

Consequences of a high public debt in the United States Will interest rates jump? Will the deficit inevitably be monetized?

The situation calls for it: faced with the prospect of an economic collapse, many countries are implementing large stimulus plans. Some governments are spending massive amounts to revive their economies (graph 1). The United States alone will inject almost US\$800B, not including the hundreds of billions already set aside for the Troubled Asset Relief Program (TARP) and for funding some of the Federal Reserve's (Fed) operations through the Supplementary Financing Program (SFP). Since these stimuli will have to be financed by public debt, should we be worried about the effect of the additional government debt supply on medium- and long-term interest rates?

The economic literature discusses the consequences of public debt at length. All things being equal, what we do know is that medium- and long-term real interest rates rise as deficits grow. That said, the complexity of our world renders this type of conclusion more difficult since many factors can influence the variables at play and generate very different results.

In this *Economic Viewpoint*, we show that in theory, the financial markets are justified in worrying about the impact of an increased supply of public debt securities on real interest rates. In practice, however, the current situation, characterized by excess production capacity, a major banking crisis, a credit crunch and growing risks of deflation, is not conducive to higher bond rates in the near term.

More specifically, in the United States, plummeting household wealth, shrinking private investment and the insatiable appetite of some emerging countries for U.S. Treasuries make it quite easy to finance the government's debt. In a worst case scenario, the Fed could buy back some of the debt (deficit monetization) to keep real interest rates low. However, because such a move would increase the risk of inflation over the longer term, this scenario should only be contemplated in the event of deflation or a protracted credit tightening (money supply contraction).

Graph 1 – Astronomical sums will be spent in different countries to boost economy

	Worth (US\$B)	in % of GDP
United States	787.0	5.8
Canada	28.7	2.0
United Kingdom	30.8	1.1
Germany	102.9	3.1
France	38.9	1.5
Italy	90.5	4.3
Japan	87.6	2.0
Australia	36.4	4.0
China	586.0	15.0
India	14.3	1.3
Russia	14.2	1.1
Brazil	2.6	0.2
Other countries	80.6	---
Total	1 900.5	---

Sources: United Nations and Desjardins, Economic Studies

A COSTLY RECOVERY, BUT MANAGEABLE

Of all the industrialized nations, the United States merits the most attention. Although it is not the only country facing a mounting deficit, its new needs for financing are by far the greatest and as such, most susceptible to affect interest rates.

A sign that the economic situation is deteriorating, the U.S. budget deficit is expected to reach 8.3% of GDP in 2009 and 4.9% in 2010, versus just 1.2% of GDP in 2007. When President Obama's US\$787B plan is factored in, these figures climb to 9.6% and 7.6%, respectively. Add to that the TARP

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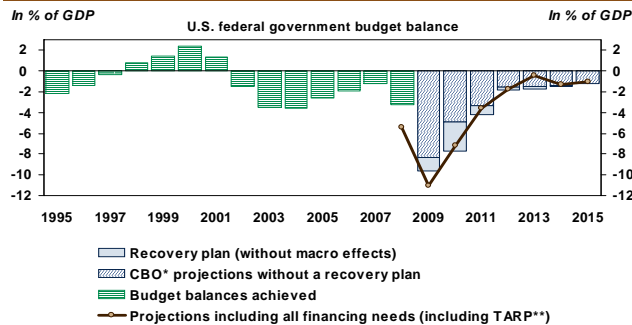
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NOTE TO READERS: The letters **k**, **M** and **B** are used in texts and tables to refer to thousands, millions and billions respectively.

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funds and other financing needs and the shortfall increases to 11% and 7.2% of GDP over the next two years (graph 2). However, given that some of the funds set aside for TARP will be quickly recovered¹ and used to purchase other assets, the effect on interest rates will probably not be the same as for a traditional deficit (see box on page 3 for more details on the nature of deficits).

