

How was the United States government able to borrow so much during the pandemic?

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Between the start and the end of 2020, the United States federal government increased its indebtedness by the staggering amount of \$4.5 trillions. (And, in the first 9 months of 2021, a further \$0.7 trillion have already been added). This led gross government debt to reach a record 134% of US GDP by the end of 2020, an all-time record that is well above the indebtedness at the end of the civil war or the world wars. How was this possible? How could the government borrow so much, especially when there are no plans to fix the hole in Social Security or to deal with the ever-rising costs of health care? Where were the “bond vigilantes” that previous Democratic administrations had complained about for putting the brakes on any spending plan? Why have the interest rates at which the government can borrow not shot up, but fell during this period? Was the government simply lucky during this time and is it actually about to face troubles in rolling over this debt, forcing a decade of austerity over Americans? Or is there no limit to how much the government can borrow, and 2020 proves that it is so?

This essay provides some answers to these questions. It is divided into four parts. First, it presents the long-run trends over the past twenty years that have allowed the government to borrow more. While the increase in debt in 2020 was sharp, the underlying features that allowed it to happen had been visible during the previous two decades. Second, it examines what was special about the time of the pandemic that made it easier for the government to borrow. The lockdown policies together with the actions of the Federal Reserve played a central role. Third, it discusses why there is a limit to how much the government can borrow, and what determines it. Finally, it asks what could lead that limit to tighten in the future, and how policies could mitigate the risk of a debt crisis.

The rise in public debt in the XXIst century

From the civil war until around 1980, the path of U.S. government debt followed a clear pattern. Sometimes, the government would have exceptional expenses, with wars being their most extreme version. Those expenses were sudden and unexpected, but they lasted a short time, and were paid for by borrowing. Then, for the decade (or more) that followed, the government would run primary surpluses, collecting more in tax revenues than it spent on purchases and transfers, while rolling over the public debt. This allowed it to pay the debt gradually, but

steadily. Plotting public debt over time revealed sharp increases followed by steady declines. Over the space of a few decades, the debt would remain approximately stable.¹

The buyer of a government bond faces two risks. First, that the State might choose to default on its commitment. Second, that the value of the currency in which the payment will be made might fall. The classic management of public debt, with large but short-lived deficits followed by persistent surpluses, ensured that default was very unlikely. After all, the government committed to generate the surpluses that backed the debt, and could easily point to the surpluses that it did run as proof of that commitment. In turn, the gold standard ensured that while inflation could be volatile, it was not persistent. A bondholder's payment would vary year to year but the real value of payments to those holding debt for many years was fairly stable. The US government had little trouble borrowing, and the limits to public debt were ultimately determined by the limits to the primary surpluses that the government could run.

Around the late 1960s, the nature of US government spending changed, and as a result so did the profile of debt over time, and the risks for bondholders. The changes probably started with the Great Society programs of Lyndon B. Johnson, which increased public involvement in saving for retirement, in alleviating poverty, and in paying for health services. The government budget became increasingly dominated by steady expenses that could not be reverted quickly. In the overall government budget, whereas before the major items were government purchases of goods and services often associated with defense and infrastructure, now it was government transfers to households that gradually became the dominant item. In the 1970s, the Great Inflation marked a break from the past as well. It persisted for many years, and when it was brought down in the 1980s, the increase in the price level was not reversed. Finally, in the 1980s, a third change materialized. During the Reagan presidency, public deficits were high mostly due to tax costs, not military spending. Moreover, the increase in public debt that they brought about only led to very modest public surpluses almost a decade later, during the Clinton administration, and those did not last long.²

As a result, at the start of this century, the dynamics of debt were different than in the past. Deficits were steady and growing. Debt kept on rising steadily. Public borrowing jumped upwards after a recession, as it did in 2001, or after a financial crisis as it did in 2007-09, but it did not decline steadily in the following years, as it had before. Forecasts of deficits for the next many decades became the norm. Failed attempts to reform Social Security, as well as the trend increase in health care prices, made it unlikely that the government would be able to cut spending on social transfers.

