U.S. federal debt service cost: What if interest rates normalize faster than projected?

By P.-A. Pinsonnault

Introduction

The significant rise of the U.S. debt-to-GDP ratio in the last financial crisis brought renewed interest in the question of debt sustainability. Papers by academics argued that public debt beyond some threshold braked economic growth. But further reviews of the data and of the methodology used by researchers has led the IMF to conclude that there is no simple threshold for debt ratios above which medium-term growth prospects are severely undermined. Contributing to the lack of a decisive conclusion on the matter is the issue of causality. High debt may be the result of sluggish growth or it could reflect another factor, or omission of variables that simultaneously increase debt and reduce growth. An obvious example would be financial crises. That said, the IMF warned in 2014 that although it could not pinpoint a critical ratio above which medium-term growth was at risk, neither could it conclude that debt does not matter.

Seven years later, debt-to-GDP ratios have further deteriorated and over the next 10 years the U.S. federal debt is projected to grow significantly faster than nominal GDP. But the conventional wisdom, shared by the Fed, remains that “given the low level of interest rates, there’s no issue about the United States being able to service its debt at this time or in the foreseeable future.” (Jerome Powell, March 25 NPR interview). Many not only endorse that view but quickly conclude that the likely persistence of low rates for Treasury borrowing means that debt reduction is not an urgent need.

There is a caveat. We know that demographic trends will translate into large increases in spending for Social Security and Medicare as more and more baby boomers retire from the labour force. It should also be noted that although surveys show people favouring “small government,” they also want roads and bridges maintained, borders secured, veterans cared for, food and drugs inspected and medical research supported by federal funding. The list goes on. In managing budget spending day to day, politicians know that cutting spending is not easy. The point is that the growth of federal spending is driven to a large extent by the requirements of social programs and of non-discretionary obligations like debt service. Which brings us to the argument put forward in 2016 by Douglas Elmendorf, dean of Harvard’s Kennedy School of Government after six years as director of the Congressional Budget Office: since interest-rate projections are highly uncertain, policymakers should be mindful of the risk that rates will rise above current expectations. Tax increases may be one way of closing the gap between revenue and spending, but Elmendorf reminded policymakers that large changes in fiscal policy are best made slowly.

While the IMF did not venture a maximum debt-to-GDP ratio, one rule of thumb suggests that when debt service cost exceeds 14% of revenue, governments face hard choices. What programs should get money? Should tax rates be raised? What would be the effect of a tax hike on consumption and investment?

Debt held by the public

There are various ways to look at the indebtedness of the U.S. Treasury, each having its role and limitations. The Congressional Budget Office (CBO) publishes regular budget and economic projections. In its Federal Debt: A Primer of March 2020, one can read that current practice is to focus on debt held by the public, consisting mainly of marketable debt such as Treasury bills, notes, bonds, FRNs and TIPS sold to investors at regular auctions. These securities can be traded on the secondary market. They account for by far the largest portion of debt held by the public. However the Treasury also issues nonmarketable securities to the public. One well-known example is savings bonds, which are issued in response to investor demand and cannot be traded on the secondary market. The issuance of nonmarketable debt, unlike that of marketable securities, is not tied to the size of the federal deficit.

Debt held by the public is a measure indicating the extent to which federal borrowing affects the availability of private funds to other borrowers.

Federal trust funds also own Treasuries, but the value of these securities is not a meaningful measure of the government’s long-term obligations for those programs. It is more or less an accounting mechanism, with no net effect on federal borrowing from the public or on the total budget. The sum of debt held by the public and Treasury securities held by federal trust funds and other government accounts is called the gross debt.

The table on the following page presents a projection by the Office of Management and Budget (OMB) that may shed some light on how budget deficits affect the various measures of debt outstanding mentioned in the CBO Primer.
The U.S. government also owns financial assets. Net of financial assets, debt held by the public in 2020 stood at 85.8% of GDP rather than 100.1%. In the federal budget, revenue from these assets together with receipts from intragovernmental transactions offset part of the gross interest payment on the debt.

In 2020, gross interest of US$523 billion was paid on Treasury securities, but since the government received US$178 billion in interest revenue, budget documents showed net interest outlay of US$345 billion.

In that year the government spent $1.627 trillion on discretionary programs, $4.578 trillion on mandatory outlays and $345 billion in net interest payments, for a total of $6.550 trillion. Revenue was $3.421 trillion, for a budget deficit of $3.129 trillion.

The OMB document presents President’s proposed budget. As usual the budget will go through a long process before a final version is enacted. That version will undoubtedly be different from President Biden’s proposal, which includes a wide range of spending on infrastructure. It also includes a plan to reverse some of the 2017 tax cuts and eliminate a series of tax loopholes. His proposed budget holds that “over time, the savings from these reforms would exceed the cost of the investments, and by large and growing amounts. The American Jobs Plan and American Families Plan together are paid for over 15 years.” The projections underlying the president’s budget show government revenue growing from 16.3% of nominal GDP in 2020 to 19.7% by 2030 and debt held by the public reaching $37.481 trillion.

