implemented by the Federal Reserve during WWII, when the board imposed a cap of 2.5% on long bonds while maintaining the Federal Funds rate at 0.5%. The Bank of Japan has also been implementing YCC since 2016, when they targeted a yield of 0.0% on 10-year government debt, with a band of +/- 10 basis points, and widening this band to +/- 20 basis points in 2018. The Federal Reserve has been discussing capping shorter-term interest rates – interpreted to be two years – in recent months, and it seems inevitable that with interest rates already at zero, and quantitative easing implemented in massive scale, the next step will be to peg longer-term interest rates rather than the usual overnight rate. This will have the effect of forcing investors further along the yield curve in a search for yield at a time when the supply of bonds will be increasing dramatically.

2 Inflation

Debasing the value of debt through inflation is another ancient tactic. In 400 BCE, Dionysius of Syracuse recalled all currency in circulation, and doubled the face value by simply stamping a one drachma coin with the symbol for two drachmae. In the UK, The Great Debasement between the years 1544-51 saw King Henry VIII, who was faced with funding wars in France and Scotland, reduce the bullion content in coinage on numerous occasions. In the process silver content in coins fell from 92.5% to 25%.

When quantitative easing was used widely during the GFC, many market participants and commentators feared the same outcome as Dionysius inevitably triggered. But the feared rise in general prices, as represented by the basket of goods and services that make up a consumer price index never happened. However, it clearly inflated asset prices as the interest rate risk taken out of the market by the quantitative easing found its way to other higher-yielding and riskier assets via the portfolio rebalancing channel.

Quite why inflation is so suppressed is hotly debated but centres around two broad arguments. Firstly, there is an excess of saving over investment and this coupled with ageing populations leads to low growth, interest rates and inflation. The second variant focuses on ‘the stars’, or the natural level of unemployment (u*), interest rates (r*), and the inflation objective (π*). Where u* is above the trend rate of growth, inflation will fall, and when it is above, it will rise. Unfortunately, and as expressed by Chair Powell of the Federal Reserve in 2018, navigating by the stars is difficult, largely as nobody actually knows the value of any of the variables.

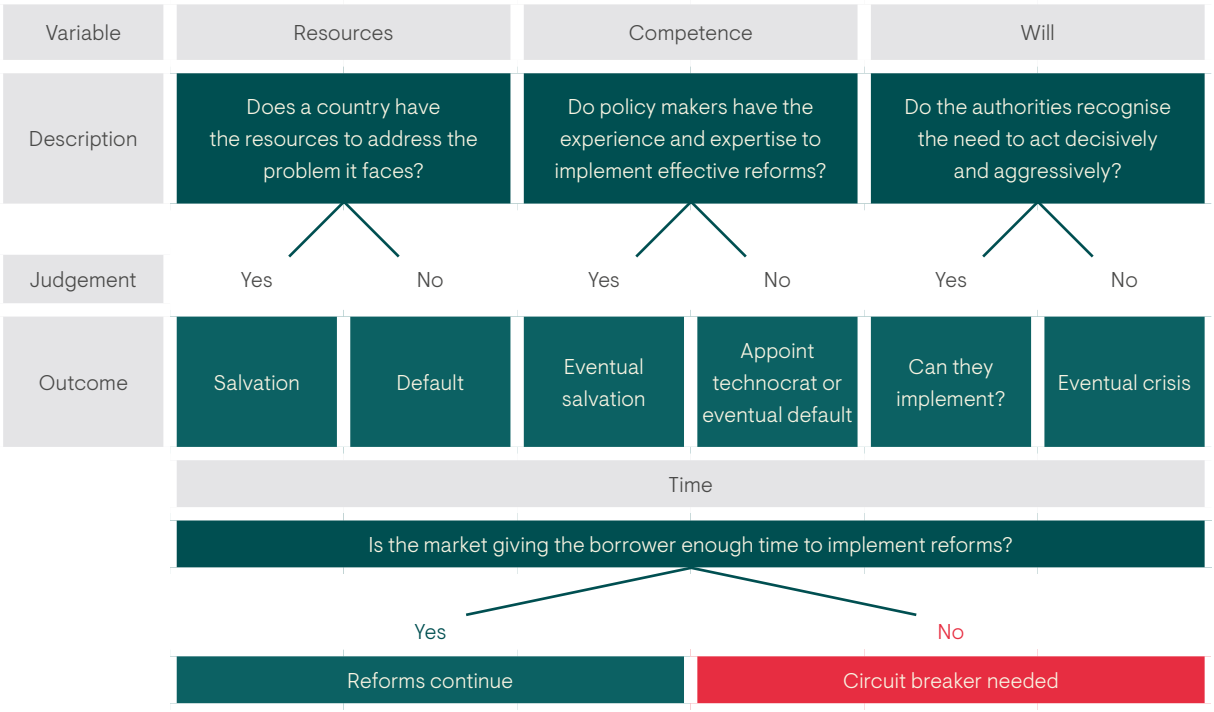
Despite being heavily tortured by academic economists, the Phillips Curve remains elusive. In a revealing speech in 2019, the Chief Economist at the European Central Bank (ECB) gave a speech titled ‘The Phillips Curve at the ECB’ in which he showed “the average contributions across 600 models with different permutations of external price, economic slack and expectations measures.” Remarkably, the dominant factor by a significant margin was “unexplained.” Kristin Forbes, ex Bank of England MPC member and now at MIT believes the missing link is globalisation, which manifests itself in the price setting process through “increased trade flows, a greater heft of emerging markets, and increased use of supply chains.” This affects “how companies make pricing decisions and how effectively workers can bargain for higher wages.”

