

## Public and Private Debt after the Pandemic and Policy Normalization

By Thomas A. Lubik and Felipe Schwartzman

As a result of the COVID-19 pandemic, public debt has increased dramatically and private debt seems likely to increase as well. High indebtedness could influence the effectiveness of monetary policy and lead to political pressure for the Federal Reserve to maintain low interest rates for an extended period of time.

In response to the economic disruptions caused by the COVID-19 pandemic, fiscal authorities have implemented more than \$2 trillion in stimulus measures. The Congressional Budget Office projects that the U.S. debt-to-GDP ratio will be more than 100 percent by the end of fiscal year 2020. In addition to this increase in public debt, private debt is likely to increase as consumers and businesses tap into available sources of credit to smooth consumption and fund operations. Will this run-up in indebtedness, both public and private, affect the eventual normalization of monetary policy?<sup>1</sup> In this *Economic Brief*, we discuss interactions between debt and monetary policy and arrive at four key takeaways:

1. The economy's responsiveness to monetary policy changes depends on whether private debt is concentrated in households or in firms.
2. There may be calls to delay interest rate normalization to allow time for the labor market to absorb displaced workers and to protect the cash flow of newly indebted businesses.
3. High public debt need not be constraining for policy normalization if the fiscal authority is willing to close any fiscal gaps.

4. It may be tempting to use "financial repression" to reduce the debt burden.

### Private Debt Accumulation and Implications for Monetary Policy

In this section of the brief, we consider three aspects of the relationship between private debt and monetary policy: first, the effects on the "natural" or "equilibrium" interest rate; second, how the economy reacts to (unexpected) interest rate shocks; and third, the political economy of policy normalization — or how large disparities in private indebtedness might affect the so-called winners and losers. One thing to bear in mind about private debt is that one person's debts are other people's assets. Hence, for many questions, the key is not how much but for whom the debt increases.

### *Effects on the Natural Real Rate of Interest*

The effect of the pandemic on aggregate consumption and the natural real interest rate depends on the fraction of indebted and/or credit-constrained households in the economy. In normal times, these households generally spend

most of the extra cash they receive. But with higher indebtedness after the pandemic, they may try hard to save and reduce their debt, or deleverage, much as they did in the aftermath of the global financial crisis.<sup>2</sup> As a result, both consumption growth and the associated natural real interest rate — and thus the appropriate policy interest rate — may be lower than before the pandemic.<sup>3</sup>

The problem may have been particularly severe after the financial crisis because many homeowners are “wealthy hand-to-mouth” consumers.<sup>4</sup> In other words, they hold substantial housing wealth, but much of it is illiquid. This means that while wealth positions of many households may appear to place them far away from borrowing constraints, their spending is vulnerable in reality. As housing prices fell, the need to deleverage was particularly concentrated among those consumers, which lowered consumption growth and put downward pressure on the natural rate. Given the vastly lower leverage in the economy at present, we may not see a repeat of the post-2008 situation barring a very steep rise in debts or a major drop in house prices.

Conceptually, the same distinction exists among firms. Large, liquid firms with ample access to financial markets may be less likely to forego investing in favor of deleveraging than small, illiquid firms with little financial market access because the latter depend more on current cash flows to fund investment. Therefore, if the increase in indebtedness in the coming months is concentrated among small firms, one might expect to see an economy in which investment spending is relatively more depressed, which would also tend to put downward pressure on the natural rate of interest. The missed opportunities for growth could be particularly severe if the “constrained” firms are those that have access to relatively higher-return projects that “unconstrained” firms cannot simply buy or take over.

### ***Sensitivity to Unexpected Interest Rate Changes***

A large change in the distribution of private debt could influence the *effectiveness* of monetary policy by making the economy react more or less than

usual to a given interest rate increase. Indebtedness alters the way in which firms and households are affected by interest rate changes, but whether the net effect is more or less sensitivity is ambiguous. This is because interest rates affect both the opportunity cost of funds and cash flows. As households and firms reach their borrowing capacities, they may become less sensitive to the cost of funds and more sensitive to cash-flow changes. Whether they become more or less sensitive to interest rate shocks thus depends on the relative strength of these two channels.