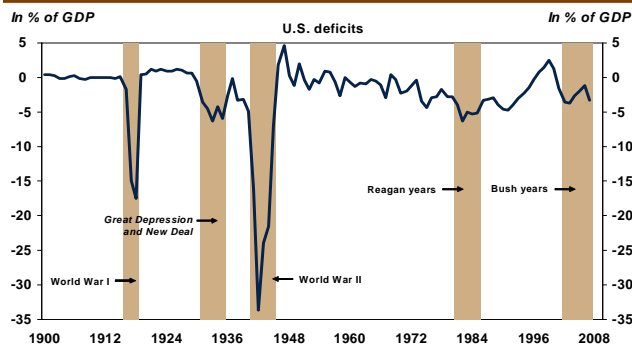
Graph 2 – Congressional Budget Office projections



* Congressional Budget Office; ** Troubled Asset Relief Program.
Sources: U.S. Treasury, Office of Management and Budget, Congressional Budget Office, and Desjardins, Economic Studies

Although these figures seem quite high, the United States has already been in worse situations. During the two World Wars, the deficit ate up more than 15% of GDP, while during the New Deal era and the deep recession of the early '80s, it exceeded 6% (graph 3).

Graph 3 – The United States has run up huge deficits before

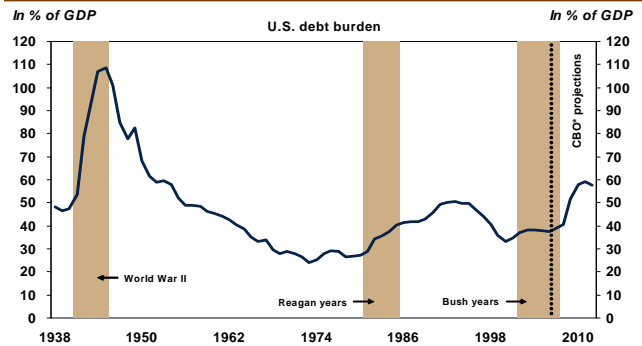


Sources: Global Financial Data and Desjardins, Economic Studies

With most of the deficit projected for the next four years, the size of the marketable debt, which today stands at about 40% of GDP, could rise to 58% by 2012. However, the fact that it surpassed 100% of GDP at the end of World War II (graph 4) suggests that the situation today is much more manageable.

¹ The Congressional Budget Office includes in the current deficit only the part of the TARP costs that are not expected to be recovered because of, among other things, asset devaluations and other probable losses.

Graph 4 – Current U.S. debt burden not as heavy as in the past (federal debt held by the public)



* Congressional Budget Office.
Sources: Global Financial Data, Congressional Budget Office and Desjardins, Economic Studies

Consequently, despite these billions of dollars of debt, the country is still far away from “bankruptcy”. But that does not make the situation less worrisome. The potential impact of a sharp increase in indebtedness of the public sector on real interest rates is a topic that especially merits discussion.

THREE MAIN THEORIES

Three main theories exist in connection with public debt and its impact on the economy. They differ in terms of the State’s effectiveness in stimulating consumption and in the effect on interest rates.

A common rule to all open economies is the balance that must be maintained between public deficits and flows of savings, investment and foreign capital. The identity of capital flows can therefore be summarized as follows:

$$(1) \Delta(G - T) = \Delta(S - I) + \Delta FC$$

According to equation (1), investment cannot be greater than saving and net foreign capital inflows. If public debt rises ($\Delta(G - T) > 0$), the savings available for investment decrease, which can be offset by an increase in private saving (S), a decrease in investment (I) or an inflow of foreign capital (FC).

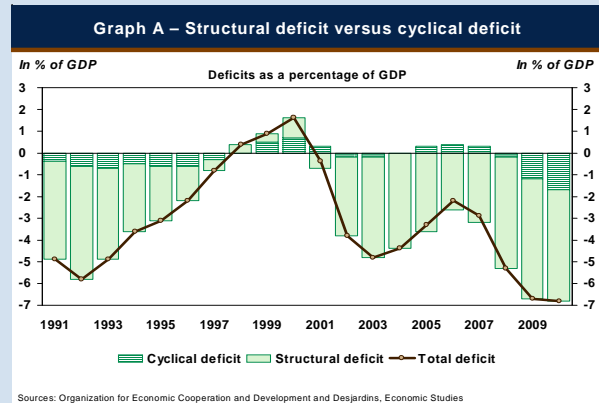
1. Ricardian equivalence

The first theory, known as Ricardian equivalence, postulates that government deficits are not problematic because supposedly rational individuals save more when the government runs a deficit in order to compensate for the higher taxes they expect to face in the future so that the government can pay down its debt. Thus, in a Ricardian world, fiscal policy is ineffective as it is offset by an increase in private saving, and no other variable, including interest rates, is affected.

