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HIGHLIGHTS

- Public debt loads are tremendously high in developed nations, and still rising.
- Policymakers have six options for tackling this issue: sovereign default, more inflation, more economic growth, repressing interest rates, fiscal consolidation or simply allowing debt to remain elevated.
- The most likely remedy is to pursue improved budget balances while holding interest rates down, with help from crumbs of additional growth and inflation.
- Our simulations show that while a handful of nations can return to debt normality within half a decade, most will require one to two decades to reach this goal.

WHAT TO DO ABOUT PUBLIC DEBT

The global economy teems with positive trends. Growth is rebounding, existential risks are shrinking and the U.S. private sector has completed the arduous task of deleveraging. In many ways, the tragic legacy of the global financial crisis is beginning to fade. However, one stain in particular remains stubbornly resistant to this cleansing process: high public debt loads.

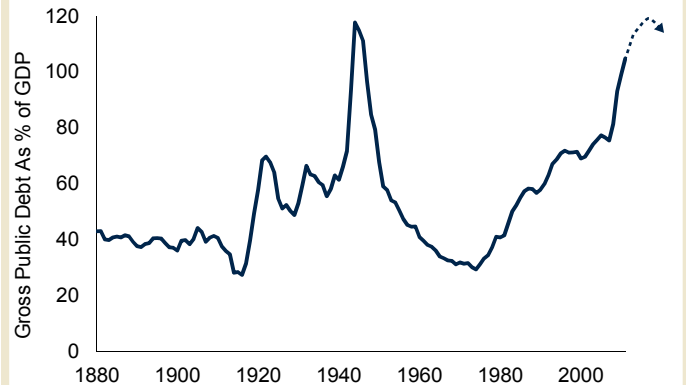
In this report, we set out to assess this remaining threat by evaluating the extent of public debt in the developed world, its adverse consequences, the remedies available to policymakers and their probable course of treatment.

Broadly, we find that public debt loads are tremendously high, and that this may be contributing to subpar economic growth. Although most nations have not quite struck all-time debt records, they are nonetheless close, and the dyspeptic economic environment makes for an especially challenging resolution. Policymakers are likely to take advantage of several tools in their Swiss Army Knife, focusing on achieving budget surpluses and sustaining unusually low interest rates, potentially buttressed with slightly faster economic growth and a pinch of additional inflation. Even with the combined might of these tactics, most countries will be locked in combat with high public debt loads for another decade or longer.

Quantifying debt

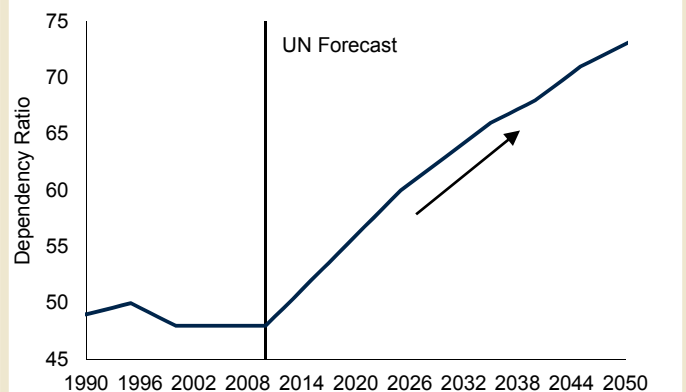
The great and growing sea of government debt (Exhibit 1) has gushed forth from a combination of government profligacy, housing market excesses and financial sector missteps. Contributing in a less acute if more dogged fashion, deteriorating demographic (Exhibit 2) and potential growth trends (Exhibit 3) have also conspired to drain public coffers.

Exhibit 1: Global Government Debt Rising and Near Historical High



Note: U.S. dollar GDP-weighted average of debt-to-GDP ratios of 34 advanced nations. Source: IMF, RBC GAM

Exhibit 2: Ageing Population Burdens Fiscal Coffers



Note: Dependency ratio of more developed regions. Represents ratio of population of age 0–14 and 65+ per hundred population of age 15–64. Source: United Nations, Haver Analytics, RBC GAM

Consequently, the world's most economically developed nations now sag under large gross governmental debt loads,¹ clustered mostly in the 80% to 120% of GDP range (Exhibit 4). These spectacular sums are set to continue arcing higher for several more years, no matter how urgently policymakers tackle the problem.