One way debt could alter the impact of interest rate shocks is by making individual wealth potentially more responsive to those shocks. This follows from the usual effect of leverage on wealth volatility: the more leveraged an investor, the more fluctuations in asset prices translate into fluctuations in wealth. Furthermore, to the extent that real estate is collateral for debt, large fluctuations in real estate value could lead to large fluctuations in debt capacity, with price declines forcing heavily indebted agents to deleverage. There is evidence that such a channel might be relevant for households and firms.<sup>5</sup> Indeed, in the Great Recession, such “leveraged losses” were critical in depressing consumption and employment, as the most leveraged agents saw their net worth collapse with house prices.

The role of household debt in altering the transmission of monetary shocks is the subject of a sprawling literature on so-called HANK (heterogeneous-agent New Keynesian) models.<sup>6</sup> A recent study by some of the leading authors in the literature concluded that the response of the aggregate economy to interest rate shocks is actually not that different in models with or without a role for household debt, but their research is not likely to be the last word.<sup>7</sup>

Direct empirical evidence for firms yields a clearer picture. In particular, Pablo Ottonello and Thomas Winberry (2019)<sup>8</sup> found that firms that have more debt capacity are more responsive to monetary policy shocks. This implies that if firms are generally more indebted (closer to their capacity), corporate

investment may be less responsive to interest rate changes than is usually the case. Given the likely high level of debt as we exit the pandemic period, this could help mitigate the contractionary effects we might typically expect from rate normalization.

### ***The Political Economy of Interest Rate Normalization***

It is worth monitoring the evolution of household debt in order to assess the distributive effects of policy normalization. In general, those who supply funds win as interest rates increase, while those who require funds lose. More specifically, older households and banks tend to be on the winning side, while younger households, homeowners, and individuals with equity stakes in firms tend to be on the losing side. This may be exacerbated by high levels of indebtedness. Keeping interest rates low for longer could avoid those redistributive effects directly, and also indirectly, by allowing inflation to increase, thus reducing the real value of long-term nominal debt.<sup>9</sup>

At the same time, if current fiscal policy works as intended, one should expect a lower debt burden for households, as they will be able to supplement their lost income with more generous unemployment insurance or other income-preserving policies.

With respect to firms, current fiscal policy and monetary policy might lead to a further increase in debt held by firms, including many small ones. In the normalization phase, equity holders and entrepreneurs may feel the squeeze and generate political pressure for a smoother transition. The potential for such pressure is not only theoretical. Leading analyses of the Japanese stagnation in the 1990s emphasized the pernicious role of “zombie” firms that had high debt and were kept alive by persistently low interest rates and the forbearance of bank regulators.<sup>10</sup>

An additional aspect to consider is that low interest rates also provide an incentive for firms to create jobs. This is commensurate with a standard interest rate channel of stimulating job creation, but it can achieve additional urgency in the presence of high firm indebtedness and leverage since any interest rate hike would seem more potent in reducing this

incentive. As the effects of the pandemic subside, a massive number of workers will need to return to the workforce. Given that unemployment is likely to be concentrated among low-skilled workers involved in manual tasks in the service industry, there may be a distributive motivation to facilitate their return to the workforce.

### **Public Debt and Monetary-Fiscal Interactions**

It seems likely that the U.S. debt-to-GDP ratio will end up well above 100 percent as a result of the pandemic response, perhaps as high as 120 percent. This would mean a doubling of the debt ratio in just over a decade. This increase in government indebtedness raises a host of issues relevant for the future conduct of monetary and fiscal policy.

In this section of the brief, we discuss some basic concepts in the literature on debt, deficits, the relationship between monetary and fiscal authorities, and how their policy interactions determine fiscal outcomes.

### ***The Sustainability of Government Debt***

The intertemporal government budget constraint (IGBC) is a key concept in the analysis of whether a debt burden is sustainable, that is, whether a current level of indebtedness is expected to be repaid through future net government revenues. The budget constraint is derived from the difference between current spending (government expenditures and net interest payments on outstanding debt) and current revenue (taxes and revenues from money creation). If the difference is positive, the government issues new debt. If the difference is negative, the government retires old debt. The IGBC is the “present-value” version of this constraint.