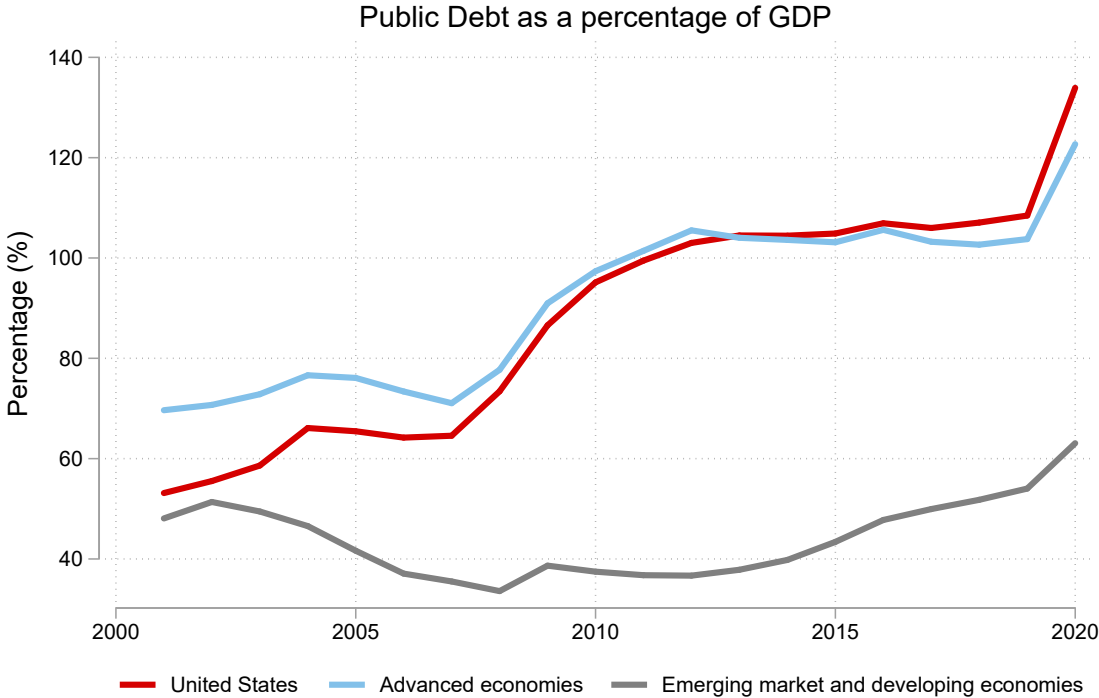
This phenomenon was not exclusive to the United States. In many other advanced economies, while with different timings, similar changes took place. Figure 1 shows the path of

¹ See Eichengreen, El-Ganainy, Esteves and Mitchener (2021) for the history around the world, and Hall and Sargent (2021) for the United States.

² See Yared (2019) on attempts to explain this change.

debt both for the United States, and for the group of advanced economies. Public debt grew, sometimes suddenly, and sometimes steadily, but almost always. Gone are the days where the public debt would steadily fall in between crises. Nowadays, in quiet times debt is stable or slightly grows, and in crises it jumps up. The jump of 2020 is noticeable in size, but it confirms the pattern of the past 20 years. Not shown in the figure are the numbers for 2021, which at the time of writing this essay are still not final for the year, but very likely will show a further increase in debt.

Figure 1.