The difference between a structural and cyclical deficit

The type of deficit could affect interest rates. A cyclical deficit, which coincides with a decrease in income and an increase in expenses associated with the automatic economic stabilizers, fluctuates with the business cycle. Since it falls during a period of growth, this deficit is less worrisome, and in principle, the surplus the State builds during this period of growth should be sufficient to eliminate the deficit accumulated during the downturn. A structural deficit is more problematic because this portion of the deficit is independent of the economic cycle, is more permanent and is therefore more worrisome to the markets. As well, more efforts and sacrifices are often required by the State to wipe it out. Although the structural deficit in the United States is quite high, the deterioration in its public finances in 2009 and 2010 will be mostly due to an increase in the cyclical deficit (graph A). Lastly, taxation revenues have fallen sharply in the U.S. while expenses have increased.

As regards the Obama plan, although it calls for spending at a time when the outlook is unfavourable, it can't really be considered an increase in the cyclical deficit because it is not caused by a cyclical decrease in revenues or by increased spending on the automatic stabilization programs. Some of the spending could be included in the structural deficit if it became recurrent, for example, a permanent tax cut. However, most of this plan can be classified as one-off budgetary measures. Because it is temporary, its effect on interest rates will be less than with a structural deficit. The same goes for TARP, particularly since the loan will be used to acquire other assets and since the resulting debt will eventually be mostly repaid.



2. Small open economy view

This theory suggests that budget deficits reduce national saving but that this is offset by an increase in foreign capital inflows. According to this model, fiscal policy is effective because it boosts consumption instead of household saving; however, the current account balance deteriorates. Since it is assumed that the amount of public debt securities issued has no effect on interest rates and that it can be easily absorbed by foreign investors, investment does not decline. This model fits well with an economy the size of Canada's.

3. Conventional view

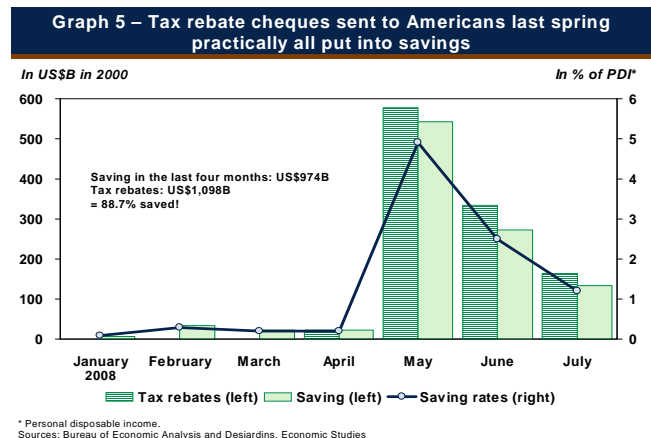
In contrast to a small economy, a budget deficit in a large economy affects interest rates. In addition to increased foreign capital, the public debt is also offset by a reduction in private investment (crowding-out effect).

EMPIRICAL RESULTS

Much of the empirical work in this regard supports the conventional view for the U.S. public debt² showing, on the

one hand, that an expansionist fiscal policy has a positive impact on consumption and on the other, a significant impact on medium- and long-term interest rates.

Overall, the results suggest that an average of 50 to 80 cents would be spent for each dollar the government returns to consumers. Still, the policy's effectiveness can sometimes be much less, as was the case with the tax rebate cheques Americans received last spring (graph 5). As for the impact



² For an exhaustive review of the literature and empirical results, see William G. Gale and Peter R. Orszag, *Budget Deficits, National Saving, and Interest Rates*, September 2004.