Private agents will willingly hold outstanding government debt only if they expect the IGBC to hold. In other words, outstanding debt has value today because it will be repaid by future net taxes. If this is no longer the case, such as in the presence of rising deficits, then a debt crisis occurs and the government either has to default or raise taxes or lower spending.

There is a substantial literature on debt sustainability from the 1980s and 1990s that relied on statistical methods to tease out underlying trends in debts, deficits, tax revenues, and expenditures to assess whether debt tended to stabilize or explode over time.<sup>11</sup> The main shortcoming of this early work is that it implicitly took future deficit paths as given, rather than taking into account how these paths are determined by policy choices. Given the difficulty of making precise inferences about the future actions of government, the findings from this earlier literature have not offered a clear consensus on debt sustainability.

More recently, better theoretical and empirical modeling techniques have allowed for a more coherent description of actual debt dynamics. Eric Leeper introduced the concept of a fiscal limit. This is based on the idea that policymakers often allow debt to grow rapidly during crises but then step on the brakes when things return to normal. The fiscal limits literature takes into account such (historic) corrective behavior by monetary and fiscal authorities in terms of a “point of no return,” dubbed the fiscal limit. While the older debt sustainability literature came up with problematic debt-to-GDP ratios of between 100 percent and 120 percent, the fiscal-limits literature finds ratios of 180 percent to 200 percent sustainable.<sup>12</sup> Japan, with its stable economy and a debt-to-GDP ratio of more than 200 percent, provides suggestive evidence of this higher limit.

### ***Government Debt and Inflation***

The relationship between public debt and inflation has long been studied in macroeconomics. All hyperinflations have been caused by large and continued fiscal deficits and have come to an end only when fiscal holes have been plugged.<sup>13</sup>

Evidence of a relationship between deficits and inflation at “normal” levels is much more sparse. Generally, inflation is revenue for the fiscal authority because it is a tax on the holders of nominal government liabilities, debt, and currency. If the currency component is small, then the inflation tax collection from current and anticipated inflation is small. In addition, expected inflation is generally priced into the valua-

tion of nominal government debt. Sustained deficits can therefore be financed through money creation if the monetary authority acquiesces and the fiscal authority is unwilling to raise net revenue.

This is the central tenet of the monetary-fiscal interactions literature.<sup>14</sup> But if financial market participants are fully rational and forward-looking, financing deficits by money creation would be for naught because market participants would anticipate a sustained inflation tax and demand compensation. Otherwise, they would not roll over nominal debt. In that sense, there is somewhat of a race between the monetary and fiscal authorities, on the one hand, and private agents, on the other hand, in creating and avoiding surprise inflation taxation.

Empirically, these relationships are hard to test. The most extreme cases, such as the German hyperinflation of 1923, are obvious. But in normal times, there is not enough variation in the data to assess an economy’s debt-financing regime. Overall, the empirical results for the United States are rather tenuous and inconclusive.<sup>15</sup> Evidence from other countries on the relationship between debt, deficits, and inflation is stronger but only at fairly high levels of indebtedness (greater than 100 percent) and sustained high levels of inflation (greater than 10 percent). The classic example is Italy in the 1980s, when the inflation tax financed about 10 percent of the government deficit.<sup>16</sup>

### ***Monetary and Fiscal Policy Interactions***

From the perspective of the private sector, what matters for debt sustainability is the present value of real future surpluses. It does not matter whether this is achieved through money financing or taxation or expenditure cuts. This view is based on the idea of a consolidated government budget constraint for which sources of revenue are not differentiated: the Fed sends its surplus to Congress just as the IRS does.

However, monetary and fiscal authorities in advanced economies are generally separate organizations, subject to different rules and goals. It therefore cannot be taken for granted that the IGBC is an actual *constraint* on either authority’s behavior. In practice,

these institutions interact in subtle ways, more akin to players in a game, each with their own objectives and constraints.