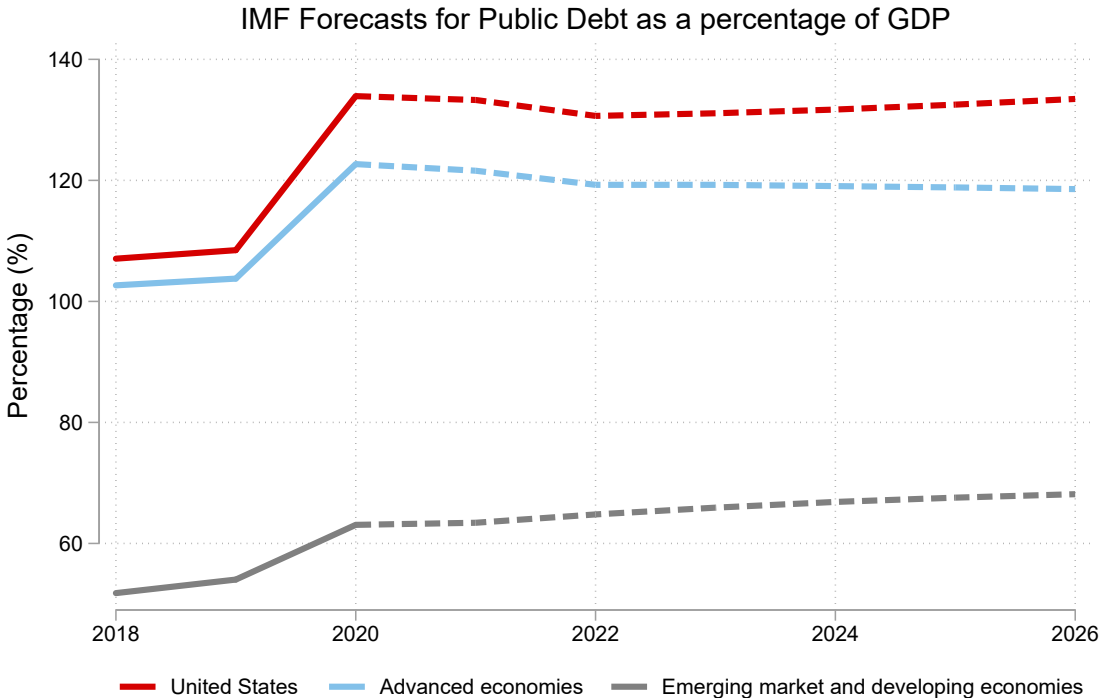


Source: The data comes from the International Monetary Funds’ World Economic Outlook dataset for the periods 2001 to 2020. The groups of advanced economies and emerging and developing economies include 40 and 156 economies, respectively, listed here: <https://www.imf.org/external/pubs/ft/weo/2021/02/weodata/groups.htm>

Figure 2 shows the International Monetary Fund’s forecasts for the evolution of public debt for the same two groups plus the United States over the next 5 years. These are forecasts conditional on no new shocks, that is: no wars, pandemics, recessions, or other motives for debt to jump up. They take the benign view of the next five years being the calm after the Covid-19 storm. All forecasts are imperfect, and these depend so much on political developments that they are particularly inaccurate. However, they are useful because they show the pattern of debt expected according to the fiscal regime that has prevailed over the last two decades.

Strikingly, the forecasts are for public debt to barely fall, even though it is starting off from record levels. If anything, these forecasts are more optimistic than those that come from the Congressional Budget Office or from the fiscal councils in the different advanced economies. Almost no country has announced any measures that would lead their public debt to fall. On the contrary, both in the European Union and the United States, current discussions revolve around which new spending programs should be adopted. In short, the old classic debt pattern is gone.³

Figure 2.



Source: Same as figure 1.

The unusual features of public borrowing during the pandemic

There are three important economic justifications for why public debt should rise in recessions.⁴ The first one is sometimes called the principle of tax smoothing. Tax rates over income, consumption, or investment are distortionary in that they discourage those activities. In a recession, when economic activity is already reduced, the government should not be

³ See Blanchard (2019) and Mehrotra and Sergeyev (2021).

⁴ See Abbas, Pienkowski, and Rogoff (2019) for a survey.

discouraging them any further. Therefore, tax rates should be kept relatively constant. Yet, as the tax base to which those rates apply has shrunk (after all, that is the definition of a recession), then tax revenues will fall. Likewise, transfers are distortionary so that by keeping their formulas fixed, more people become eligible for unemployment benefits, food stamps, or other social programs, so the total amount spent increases during recessions. Both combined imply that the deficit will rise during a recession, and with it the public debt.

The second reason dates to Keynes and is sometimes called counter-cyclical stabilization. In a recession, resources are often idle, since the productive capacity of the economy is above what the aggregate demand for goods and services may be. By running a deficit, the government is either raising the disposable income of people (via cutting their taxes or raising their transfers), which raises their demand for consumption goods; or it is increasing its own demand for goods and services through government purchases. This demand is met with production using those idle resources and stimulating the economy. Government deficits can help to reduce the amplitude of the recession and to speed up the recovery.

A third reason is the provision of social insurance, often called the work of the automatic stabilizers. For many reasons, many people are not adequately insured against idiosyncratic losses of income. Recessions are times when the risk of losing one's job or the risk of having a pay cut are higher. Fearful of these risks, households will react to the start of a recession by raising their savings, to increase their nest egg and brace against the storm with some funds if these risks materialize. However, this contraction in spending amplifies the recession by lowering the demand for goods and services. If the government provides an effective safety net, then during a recession it can provide social assistance, and it can give people the liquid means for them to remain connected to the labor force. This may be an effective way to make sure that the recession is short, and that it is not amplified by the individuals' fears to start with. These automatic stabilizers, like unemployment insurance and poverty payments, imply deficits during recessions.