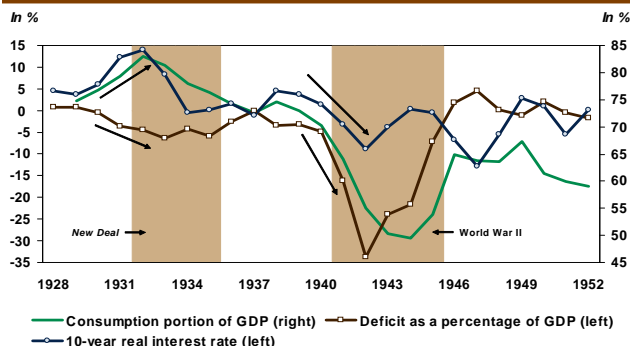
on long-term interest rates, it would be between 30 and 70 basis points for each percentage point increase from expected deficit to GDP ratio.

ESTIMATED IMPACT OF THE U.S. DEFICIT ON INTEREST RATES

Using a rule of thumb developed on the basis of the empirical results, we estimate that, all things being equal, a 6.4 percentage points increase in the deficit³ in 2009 would push up the 10-year rate by a hefty 190 to 450 basis points. If it is based rather on the average expected increase of the deficit by 1.8 percentage points over the next five years, interest rates would rise between 55 and 125 basis points.

However, for various reasons, the increase could be less. For example, during World War II, the real 10-year interest rate fell despite a deficit that exceeded 30% of GDP (graph 6). By imposing rations and calling on the public to save, the government was able to reduce its financing needs. Conversely, in the early '30s, at the height of the Great Depression, the burgeoning deficit sent interest rates skyrocketing by some 800 basis points.

Graph 6 – During WWII, rationing and lower consumption compensated for the deficit



Sources: Global Financial Data and Desjardins, Economic Studies

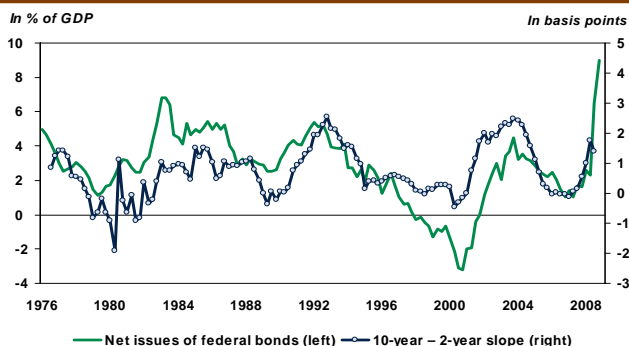
WHY INTEREST RATES WON'T JUMP

In practice, there are reasons other than the underlying principles of Ricardian equivalence to justify interest rates remaining low. For instance, there is lower adjustment during a recessionary period. This is because when an economy has excess capacity, an expansionist fiscal policy will not fuel inflation. Also, low or negative real interest rates are needed to spark a recovery. The situation today is a good example. Judging by the rapid deterioration in the U.S. budget balance, the interest rate curve should be much steeper

³ According to the last estimates of the Congressional Budget Office, the U.S. deficit was \$455B (3.2% of GDP) in 2008. For 2009, the projected deficit, including a portion of the expenses of the Obama plan, will be \$1,370B (9.6% GDP), a 6.4% increase over 2008.

(graph 7). However, the critical situation facing the country is not compatible with higher bond rates in the near term. The emerging output gap, growing deflationary fears,⁴ the resurgence of risk, and portfolio rebalancing all play in favour of government bonds. As well, the possibility that the Fed will keep its key rates low for some time adds to the downward pressure on longer-term rates.