The CBO, meanwhile, publishes projections of what the federal budget would be over the 10 years beginning with 2021 if current laws on taxes and spending remain generally unchanged. Its July report, based on laws in place as of May 18, 2021, is intended as a benchmark for use by policymakers assessing the effects of future policy decisions and not as a forecast. It projects that with no change in tax laws, revenues would grow to 17.7% of GDP, two percentage points less than under the president’s proposal, and debt held by the public, $33.913 trillion, would be significantly less than in his proposal. Still, with revenues lower, debt service would be more challenging in the CBO projection.

As the chart on the following page illustrates, net interest payments are projected in the president’s proposal to reach 12.5% of revenue by 2030, but in July’s CBO baseline projection they would by that time reach the 14% threshold referred to above.
Last February, 10-year Treasuries were trading around 1.30%. They peaked at 1.77% in March, fell to 1.13% in early July and closed August 12 at 1.36%. Such wild swings in a matter of months are reminders of Douglas Elmendorf’s warning that interest-rate projections are highly uncertain and policymakers should be mindful of the risk.

Another way to take this point is to look at the path of interest rates projected by the CBO over the next 10 years. In its July version, rates are higher than in its February version and while the July projection shows public debt 1.7% larger by 2030, it’s projection of net interest cost are 16.3% higher than that of the February report.

To evaluate the effect of various interest-rate scenarios on the cost of debt service, we need to use projections of the yield curve over time to calculate the effect of the refinancing requirement for maturing debt as well as the timing and size of net new borrowing requirements. The term structure of outstanding debt will obviously play a role in the outcome.

As of June 30, debt held by the public stood at $22.3 trillion, of which T-bills accounted for 19.1%, notes 54.2%, bonds 14.2%, TIPS 7.2%, FRNs 2.5% and nonmarketable debt 2.8%.
that the U.S. Treasury will face difficult budgeting choices by 2030 or somewhat earlier are non-negligible.

<table>
<thead>
<tr>
<th>CBO's Baseline Budget Projection</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
<th>2027</th>
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<td>Year</td>
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<tr>
<td>Debt Held by the Public</td>
<td>21,017</td>
<td>23,012</td>
<td>24,392</td>
<td>25,156</td>
<td>25,959</td>
<td>26,967</td>
<td>28,062</td>
<td>29,185</td>
<td>30,733</td>
<td>32,119</td>
<td>33,913</td>
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<td>Revenues</td>
<td>3,421</td>
<td>3,842</td>
<td>4,390</td>
<td>4,597</td>
<td>4,671</td>
<td>4,734</td>
<td>4,984</td>
<td>5,253</td>
<td>5,396</td>
<td>5,572</td>
<td>5,754</td>
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<tr>
<td>Net interest outlays</td>
<td>331</td>
<td>306</td>
<td>315</td>
<td>344</td>
<td>396</td>
<td>467</td>
<td>541</td>
<td>628</td>
<td>712</td>
<td>808</td>
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<td>Average coupon on DHBP</td>
<td>1.7</td>
<td>1.4</td>
<td>1.4</td>
<td>1.5</td>
<td>1.6</td>
<td>1.8</td>
<td>2.0</td>
<td>2.2</td>
<td>2.4</td>
<td>2.6</td>
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<td>Net effective coupon</td>
<td>1.44</td>
<td>1.25</td>
<td>1.25</td>
<td>1.33</td>
<td>1.47</td>
<td>1.66</td>
<td>1.85</td>
<td>2.04</td>
<td>2.22</td>
<td>2.38</td>
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<td>What If</td>
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<tr>
<td>14% of revenues</td>
<td>538</td>
<td>615</td>
<td>644</td>
<td>654</td>
<td>663</td>
<td>698</td>
<td>735</td>
<td>755</td>
<td>780</td>
<td>806</td>
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<td>Needed effective coupon</td>
<td>2.34</td>
<td>2.52</td>
<td>2.56</td>
<td>2.52</td>
<td>2.46</td>
<td>2.49</td>
<td>2.52</td>
<td>2.46</td>
<td>2.43</td>
<td>2.38</td>
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<td>Gross coupon</td>
<td>2.60</td>
<td>2.67</td>
<td>2.71</td>
<td>2.69</td>
<td>2.59</td>
<td>2.62</td>
<td>2.67</td>
<td>2.61</td>
<td>2.61</td>
<td>2.59</td>
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NBF Economics and Strategy (Source: CBO and author's calculations)
Special Report
Economics and Strategy

Montreal Office
514-879-2529

Stéfane Marion
Chief Economist and Strategist
stefane.marion@nbc.ca

Matthieu Arseneau
Deputy Chief Economist
matthieu.arseneau@nbc.ca

Paul-André Pinsonnault
Senior Economist
paulandre.pinsonnault@nbc.ca

Kyle Dahms
Economist
kyle.dahms@nbc.ca

Daren King
Economist
daren.king@nbc.ca

Jocelyn Paquet
Economist
jocelyn.paquet@nbc.ca

Angelo Katsoras
Geopolitical Analyst
angelo.katsoras@nbc.ca

David Djavidi
Intern Economist
david.djavidi@nbc.ca

Alexandra Ducharme
Intern Economist
alexandra.ducharme@nbc.ca

Toronto Office
416-869-8598

Warren Lovely
Chief Rates and Public Sector Strategist
warren.lovely@nbc.ca

Taylor Schleich
Rates Strategist
taylor.Schleich@nbc.ca

Alpa Atha
Fixed Income Economist
alpa.atha@nbc.ca

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