The contraction in economic activity in the first half of 2020 was the sharpest in US history. As the Covid-19 virus spread, people self-isolated and governments imposed lockdowns. The result of a massive withdrawal of labor input from production was an unavoidable massive reduction in output produced. Locked at home, people spent less, produced less, and traded less with each other. With an unprecedentedly large recession, it is therefore no surprise that the deficit was especially large, and justifiably so.

All three of the conventional forces driving deficits were at work and were enhanced by the features of the pandemic recession. First, since lockdowns were expected to be temporary, businesses closed their doors and households stayed at home while hoping to resume in full force in a few months. Investments were delayed and projects re-scheduled, leading to a sharper contraction in the spring of 2022, as economic agents expected a strong recovery in the fall of the same year. Raising taxes in the spring would have deepened the recession by encouraging firms and households to put off work and production even more. Second, the lack of demand for goods

and services left many businesses without sales, even when they could have continued producing. By providing transfers to those businesses, or even buying some of their services, the government kept them afloat. This had the combined motivation of ensuring that some of their idle resources were used, and their productive capacity was preserved for when the economy would re-open. Third, the uncertainty at the start of the pandemic was very large. The savings rate out of disposable income rose sharply. Providing a safety net was especially important to prevent even further declines in spending, and the need for support was especially acute for households whose income abruptly fell to zero.

At the same time, this does not explain why governments were able to borrow so much. It only explains why they would have wished to borrow this much. An alternative way to put the right question is: How did the governments find so many investors willing to lend to them, and why did the interest rate that they were charged not rise during 2020?

Figure 3 places this challenge more starkly, by plotting across countries the increase in public deficit due to the pandemic against the level of public debt before the pandemic. One might expect that the larger the debt of a country, the less it was able to borrow after a large shock. In other words, if there is a limit to fiscal capacity, then those closer to that limit should have been the ones that were unable or unwilling to spend as much. Yet, as the figure shows, the opposite was true in the data. The relation is weakly positive between the two variables. This pattern is present both across and within groups of countries at different stages of economics development.

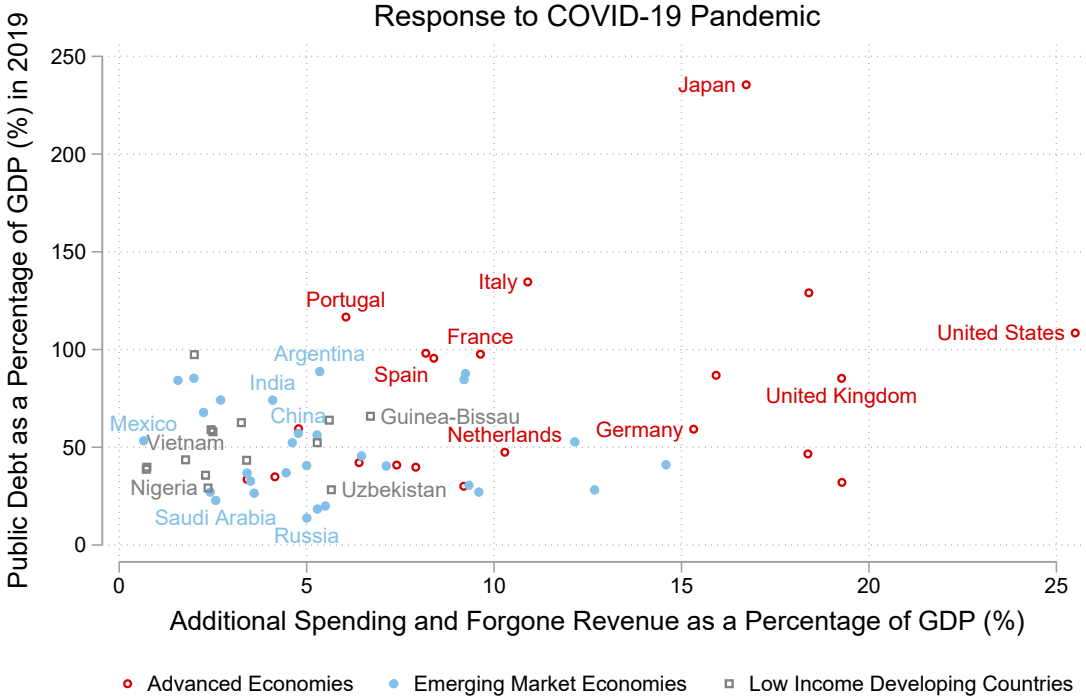
To understand why this was possible, focus on the United States. A great share of the public spending went to transfers to households and firms. Following the trends discussed in the previous section, government spending is dominated by transfer payments not just overall, but especially during recessions. The businesses and households that received these transfers had their doors shut to protect their health. Some of them received the checks from the government and used them to replace their lost earnings and to be able to stay away from poverty. Many instead deposited this extra income in their bank. These banks in turn deposited these new deposits at the Federal Reserve, as there were few investment projects worthy of a loan. The Federal Reserve bought the government debt.⁵