As public debt rises, it begins to trigger alarm bells. Debt-to-GDP ratios beyond 80% of GDP are regularly linked to subpar economic growth. Ratios ploughing past 100% are a sure way to start insolvency rumours.

What to do about debt

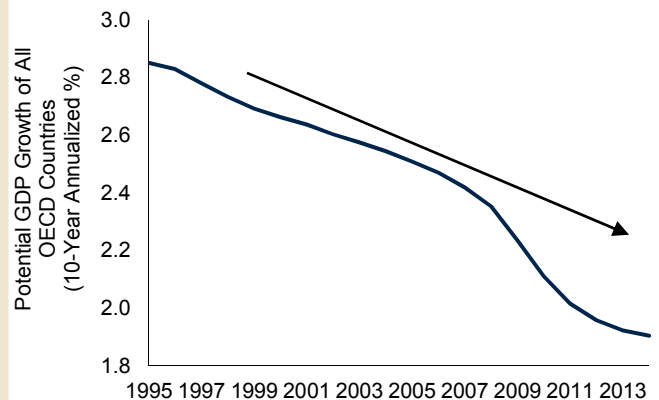
The good news is that no one expects the elimination of every last dime of public debt, nor must the necessary reductions happen hastily. Unlike individuals, countries are theoretically immortal, meaning they can carry a certain amount of debt indefinitely. The key to success is in not abusing this privilege.

How much debt reduction should policymakers be targeting? Investors and debt ratings agencies are usually content with public debt loads for developed nations at or below 60% of GDP. It is no coincidence that the European Union's Maastricht Treaty set this number as its upper permissible limit (a cap that was regrettably ignored). A reasonable alternative goal would be to restore public debt ratios to pre-crisis (2007) levels. The difference between each country's present debt load and these targets is depicted in Exhibit 5. The median gap to the closer of the two targets for each country averages a sizeable 30 percentage points.

Fortunately, this does not mean that countries must pony up cash equal to 30% of their annual economic output. Certainly, that represents one option, but hardly the only or easiest. Broadly, there are six ways to manage a high public debt burden (Exhibit 6). Resolving current debt loads is a sufficiently knotty subject that several approaches will likely be used in combination.

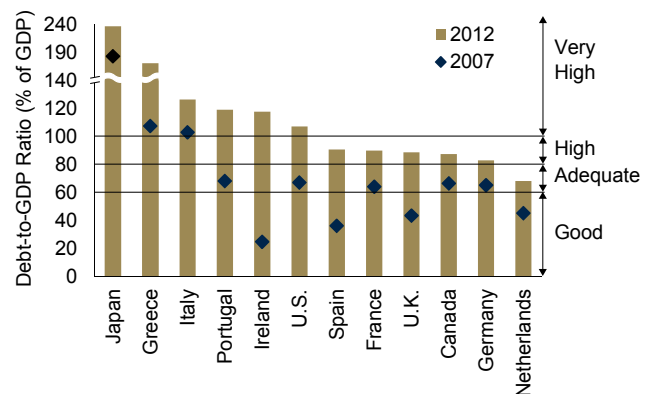
The first option is to default on the debt; the second is to inflate the debt away. The third option is to sustain faster real economic growth; the fourth is to keep interest rates unusually low for many years. The fifth is to run a primary budget surplus (i.e. ensure that government revenues exceed non-interest expenses). The sixth possibility is to passively accept the consequences of high debt. Each has been employed with some success in the past (Exhibit 7), and each has its charms (Exhibit 8).