With so little clarity over the inflation process, it is hard to determine how higher inflation can be generated by policymakers in order to erode the value of debt . Or perhaps more accurately, the decision to follow in Dionysius’s steps is within the power of policymakers, and it is very likely to work, but it is a political decision that none want to take. With saving likely to increase in the months ahead, it seems unlikely that central bank-induced inflation will suddenly reappear.

3 Default

Reinhart and Rogoff's 'This Time is Different' taught us that default by sovereign borrowers has long been used to erode the value of debt and there will inevitably be incidences in future where it happens again. Those who believe in MMT do have one thing right, namely a country that is able to print its own currency cannot default on domestic debt. But tell that to the savers of Zimbabwe. Strictly speaking, the debt is repaid, but in worthless currency. Another version of this was seen in the eurozone crisis, where Greek debt was swept under the carpet by 'extending and pretending;' rescheduling debt with a much longer maturity, and thus leaving the problem for future generations to resolve.

An interesting framework to consider whether a country will default was developed by Nobel Laureate, Michael Spence at the height of the eurozone crisis in which he looked at a borrower through the lens of its resources, competence and willingness to act.



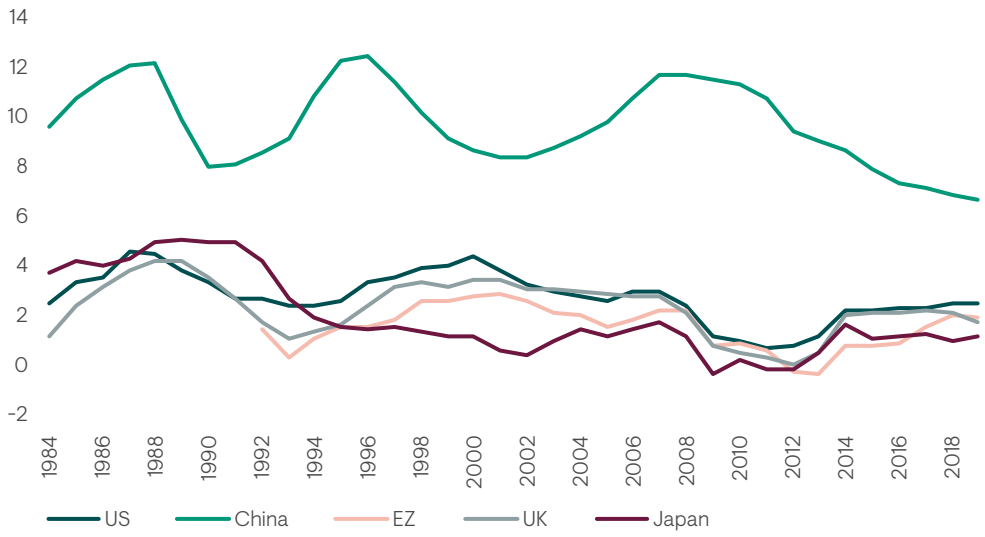
Source: www.project-syndicate.org/commentary/spence29/English & Ninety One.