Graph 7 – A deteriorating fiscal situation tends to make the yield curve steeper

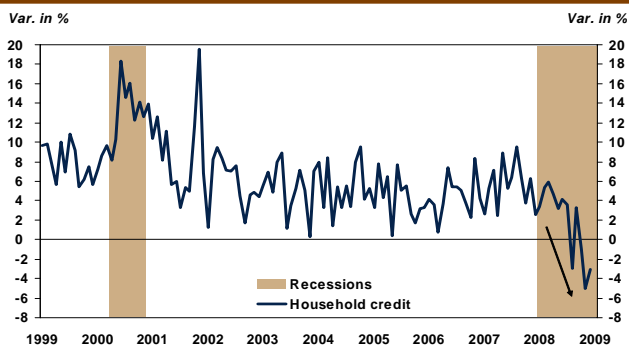


Sources: Federal Reserve Board and Desjardins, Economic Studies

AN EASILY FINANCED DEFICIT

We must also take financing conditions into account. Beyond the tighter credit conditions that are making retail rates and corporate credit spreads much less appealing, the tough economic situation and deflationary pressures are prompting the private sector (aside from banks, which are desperately seeking capital) to limit its debt load. The most concrete example is the decrease in household credit in the last quarter of 2008 (graph 8). This context opens the door to higher public debt at a low cost. It could be said that the Treasury is taking the place left vacant by households and businesses.

Graph 8 – Household credit down sharply in the last few months of 2008



Sources: Federal Reserve and Desjardins, Economic Studies

⁴ See *Economic Viewpoint* "Deflationary forces intensify", February 18, 2009.

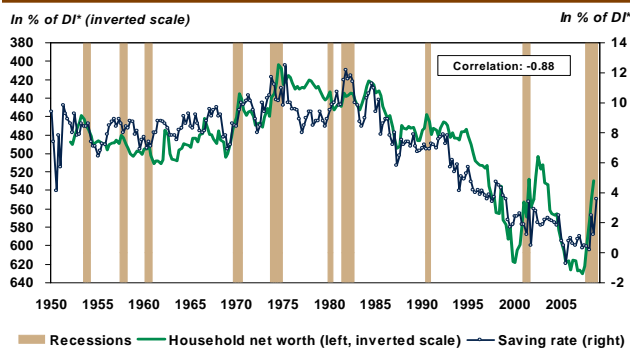
Despite the jump in the deficit, we see three main reasons in connection with the identity of capital flows [equation (1)] as to why the United States should be able to run up debt without creating too much upward pressure on interest rates:

- An increase in the saving rate in response to shrinking household wealth;
- A decrease in investment, and therefore debt, first in the residential (household) sector, and then on the business side due to the bleak outlook and tough credit conditions;
- An ongoing inflow of foreign capital in response to the need for some central banks to support the greenback.

1. Household saving

Higher interest rates, insecurity about the future and a decline in household wealth (negative wealth effect) all push up the saving rate. The correlation between household wealth and the saving rate is particularly strong (graph 9). When households see their worth grow as a result of a rapid increase in the value of their portfolios or homes, they are more inclined to spend than save. In contrast, when it unexpectedly plummets, they are more apt to try and rebuild it by saving more.

Graph 9 – Strong negative correlation between household wealth and saving rate



* Disposable income.
Sources: Bureau of Economic Analysis and Desjardins, Economic Studies

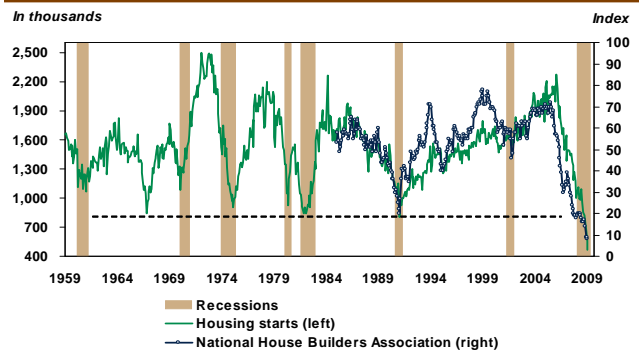
The saving rate recently jumped 3.6%, or 1.9 percentage points more than in all of 2008. This increase alone frees up US\$200B that could be used to finance the deficit growth. A saving rate of 5% allows the government to recover about US\$350B and another US\$100B or so for each additional percent. The latest estimates from the Congressional Budget Office (CBO) show that the U.S. government will need US\$810B more to finance its deficit than in 2008.⁵

⁵ The latest figures show that the U.S. government's financing needs were \$768B in 2008 and are projected to reach \$1,575B in 2009, including a portion of the expenses of the Obama plan.