Exhibit 3: Sustainable Economic Growth Rate Slows



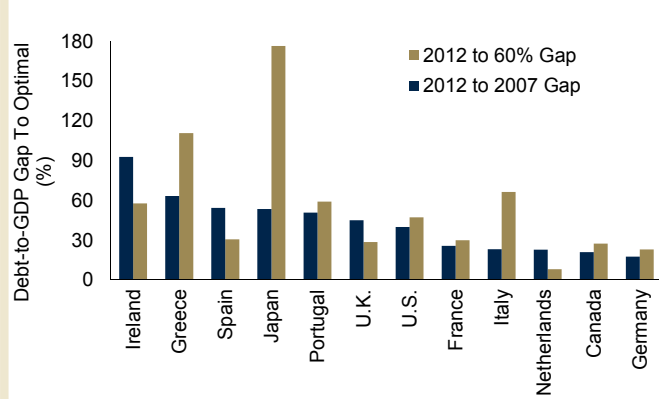
Source: OECD, Haver Analytics, RBC GAM

Exhibit 4: Debt-to-GDP Ratios High for Almost Everyone



Source: IMF, RBC GAM

Exhibit 5: Debt-to-GDP Ratios Above Optimal Levels



Note: Gaps calculated as difference between debt-to-GDP ratio in 2012 and 2007; between debt-to-GDP ratio in 2012 and 60% ratio.

Source: IMF, RBC GAM

1) Sovereign default

The first and most drastic option for sovereign-debt reduction is to default. There could not be a simpler – or on the surface, more alluring – choice. The government determines how much debt it wishes to bear and repudiates the rest, instantaneously restoring a sustainable debt load and reducing debt-servicing costs. This action, of course, leaves bondholders in the lurch.

Are countries allowed to renounce their debt like that? Keep in mind that unlike indebted households or businesses that are subject to national laws, countries have the luxury of making and enforcing their own laws, providing considerable wiggle room for domestically-denominated government debt.

Nonetheless, sovereign default is a rarely-employed tactic by developed nations. With the exception of Greece, which has defaulted twice in recent years – once explicitly and once on the sly, with yet another round likely – the default option has not seen much use since a spurt in the last quarter of the 19th century, and then again in the 1930s.

Why aren't sovereign defaults more regularly employed? Because there are several major repercussions.

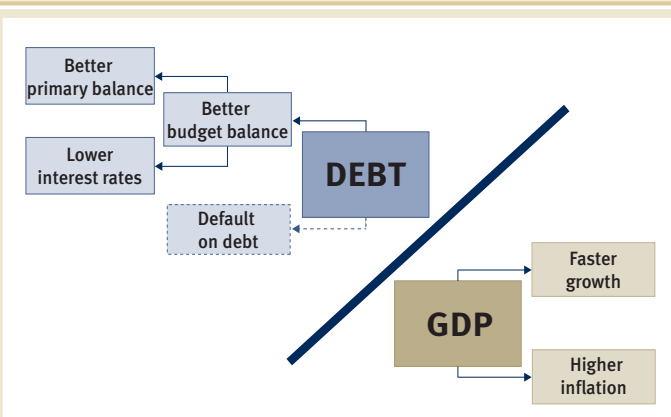
First, it was once commonplace for creditor nations to invade countries in default. There was once even the case of a defaulter permanently relinquishing its sovereignty – Newfoundland. These fates are unheard of today, but the web of globalization has spawned a different set of deterrents. In the modern era, creditors sometimes attempt to seize the foreign assets of a nation in default. For instance, Argentina's 2002 default resulted in repeated attempts to claim Argentine assets, including ships in foreign ports, satellites and international patents. In theory, foreign operations of state-owned enterprises could also be vulnerable.

Second, a country in default of its debt cannot expect to borrow freely (or at least cheaply) again for some time. As an example, Russia was unable to tap the bond market for 12 years after its 1998 default. Lenders do not easily forgive or forget. This handcuffs a country's ability to fend off future economic shocks or – more prosaically – to engage in productive projects like upgrading infrastructure.

The third reason to avoid default is that the elevated borrowing costs imposed on a recently-defaulted sovereign also tend to ratchet higher the borrowing costs of its domestic firms and households, imposing significant economic drag.