This framework still holds true today, and while debt is being built up to eye-popping levels, default should be considered the absolute last resort.

4 Growth

The ideal outcome in dealing with the debt would be inclusive and sustainable economic growth. But, unless the world economy is on the verge of a widespread productivity boost, the best we can hope for is reversion to the lacklustre trends that prevailed before trade wars and COVID-19, as proxied by the rolling 5-year average growth rate in Figure 9. Of course, different regions will have more favourable outlooks than others, with Asian consumption, for example, promising robust growth. On a global GDP weighted basis though, our major blocs comprise the vast majority of output, and it is hard to escape the conclusion that it will be difficult to grow our way out of this debt burden.

Figure 9: GDP growth on a rolling 5-year average (%)

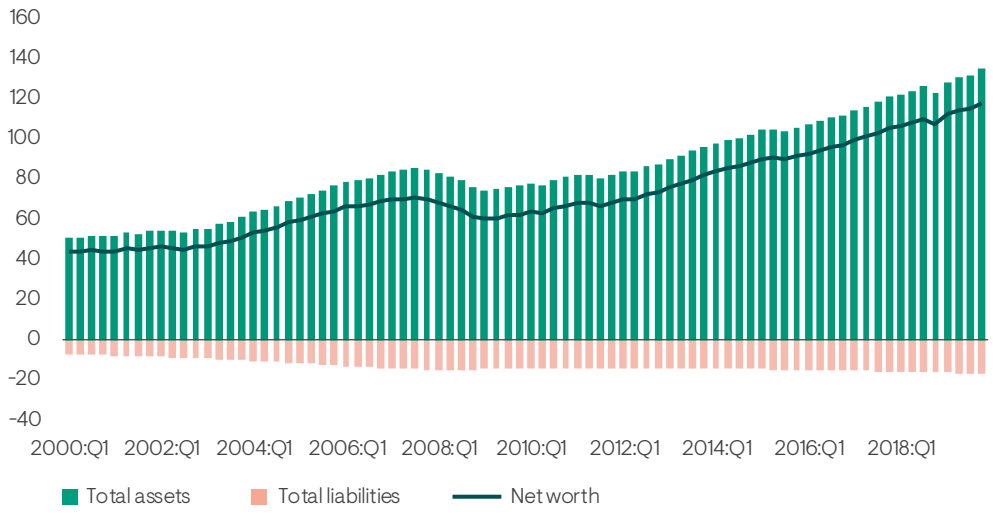


Source: IMF and Ninety One calculations.

5 Taxes

As set out earlier, government debt is special, with few assets standing behind the liability, other than an expected stream of taxes from future generations. However, those taxpayers themselves have assets, and in aggregate and at a macroeconomic level, the assets far outweigh their own liabilities.

Figure 10: Assets, liabilities and net worth (US$ trillions)



Source: US Federal Reserve.

In the United States, for example, the latest Financial Accounts of the United States showed that assets of households (and NPISHs) outweighed liabilities by a factor of 8:1 and with assets standing at US$135 trillion, their value outstrips the total debt of government, households and corporates by a fact of 2.5:1.