The literature on monetary-fiscal interactions provides a taxonomy: in one case, the monetary authority takes the lead in focusing on inflation, while the fiscal authority behaves in a manner that raises enough revenue over time.<sup>17</sup> In another case, the fiscal authority takes the lead and sets the primary surplus, while the monetary authority provides revenue (via money creation) to finance the deficit. But this “fiscal-dominance” regime, the polar opposite of the “monetary-dominance” regime in the first case, does not necessarily lead to rising inflation because the private sector understands that the monetary authority only finances a given deficit.

Yet another scenario is where the fiscal authority sets the path for the primary deficit and the monetary authority declines to finance it. This would result in an exploding and unsustainable path for debt. Finally, if both authorities are accommodating, then inflation and debt would be high and volatile.

The literature on these interactions has come to understand that the cases discussed above are too limiting to represent the subtle interactions that may actually occur. For instance, large and growing deficits in combination with a monetary authority that holds the line may not lead to an explosive debt path if the fiscal authority is expected to reverse course eventually.<sup>18</sup> There is an ongoing debate about how the fiscal and monetary authorities *actually* interact. Many analyses proceed on the assumption that the central bank is the “first mover” since it has an inflation mandate, while the fiscal authority is the follower and is implicitly charged with maintaining intertemporal budget balance. However, the central bank mandate is granted by the fiscal authority, the U.S. Congress, and could in principle be revoked (for example, by changing the Federal Reserve Act).

### **Financial Repression**

If policymakers feel bound by the IGBC but are reluctant or politically constrained from pursuing pro-

longed deficit reductions, another option to reduce the value of outstanding debt is via “financial repression.” This term describes all kinds of policies that allow the government to borrow more cheaply than it otherwise could from the private sector. The tools of financial repression include bank regulation, forced saving, capital controls, and tolerance for higher than otherwise optimal inflation. One indication of financial repression is real rates of return available to savers that are below market rates of return or negative. Arguably, policies that ensure that the real rate of return remains below the growth rate of the economy also fall into this category, as growth and associated tax revenue would cover interest payments on the real debt burden. In a sense, this is a fiscal by-product of a policy of lower-for-longer interest rate path.

In a 2015 paper, Carmen Reinhart and Belen Sbrancia provide an overview of the prevalence of such policies in advanced economies and conclude that this is how the United States reduced large outstanding debt after World War II.<sup>19</sup> Those types of policies were largely abandoned with financial liberalization reforms starting in the 1970s because they were viewed as increasingly ineffective and because they hindered investment capacity. Nevertheless, if government debt is perceived to be hard to sustain, one might expect to see calls to use those tools to keep it under control, even if only for a limited period of time.

### **Conclusion**

The fiscal response to the economic disruptions caused by the COVID-19 pandemic has generated a significant increase in public debt. At the same time, it seems likely that private debt also will increase. The rise in indebtedness has implications for the effectiveness of monetary policy and might also lead to pressure on the central bank to maintain low interest rates for an extended period of time. Although the challenge of normalizing monetary policy while reducing debt appears daunting, historical episodes, especially in the case of the United States, suggest that it is feasible. This could require an unusual degree of coordination between fiscal and monetary policymakers. Such coordination might threaten central bank independence over the longer term, but



any danger could be mitigated over the short term by an understanding that coordination would be limited to these extraordinary circumstances. ■