Therefore, indirectly, the main buyer of all the new issued government bonds was the Federal Reserve. But, rather than printing currency, the central bank was borrowing from households and firms the extra savings that the government transfers had allowed them. The measure of the ease with which the US federal government was able to borrow is a measure of the poor targeting of its transfer payments. Because so many transfers went to firms and households who did not need them, but who were locked at home and could also not spend them, they were handed back to the government by buying government bonds.

⁵ See Autor et al (2022), Parker et al (2021), and Chetty et al (2020).

In an idealized, hypothetical world, imagine that before the year ended in 2020, the government were to levy an extraordinary tax on these same households and firms and use it to repay all the debt that resulted from the pandemic. From the perspective of the households, the tax would be paid with the saved transfer from a few months earlier. From the perspective of the government, the debt would have been back close to where it started. Instead, by the end of 2020, the government debt was high, as were private savings. These started being spent gradually, fueling the quick recovery in 2021, but leaving behind the public debt. If the balances of savings proceed to normalize, then the pressure on the price of the outstanding government bonds will be felt. The peculiar nature of the 2020 recession and the stimulus that came with it imply that whatever fiscal limits, and pressure on interest rates may only be felt in 2022 and beyond. But are there such limits and, if so, what are they?

Figure 3.



Source: Same as figure 1 for public debt. For spending and forgone revenue, the source is the International Monetary Fund Fiscal Monitor database of fiscal policy responses to Covid-19, available here: <https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19>

Is there a limit on public borrowing?

The laws of accounting dictate that there are two ways in which the government could pay for public debt. The first would be to have surpluses by collecting more tax revenues than how much it spent on purchases and transfers. As described earlier, this was the dominant way for many decades.

The second is to pay a very poor return on that debt to lenders. At one extreme example, if that return is -100%, then the lender gets nothing in return for holding the debt. This might more accurately be called a total default on debt. Debt is exclusively paid by defaulting on the promises made to the bondholders.

At the other extreme, say that the return that the debt provides to its investors is exactly the same they would get by alternatively investing in the capital stock of the private economy. In that case, to roll over public debt over time, the government would be paying the bondholders the same as they get on their alternative investments. At some point in the future, they will require being repaid, and at that point only surpluses can provide that payment. Therefore, it is exclusively surpluses that pay for the debt, whether in the present or in the future.

In between these two extremes though, there exists another source of revenues for sustaining the debt. These have been called the fiscal revenue from public borrowing, or debt revenue for short. If the bondholders receive a return from holding public debt below what they could get from private investment, then they are incurring an opportunity cost from lending to the government. That cost is a gain to the government. The simplest way for the government to realize that gain would be for it to borrow and invest in the private economy itself. But, even if this is not realized directly in this way, the gains from being able to borrow at a low return are realized indirectly later because the size of the surpluses that will be needed in the future is now smaller.

The size of this debt revenue term is given by the gap between the private return to investment—call it m , for market return, or marginal product of capital—and the return on public debt—call it r —times the stock of the public debt that is being rolled over into the future. The United States had the enviable position of having positive debt revenue for most of the last century. The condition $r < m$ has on average held over decades and has allowed the US to sustain a positive amount of public debt, even though on average it has run a small deficit.⁶