Clearly a potential source for the government to tap, but as with so many of the routes out of a debt hole, the decision is a political choice, and one that few dare try in modern times. However, it is worth recalling that before turning to The Great Debasement, Henry VIII dissolved and expropriated the wealth of the monasteries.

6 Reduce spending

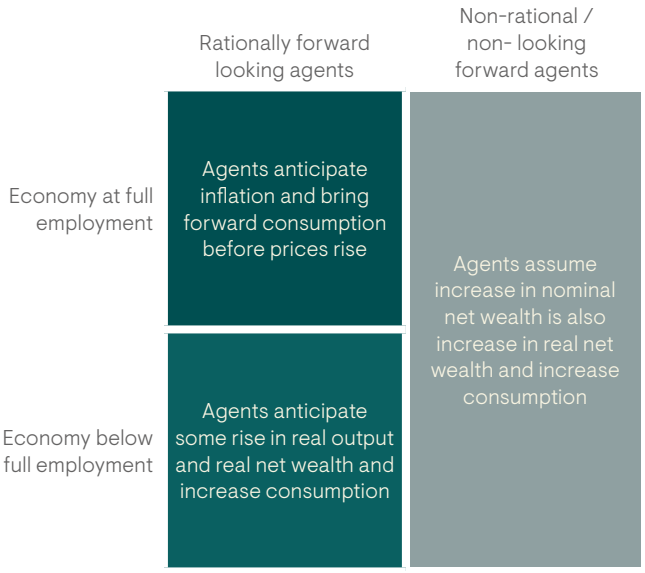
As Mr Micawber from Charles Dickins' David Copperfield observed, "Annual income twenty pounds, annual expenditure nineteen [pounds] nineteen [shillings] and six [pence], result happiness. Annual income twenty pounds, annual expenditure twenty pounds ought and six, result misery." Governments can slowly reduce their debt by running a primary budget surplus for a long time. Over time, with modest growth, their burden will dwindle. But in the aftermath of COVID-19, where it could be argued that the widely implemented austerity in the aftermath of the GFC was actually a false economy, government spending is going to be under massive pressure to rise, not fall. So while a potential solution on our list, in practice and over the medium term there will be no political appetite to implement it.

7 Funny Money

Drastic times call for drastic measures, and here we go down the rabbit hole. One such measure would simply be for central banks and national treasuries to write off the debt sitting on the former's balance sheet. The Bank of Japan, for example, owns close to 50% of Japan's ¥911,130 billion of bonds outstanding. Given the asset of the BoJ is a liability of the Ministry of Finance, why not simply cancel out the debt and so reduce the burden? The simple answer is that a massive hole is blown in the BoJ's balance sheet, with assets shrinking markedly yet liabilities remaining unchanged. In other words, they become insolvent and while there is no theoretical reason why the BoJ can't operate while deeply insolvent, the debt problem has not been fixed. In reality, of course, the MoF will never repay the BoJ, but for now the illusion remains and the money flows from one arm to the other, funded by the creation of fiat currency.

Monetary Financing of government debt is now a reality, at least in the UK where the Bank of England and HM Treasury recently agreed to use the government's overdraft at the Bank to fund immediate COVID-19 related spending. In practice, the Bank creates electronic reserves and credits the Treasury's account, which is then drawn down to fund immediate expenditure. Like any overdraft, the Treasury will seek to pay down their liability to the Bank as soon as possible. But while such emergency borrowing certainly makes sense in response to such a dramatic and sudden economic downturn, a Rubicon may have been crossed, and in the face of hard economic decisions in the months ahead, temptation may prevail. Interestingly, were the UK still an EU member, her actions would have been illegal under EU law.