2. Investment

A cutback in investment can also help to deal with deficit. With home prices still falling, a high inventory of unsold houses, a credit crunch and greater job uncertainty, the housing market will remain in a slump for a while yet (graph 10). Tough lending conditions and a dark economic outlook will also cause businesses to scale back their investments. A potential drop of 15% in total investments would free up an additional US\$300B to finance the deficit.

Graph 10 – U.S. housing market continues to deteriorate



Sources: Datastream and Desjardins, Economic Studies

Add a saving rate of 5% to the 15% decrease in investments and a total of US\$650B are freed up, leaving an imbalance of US\$160B in capital flows. Private business saving, resulting from retained earnings, could also help in this regard. Otherwise an inflow of foreign capital would be necessary.

3. Foreign capital

Worries abound that foreign financing may not be enough. Many countries, particularly in Asia and the Middle East, could lose interest in U.S. Treasuries, which would be problematic for financing the deficit. These fears, however, are unfounded. First, because countries such as China need American dollar denominated securities at any cost in order to keep their exchange rate low. Given that the recent economic spurt has been largely underpinned by the relationship between the U.S. consumer and Asian manufacturers, emerging nations like China can hardly afford not to support the greenback. At the height of the turmoil, the sharp increase in net purchases of U.S. Treasuries by the Chinese government clearly illustrates this point (graph 11).

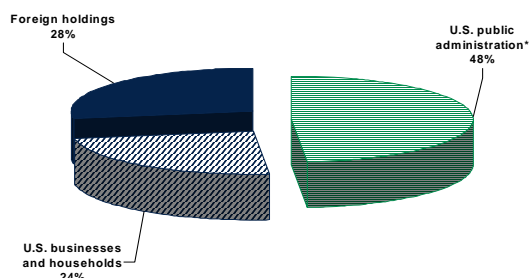
Second, it should be remembered that foreign capital movement is the counterpart of trade between countries. As such, if countries refuse to finance the United States, they won't be able to sell more of their products to Americans. The improvement in the U.S. current account shows that the need for foreign financing is less than in the past. However,

Graph 11 – Strong demand for U.S. Treasuries



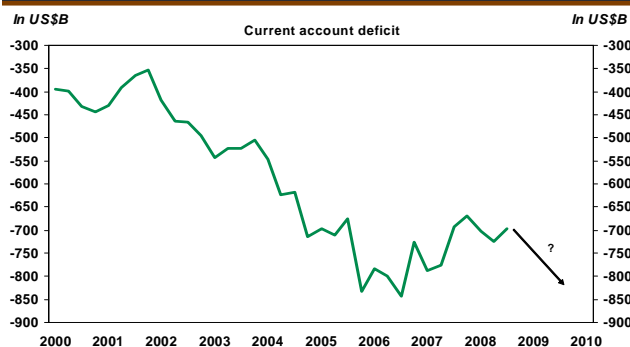
* 12-month total.
Sources: Datastream and Desjardins, Economic Studies

Graph 13 – Breakdown of U.S. federal public debt holdings in 2008



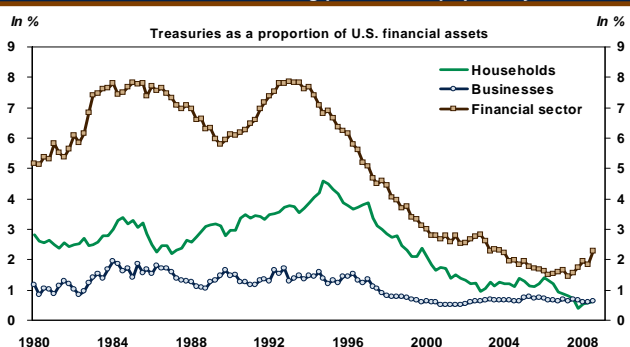
* Portion of the debt held by components of the U.S. public administration that cannot be traded on the secondary market.
Sources: Department of the Treasury and Desjardins, Economic Studies

Graph 12 – The expansion of the U.S. public deficit could result in a return of the deteriorating current account



Sources: Bureau of Economic Analysis and Desjardins, Economic Studies

Graph 14 – Treasuries weighting in asset portfolios expected to increase after a long period of unpopularity



Sources: Federal Reserve and Desjardins, Economic Studies

the growth in the deficit could quickly reverse this recent trend (graph 12).