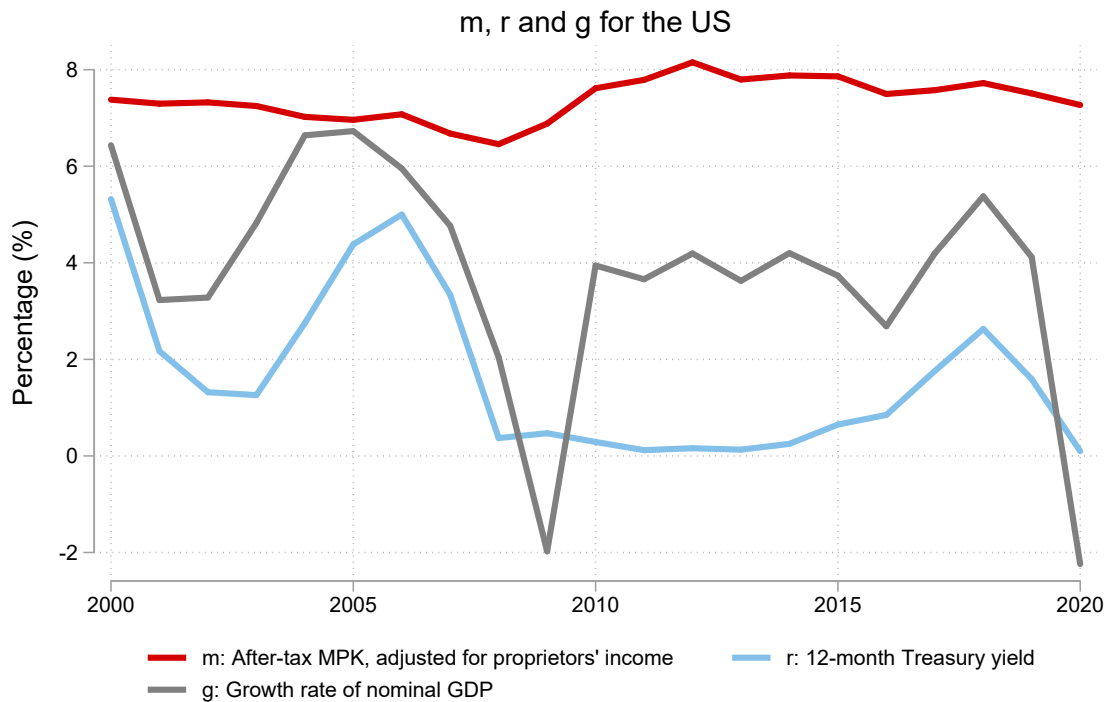
In the last twenty years though, this gap has increased significantly. Figure 4 illustrates this by plotting m , r , as well as the growth rate of the economy, often called g . The return on private investments has been relatively constant, but the return from lending to the government has fallen significantly. Thus, the $m - r$ gap that drives the debt revenue term has risen substantially. In 2020, $m - r$ was approximately 7%, which given a public debt of approximately 130% of GDP implies a debt revenue term of 9% of GDP. This was unusually large, but on

⁶ See Reis (2021).

average since the start of the century, the debt revenue has been about 4% of GDP per year, larger than any surplus that the United States had run in a long time.

Taking these two flows of revenue to the government, the primary surplus and the debt revenue, their present value is then what sustains public debt. If the debt rose above this limit, then the government would be forced to default. The laws of accounting would still hold because a default would reduce the return to the bondholders. Note that in the case of default the fall in return would not come in spite of no default, as happened for centuries in the United States, but directly because of the default. However, being able to have a $r < m$, but where the r is what private agents voluntarily are willing to receive absent default, is the key to having a sustainable public debt.

Figure 4.



Source: Data on nominal GDP for the US comes from the World Economic Outlook. Data for the 12-month Treasury yield comes from the FRB Saint Louis FRED database. Data for m comes from the Bureau of Economic Analysis National Income and Product Accounts Table 1.10, dividing capital income by the private capital stock, and subtracting corporate taxes and two thirds of proprietors' income to account for their labor income.

But what explains why $r < m$ in the data in the first place? Why would private investors voluntarily be willing to lend to the government at a lower return than they could get by lending

to firms, or investing directly in the stock markets, or in their own projects? Even when the private sector produces financial assets that, on account of the counterparties involved and the collateral in place, seem to mimic almost exactly the payoffs from a bond issued by the Treasury, it is a fact that the Treasury bond pays a lower interest rate. Economists have come up with different reasons for why it might be so.⁷

First, government debt is especially safe relative to almost any alternative investment. The United States federal government has never defaulted on its debt obligations, unlike almost any form of private investment. Especially after the financial crisis of 2007, the desire for safety in investment may have risen, explaining also why the return on government bonds fell, as investors were happy to hold this safe investment even if at a lower return. Moreover, even if on aggregate, the private sector as a whole could invest in the capital stock of the economy without any risk of default, the returns to this investment would be volatile depending on the state of productivity or of sales in a given year. The government instead sells bonds whose returns depend only on inflation, effectively shifting the risk that comes from fluctuations in tax revenues and spending to taxpayers in the future. Of course, perhaps the safety of US public bonds is no longer assured if the US is reaching the limits of its debt capacity (but financial markets often miss large changes in regime).