Figure 11: Impact of increase in monetary finance on nominal demand

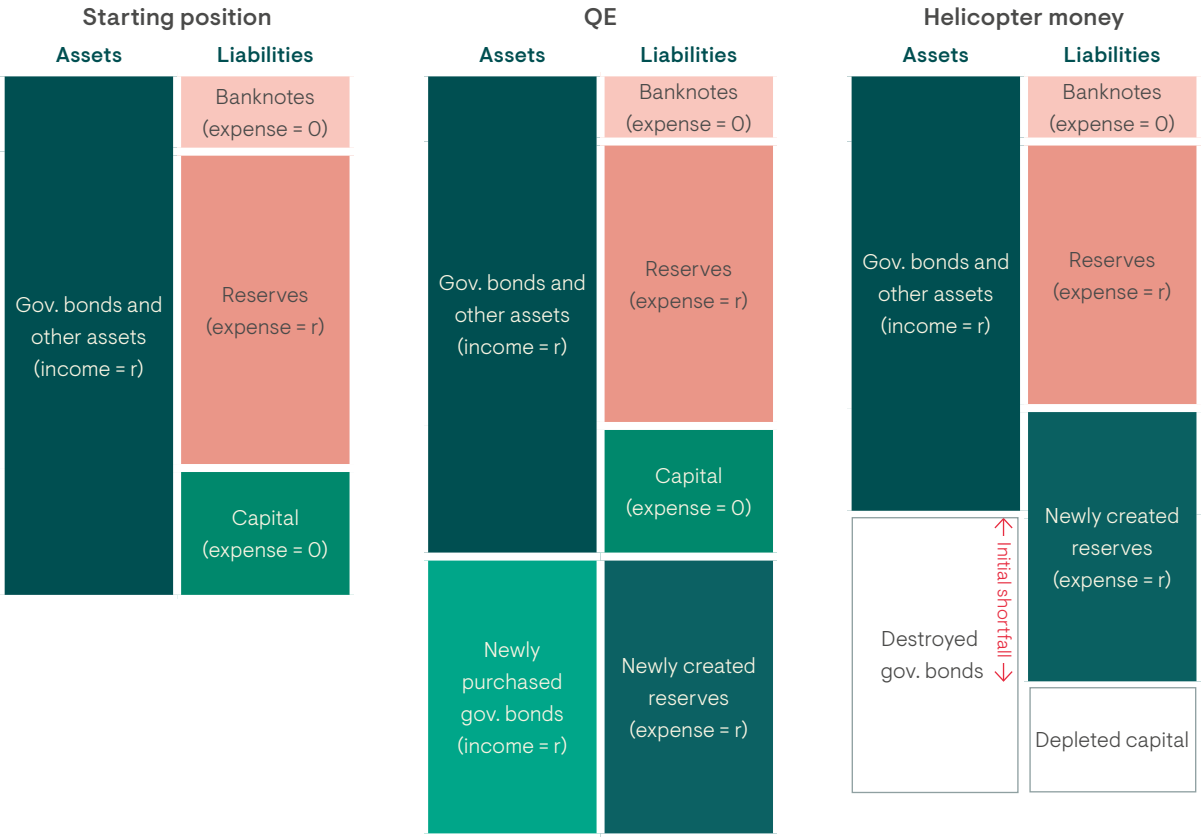


Source: The Case for Monetary Finance – An essentially political issue.

'Helicopter money' is the ultimate 'funny money' and is simply a political decision that few have been tempted to take. It might be surprisingly difficult to achieve in practice as to be successful it requires people to believe that the government and central bank want to relinquish control of future inflation. That probably requires designing commitment mechanisms that actually jeopardise future price stability for the sake of near-term stimulus. There can be little doubt, however, that it will boost consumption, and hence growth whether consumers are rational or not, as illustrated in a paper by Adair Turner.