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## Endnotes

- <sup>1</sup> On March 15, 2020, the Federal Open Market Committee (FOMC) lowered the target federal funds rate to between 0 and 25 basis points. For the purposes of this brief, we consider normalization to mean an increase in policy rates, and secondarily, setting policy rates to be consistent with the long-run natural real interest rate.
- <sup>2</sup> See Gauti B. Eggertsson and Paul Krugman, "[Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo Approach](#)," *Quarterly Journal of Economics*, August 2012, vol. 127, no. 3, pp. 1469–1513; also, see Veronica Guerrieri and Guido Lorenzoni, "[Credit Crises, Precautionary Savings, and the Liquidity Trap](#)," *Quarterly Journal of Economics*, August 2017, vol. 132, no. 3, pp. 1427–1467.
- <sup>3</sup> For a somewhat different approach, see Atif R. Mian, Ludwig Straub, and Amir Sufi, "[Indebted Demand](#)," National Bureau of Economic Research Working Paper No. 26940, April 2020.
- <sup>4</sup> Greg Kaplan, Luigi Violante, and Justin Weidner, "[The Wealthy Hand-to-Mouth](#)," *Brookings Papers on Economic Activity*, Spring 2014, pp. 77–153.
- <sup>5</sup> James Cloyne, Clodomiro Ferreira, and Paolo Surico, "[Monetary Policy When Households Have Debt: New Evidence on the Transmission Mechanism](#)," *Review of Economic Studies*, January 2019, vol. 87, no. 1, pp. 102–129.
- <sup>6</sup> Greg Kaplan, Benjamin Moll, and Giovanni L. Violante, "[Monetary Policy According to HANK](#)," *American Economic Review*, March 2018, vol. 108, no. 3, pp. 697–743.
- <sup>7</sup> Felipe Alves, Greg Kaplan, Benjamin Moll, and Giovanni L. Violante, "[A Further Look at the Propagation of Monetary Policy Shocks in HANK](#)," manuscript, July 2019.
- <sup>8</sup> Pablo Ottonello and Thomas Winberry, "[Financial Heterogeneity and the Investment Channel of Monetary Policy](#)," National Bureau of Economic Research Working Paper No. 24221, June 2019.
- <sup>9</sup> Matthias Doepke and Martin Schneider, "[Inflation and the Redistribution of Nominal Wealth](#)," *Journal of Political Economy*, December 2006, vol. 114, no. 6, pp. 1069–1097.

- <sup>10</sup> Ricardo J. Caballero, Takeo Hoshi, and Anil K. Kashyap, "[Zombie Lending and Depressed Restructuring in Japan](#)," *American Economic Review*, December 2008, vol. 98, no. 5, pp. 1943–1977.
- <sup>11</sup> For an excellent example of this earlier literature, see Henning Bohn, "[The Behavior of U.S. Public Debt and Deficits](#)," *Quarterly Journal of Economics*, August 1998, vol. 113, no. 3, pp. 949–963.
- <sup>12</sup> For an overview of this and other fiscal policy issues, see Eric M. Leeper, "[Monetary Science, Fiscal Alchemy](#)," presentation at the Federal Reserve Bank of Kansas City Jackson Hole Symposium, August 26–28, 2010.
- <sup>13</sup> Thomas J. Sargent, "[The Ends of Four Big Inflations](#)," in *Inflation: Causes and Effects*, Robert E. Hall (ed.), Chicago: University of Chicago Press, 1982.
- <sup>14</sup> Eric M. Leeper, "[Equilibria under 'Active' and 'Passive' Monetary and Fiscal Policies](#)," *Journal of Monetary Economics*, February 1991, vol. 27, no. 1, pp. 129–147.
- <sup>15</sup> See Eric M. Leeper, Michael Plante, and Nora Traum, "[Dynamics of Fiscal Financing in the United States](#)," *Journal of Econometrics*, June 2010, vol. 156, no. 2, pp. 304–321. Leeper, Plante, and Traum argue that there were different debt-financing regimes in the United States, but they did not result in hyperinflations. In these episodes, the monetary authority did not accommodate fiscal demands despite loose fiscal policy. At the same time, the private sector anticipated that before a fiscal limit would be reached, the fiscal authority would relent.
- <sup>16</sup> Alessandro Missale, Francesco Giavazzi, and Pier-Paolo Benigno, "[How Is the Debt Managed? Learning from Fiscal Stabilizations](#)," *Scandinavian Journal of Economics*, December 2002, vol. 104, no. 3, pp. 443–469.
- <sup>17</sup> Leeper (1991).
- <sup>18</sup> Troy Davig and Eric M. Leeper, "[Generalizing the Taylor Principle](#)," *American Economic Review*, June 2007, vol. 97, no. 3, pp. 607–635.
- <sup>19</sup> Carmen M. Reinhart and M. Belen Sbrancia, "[The Liquidation of Government Debt](#)," *Economic Policy*, April 2015, vol. 30, no. 82, pp. 291–333.

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