Second, government bonds are also especially liquid, easy to sell for currency if its holder needs to satisfy some spending emergency. Because the government is the largest individual borrower in the economy, the bonds that it issues end up being widely held and traded by different agents in the private sector. The government debt market is designed to enhance this liquidity, as the US Treasury only issues debt in a few maturities and only rarely introduces any new form of borrowing. Therefore, the bonds that are traded are homogenous, maximizing the scale of the individual market for each one. This liquidity is self-reinforcing: as people expect to be able to sell public bonds easily, they are more willing to hold them, and a thick market for public bonds emerges. After the global financial crisis, with the realization that some private bonds that seemed liquid could become hard to sell in a crisis, the desire for liquidity services provided by public debt may have risen, explaining the data in figure 4.

Third, government bonds are widely used as collateral in financial transactions. Many financial institutions hold government bonds as a by-product of buying and selling other assets. The government plays a key role in shaping this demand through its design and enforcement of financial regulations. These often require banks to hold a significant amount of government bonds against their short-term liabilities. The tightening of these regulations after the global financial crisis also broadly coincides with the fall in the required return on government bonds visible in figure 4.

Fourth, the increase in global savings has benefitted especially the demand for US government bonds. That increase in the supply of savings is the result of several structural

⁷ See Reis (2022a) for more on these reasons and a survey of the literature behind them.

changes in the world economy. The aging of the population in advanced economies has meant that a large cohort of middle-aged households are saving for retirement. They put a part of their savings into US public bonds in order to diversify their investments and are attracted by the safety and liquidity of these bonds. The fast growth of emerging market economies together with the slow development of their financial markets has led private agents in those economies to put their savings abroad, again benefitting the demand for US public bonds. The increasing dominance of the US dollar in international transactions also creates a demand for US public bonds, as foreign firms want to hold some savings denominated in US dollars to make payments to their suppliers. Finally, the increase in inequality has come with an increase in savings for two separate reasons. First, because richer households tend to save more. Second, because with inequality comes higher individual uncertainty that triggers a desire to save more in a safe asset, like US government bonds.

In summary, the ability of the U.S. government to borrow so much is tightly linked to the rising demand for the service that the resulting government bonds provide. Across the world, banks, firms, and households have sought the safety, liquidity, and convenience of US government bonds for decades, and increasingly so since the turn of the century. This has raised the limit on borrowing continuously. Moreover, as the large transfers to households and firms during 2020 were in part saved, these extra savings further increased the demand for public bonds. Therefore, even as the government was raising the supply of public debt during the pandemic, the demand for it was rising as well. The U.S. stays well within the limit of fiscal capacity, able to borrow without an increase in interest rates.

These trends may have given the impression that there is no such limit. But that limit exists, and public policies that do not acknowledge it and what drives it can put the sustainability of the public debt into question. I turn to these policies next.

What public policies could precipitate, or prevent, a debt crisis in the United States?

An important danger to the sustainability of public debt as we enter 2022 is the risk of persistent inflation. Relative to their private counterparts, public bonds are mostly affected by the risk of inflation devaluing the dollars that they will later pay. Some of the gap between m and r , and the associated debt revenues that the US government has benefitted from, have been the result of the small to zero premium against inflation risk. The last twenty years have also been one of the most successful periods in maintaining price stability, with inflation averaging very close to 2% per year since the start of 2000 and until the end of 2019. Investors in US bonds have not required extra compensation against the risk of inflation because the Federal Reserve has been so successful at its task.

Yet, inflation has risen in the United States throughout 2020, reaching 7% by the end of the year, fueled by unusual expansionary policy by the Federal Reserve. At the same time, surveys reveal a great deal of uncertainty about whether this inflation will persist or not into the

next few years. Compounding this uncertainty, the temptation to have inflation rise as an alternative to raising or cutting spending is of course higher at a time when public debt is so high. Even if the feared inflation may come only in a distant horizon, they quickly result in a devaluation of the value of the US dollar relative to other currencies. This depreciation imposes a loss on foreign investors even before the expected inflation materializes. All combined, the fear of inflation reduces the specialness of government bonds because it makes them less safe. Even if inflation reduces the real value of the debt at first, it also persistently lowers the debt revenue term. Inflation therefore lowers the debt limit, and could become a triggering factor behind a debt crisis in the United States.