Intriguingly, the Bank of England wrote about helicopter money back in 2015, comparing it to quantitative easing in a blog post on the excellent 'Bank Underground'. To be effective, it must be irredeemable; newly created money needs to be considered an asset for households or firms and not a liability of the central bank or government – this can be achieved by the central bank writing off the newly purchased government debt or credibly committing to roll it over indefinitely. Quantitative easing, in contrast, is considered to be reversible. They also illustrate the problem the BoJ and MoF face were they to write off the debt, as set out above, which is that the central bank is effectively insolvent unless the new bonds are 'zero coupon perpetuals'.

Figure 12: Balance sheets under different mechanisms



Source: Bank Underground, Helicopter money, setting the tale straight, August 2015.

Conclusion

In Paper Promises, Philip Coggan opens the book by stating that ‘the massive debts accumulated over the last forty years can’t be paid in full, and they won’t be paid.’ Since it was published in 2011, debt across our three principal sectors and major economic blocs has increased by another $35 trillion and is expected to increase substantially more in response to the huge economic dislocation caused by COVID-19 .

Perhaps we can keep the plates spinning for a few more years, but the lesson from history, starting with Dionysius of Syracuse 2400 years ago is that in the battle between debtor and creditor, in the case of governments, the debtor usually wins. The root down this path is hard to determine, with only economic growth or widespread wealth taxes being favourable outcomes from a debt holders’ perspective. All other routes lead to debasement in one form or another.

Dealing with the debt burden

1 Financial repression
Highly likely

2 Inflation
Can’t see how

3 Default
Very unlikely

4 Growth
Difficult to see

5 Taxes
Few will dare

6 Reduce spending
Not much appetite

7 Funny Money
Requires political will

For further information about Ninety One please contact us:

Australia
Level 28 Suite 3, Chifley Tower
2 Chifley Square
Sydney, NSW 2000
Telephone: +61 2 9160 8400
australia@ninetyone.com

Botswana
Plot 64511, Unit 5
Fairgrounds, Gaborone
Telephone: +267 318 0112
botswanaclientservice@ninetyone.com

Channel Islands
PO Box 250, St Peter Port
Guernsey, GY1 3QH
Telephone: +44 (0)1481 710 404
enquiries@ninetyone.com

Germany
Bockenheimer Landstraße 23
60325 Frankfurt am Main
Telephone: +49 (0)69 7158 5900
deutschland@ninetyone.com

Hong Kong
Suites 3609-3614, 36/F
Two International Finance Centre
8 Finance Street, Central
Telephone: +852 2861 6888
hongkong@ninetyone.com

Italy
Palazzo Toschi Corneliani
Corso Venezia 44
20121, Milan
Telephone: +39 02 3658 1590
enquiries@ninetyone.com

Luxembourg
2-4, Avenue Marie-Thérèse
L-2132 Luxembourg
Telephone: +352 28 12 77 20
enquiries@ninetyone.com

Namibia
First Floor, 6 Thorer Street
Windhoek
Telephone: +264 (61) 389 500
namibia@ninetyone.com

Singapore
25 Duxton Hill #03-01
Singapore 089608
Telephone: +65 6653 5550
singapore@ninetyone.com

South Africa
36 Hans Strijdom Avenue
Foreshore, Cape Town 8001
Telephone: +27 (0)21 901 1000
enquiries@ninetyone.com

Sweden
Grev Turegatan 3,
114 46, Stockholm
Telephone: +46 709 550 449
enquiries@ninetyone.com

Switzerland
Seefeldstrasse 69
8008 Zurich
Telephone: +41 44 262 00 44
enquiries@ninetyone.com

United Kingdom
55 Gresham Street
London, EC2V 7EL
Telephone: +44 (0)20 3938 1900
enquiries@ninetyone.com

United States
666 5th Avenue, 37th Floor
New York, NY 10103
US Toll Free: +1 800 434 5623
usa@ninetyone.com

www.ninetyone.com
Telephone calls may be recorded for training, monitoring and regulatory purposes and to confirm investors' instructions.
For more details please visit
www.ninetyone.com/contactus

CS_23 04/2020