WHAT IF DEMAND FALLS?

While changes in capital flows will make it easier to finance the upcoming deficit, there is a possibility that demand for U.S. Treasuries will fall. This demand involves all the government debt held by the public (marketable debt), slightly less than half of which is still in U.S. hands (graph 13), with the remainder held abroad, mainly in foreign central bank reserves. If for whatever reason demand for Treasuries were to fall (unlikely where the central banks are concerned), the yields would have to increase to keep a balance between supply and demand. Although the resurgence of risk observed since the beginning of the crisis has played in favour of medium- and long-term government bonds until now, some worry that this situation won't last. However, there is one strong argument for continued strong demand: portfolio rebalancing.

In the last decade, investors have steadily shifted away from Treasuries to riskier assets, including mortgage-backed assets

and commercial paper (graph 14). However, these securities have since lost their appeal and are not expected to rebound anytime soon, therefore favouring Treasuries. Disappointment with the stock market may also prompt investors to increase their weighting in Treasuries in order to reduce exposure. Several conditions would have to be in place to upset demand for government securities, and by the time they materialize, if they do, the projected deficits will already be lower and less worrisome to the markets.

IS DEBT MONETIZATION INEVITABLE?

In order to finance some of the deficit, the Fed could simply decide to buy more Treasuries by printing money. This is referred to as "debt monetization". Although a deficit with a lower interest rate would stimulate the economy, the resulting increase in the money supply would fuel inflationary pressures, which in turn would push up interest rates.

It is best to avoid monetization and allow long-term rates to rise slightly to balance capital flows. A US\$160B shortfall (1.1% of GDP) could mean a 30-75 basis points increase in long-term rates this year or less if the market felt that after 2010

the situation would quickly return to normal. A jump in inflation (or even just inflation expectations) due to intervention by the Fed could result in significantly higher rates.

Monetization is only a good idea in a clearly deflationary context or severe credit rationing, which tends to stall money supply growth. To contain inflationary fears, the Fed could officially commit to a medium-term inflation target. Otherwise, the markets could become nervous about holding bonds and demand a higher nominal yield. And issuing more bonds indexed to inflation could be an incentive for the authorities to stick to this target.

Monetization is therefore avoidable provided we are prepared to tolerate a slight increase in long-term interest rates. Obviously, everything is also a matter of proportion. Partial monetization may be enough and may even be desirable if we find ourselves in a deflationary situation. In a worst case scenario, the Fed could always resell Treasuries to limit the money supply expansion once the economy rebounds.

CONCLUSION

Many industrialized countries will see their deficit balloon in the next few years. As theory and some studies suggest, a sharp increase in long-term interest rates is usually to be expected, particularly in the United States, a large open economy where the deficit as a percentage of GDP will be even greater. Be that as it may, a number of factors play in favour of medium- and long-term interest rates remaining fairly low, for example, the growing saving rate, the drop in investment, and the need for central banks to support the greenback. But most important, greater risk aversion and portfolio rebalancing towards government securities will minimize the chance of a sharp drop in demand.

On the other hand, an increase in the saving rate and a decrease in investment are not ideal for short-term economic growth. Fortunately, a good portion of the debt will be channelled into infrastructure improvement, research and development, education and a reduction in fossil energy dependence. Unless consumption and business spending grows insufficiently in the near term, the prospects for growth in the longer run are greater. As well, the fact that a part of the debt will be used to finance productive assets should reassure the markets all the more.

Finally, monetization is an extreme solution to public deficits. A number of countries suffered terrible periods of hyperinflation after abusing this easy means of financing their spending. Even if the initial goal of this measure was to minimize the increase in long-term interest rates by rebalancing capital flows, the inflationary pressures that could arise would at any rate result in a sharper increase. Consequently, monetization is not the answer for now. However, it may become an option if we hit a period of deflation and if the credit crunch doesn't ease. If it does happen, the Fed will always be able to resell Treasuries in order to reduce the money supply, once the economy has recovered.

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