To sustain public debt, an important policy step would be to uphold and respect the independence of the Federal Reserve from pressure by the government towards inflating away the debt. Further, if the Federal Reserve continues to show difficulties in keeping inflation under control, US policymakers may consider revising its mandate to put a greater weight on inflation control.⁸

A second policy concern is with the liquidity of US government bonds. In March of 2020, it was unexpectedly difficult to sell them. The financial institutions that intermediate their trade were hampered by restrictive regulations adopted during the financial crisis, which constrained their actions at the height of the pandemic. Moreover, while global crises have traditionally come with capital flows towards US government bonds in search of safe harbor, the pandemic recession was special, as countries needed to sell those government bonds to pay for the health emergency within their borders. As a result, for a few days, interest rates on US government bonds spiked, and for a few hours, the liquidity of the market was compromised as prospective sellers were unable to execute those sales.⁹

At the time, the Federal Reserve intervened aggressively, buying the government bonds for sale, and lending to the financial intermediaries in that market. This aggressive intervention was crucial to reinforce the liquidity of US government bonds. Investors were assured that even if the private liquidity in this market is threatened, the Federal Reserve will come to the rescue and inject public liquidity in its place. At the same time, the result of these interventions is that the Federal Reserve now owns more government bonds as a share of GDP than it has ever had in its history. As concerns for inflation may require it to reduce the size of this balance sheet, it will have to find private buyers for those bonds, testing the liquidity of the market.

Reforms to the way in which the market for government bonds works should be high on the priorities for financial reform in order to reduce the risk of a new liquidity freeze. Likewise, reinforcing the commitment by the US government to honor its debts to foreigners is especially important at a time when restrictions to foreign trade are rising, and there may be legitimate fears that capital controls are on the way.

⁸ See Reis (2022b)

⁹ See Vissibng-Jorgensen (2021).

Third, understanding that public debt is being sustained today by debt revenues should lead to some fiscal caution. While these revenues have been large and growing for twenty years, because they depend on investors being attracted by the services of US public debt, they are also potentially unstable. As the experience of most countries can testify, perceptions of safety, liquidity, or convenience as collateral can diminish relatively quickly. With their disappearance, the debt revenue also disappears, as interest rates on government debt spike.

The way to ensure this does not trigger a debt crisis is to have a clear fiscal framework and the flexibility to turn the course of fiscal policy, generating primary surpluses on short notice. The ability to do so ensures investors that fears about the solvency of the US government will be proven wrong. If debt revenues fall, the surplus will rise to ensure that debt stays within the fiscal capacity. There has long been a perception that the US could fully execute such a reversal if needed, for instance by introducing a value added tax or by temporarily cutting some defense spending. Whether that perception is still valid can reasonably be questioned. This matters because the perception that the United States could implement austerity contributes to it not ever having to do so.

Conclusion

The steady decline in the real return on government bonds through the last twenty years created new fiscal space for the government to borrow. Because the gap between the return on the public bonds and the return on the investing in private capital widened, the U.S. government started collecting a sizeable debt revenue, by effectively “selling” the special services that the bonds was providing to their holders. Whether those services were due to the safety, liquidity, or collateral ability of the government debt, they increased in their value and so created fiscal capacity. The U.S. government took advantage of this new capacity by having debt rise after the 2001 recession and the 2007-08 financial crisis and stabilize at new plateaus.

When the pandemic recession arrived, the U.S. government ran large deficits. Because a large part of the extra spending was in transfers to households and firms that chose to save them, the resources made their way back to the government as public debt became more special in a world where savings were abundant. The pandemic expanded the fiscal capacity (even if temporarily) while using some of it through the higher public debt. As that expansion in capacity will recede, whether the current public debt will hit the fiscal capacity limit is an open, and crucial, question. To safeguard against the possibility of a debt crisis, the government would be wise to reinforce its commitment to price stability, to fix the flaws in the public debt market that may endanger its liquidity, and to develop the fiscal flexibility that allows it to use surpluses to back the debt in a crisis.

There are many merits to the speedy and large government intervention during 2020, as well as some flaws. Fortunately, lack of fiscal capacity was not one of the problems that the government had to deal with. But this should not be taken for granted. Ensuring the sustainability of the debt is especially important over the next decade to slowly pay off what was left over from these extraordinary times.

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