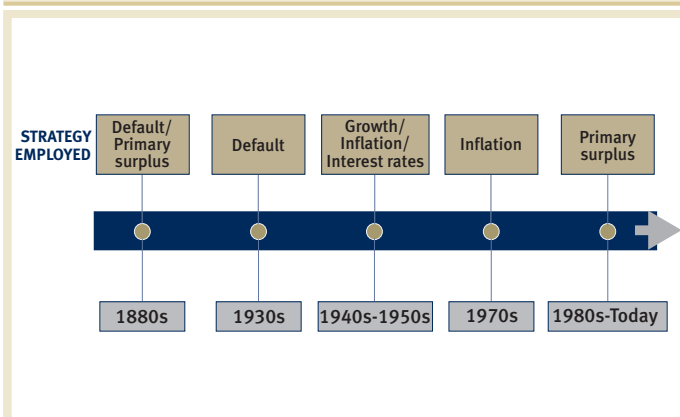
Fourth, countries in default may find themselves in short supply of international goodwill given their demonstrably unreliable behaviour. This can bring subtle but potentially serious consequences for their military alliances, international trade prospects and their ability to partake in international financial flows.²

Exhibit 6: How to Reduce Public Debt Loads



Source: RBC GAM

Exhibit 7: Past Debt Reductions



Source: IMF, RBC GAM, Reinhart and Sbrancia

Lastly, one must not forget the occasionally selfish motivations of the politicians involved, whose reputations both at home and among their international policymaker peers would be irreparably damaged by default. Even when sovereign default is the most logical course of action, political reluctance can be an impediment.

When economically troubled countries do elect to default, they usually only repudiate a portion of their debt. On the surface, such partial defaults seem ill-advised: why subject oneself to the wrath of creditors without extracting the full benefit?

However, there are several practical constraints to a total default. Nations can rarely afford to default on debt held by their own banks, pension funds and other institutions for fear of triggering a financial crisis. They may feel similar trepidation about writing down the holdings of domestic households and businesses. Similarly, there are several creditors in the official sector – most notably the International Monetary Fund (IMF) – that cannot be

Exhibit 8: Debt-Reduction Options

	Pros	Cons	Impact	Probability
Default on debt	Instantaneously reduces debt load	Loses access to credit markets in future; suffers high bond yields; repercussions for corporations and households; international pariah	Very Large	Very Low
More inflation	Higher inflation increases the rate of nominal GDP growth, which reduces the debt-to-GDP ratio	Higher inflation often causes higher bond yields, nullifying the benefit; higher inflation also tends to exert a drag on real GDP growth	Small	Medium
Faster economic growth	Reduces debt in two ways at once: via larger denominator in debt-to-GDP ratio, and higher government revenues	Difficult to achieve, especially when already burdened by high debt	Medium	Low/Medium
Repress interest rates	Low interest rates reduce the burden of servicing existing debt, accelerating the rate of debt reduction	Interest rates are not entirely within the control of policymakers and could be difficult to influence when debt loads are high; low interest rates can create distortions	Medium	High
Better primary balance	Deficit-cutting is the most direct and certain way to reduce the debt load	Deficit-cutting is politically difficult, and economically painful to achieve	Large	High
Debt stays high	Allowing debt loads to remain high means avoiding the economic pain of fiscal austerity, and may be sustainable for a lengthy period	High debt loads often exert a subtle but persistent drag on economic growth, and it is hard to predict when the bond market will turn on a profligate country	None	High

Source: RBC GAM

so easily deprived of their money. Thus, in practice, countries do not eliminate all of their debt when they default.

Moreover, the bond market can be surprisingly forgiving under the right circumstances. Investors are usually much more willing to absolve a country for which no amount of austerity and economic growth would have solved the problem and that restricts its default to the minimum amount required.

Sovereign default is unlikely to be widely employed in response to current high-debt conditions. Greece will probably succumb again, but others are much less likely given the many negative consequences. Credit default swaps offer a similar assessment (Exhibit 9).

2) Inflate away debt

A second option is to inflate away the public debt. From an accounting perspective, the nominal value of the debt remains unchanged, while higher inflation makes it easier for debtors to make loan payments in money that is worth less. This interplay diminishes the debt-to-GDP ratio. So far, so good.

Exhibit 9: Sovereign Default Unlikely Outside of Greece

	Implied Annualized Probability of Default (%)
Greece	87
Portugal	8
Spain	6
Italy	5
France	2
Japan	1
Netherlands	1
U.K.	1
U.S.	1
Switzerland	1
Germany	1

Note: Calculated using 5-year credit default swaps, presuming 50% recovery rate. Source: Bloomberg, RBC GAM

However, this is an overly simplistic assessment of inflation's effect. Inflation has several second-order influences, some positive, but most negative.

On the positive side, the taxation of investment income is rarely adjusted for inflation. If inflation runs 2 percentage points more quickly than usual, then the average nominal investment return will also be 2% higher. The additional return is illusory since it secures no greater purchasing power for the investor, yet taxes are owed on this fictional gain. This results in a diminished real return for the investor, and a bigger cut for the state.

On the negative side, higher inflation is bad for economic growth. While some small amount of inflation is desirable,³ it can be problematic in larger quantities. Shifting from a 2% to 4% average inflation rate sacrifices around a third of a percentage point from the annual real economic growth rate. So while higher inflation unambiguously adds to nominal GDP, the net addition is smaller than it first looks because it subtracts from real, or inflation-adjusted, GDP.

A further negative is that when inflation quickens, lenders naturally demand compensation via higher nominal interest rates, resulting in a stock of debt that compounds more quickly. If people correctly anticipate the increase in inflation, the debt-eroding benefit of higher inflation is completely negated by the cost of higher interest rates.

These disadvantages don't completely preclude inflation as a debt-combating tactic, but it emphasizes the special conditions that must exist to avoid winning the battle but losing the war. The U.S. experienced several brief spurts of higher inflation during the 1940s and early 1950s. This inflation successfully nibbled away at the sovereign debt. In contrast, the sustained blast of high inflation in the 1970s was less helpful.

The key to success in the first period was that the bouts of inflation were unanticipated, never lasted very long and were abetted by artificially low bond yields (more on that in the next section). This potent combination maximized the debt-shearing benefits of higher inflation (Exhibit 10).

Despite inflation's spotty success as a debt-fighting tool, the history books show that policymakers usually succumb to its charms. In past periods of serious public-debt reduction in the U.S., the U.K., Japan and Canada, inflation quickened its step by an average of one to three percentage points per year (Exhibit 11).

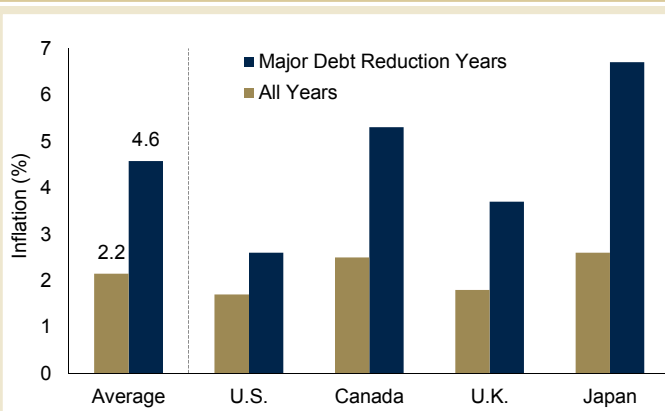
How likely is inflation to be used in the coming decades as a debt-defeating tool? Probably to some limited extent, but less extensively than before, given the repeated commitment to low and steady inflation central bankers have espoused over the past two decades.

Exhibit 10: Past Bouts of U.S. Debt Reduction Via Inflation



Source: Haver Analytics, RBC GAM

Exhibit 11: Inflation Higher During Public Debt Reduction Periods



Note: Median annual inflation during the periods studied. Covers period of 1790 to 2009, where data is available. "Average" is the average of the four countries shown. Source: Reinhart and Sbrancia, RBC GAM

For that matter, there is little scope for elevated inflation in the near term for most of the developed world, if only because inflation cannot be conjured overnight.⁴ Similarly, higher inflation is unlikely to be articulated as an explicit strategy in most countries, if only because to admit its existence would send bond yields higher, breaking its spell.

But policy actions speak louder than words. Governments engaging in large-scale quantitative easing, such as the U.S., U.K., Switzerland and Japan (Exhibit 12), have at least cracked open the window to a scintilla of extra inflation. Central bank mandates are beginning to shift. The U.S. Federal Reserve now seems more interested in unemployment and has articulated a greater tolerance for inflation. The Bank of Japan has just increased its inflation target. The Bank of England continues to conduct policy in a manner that seems willing to accept the trade-off of higher inflation in exchange for additional growth. Consciously or not, central banks are starting to take their eyes

off the inflation ball. Meanwhile, the current competition to devalue currencies provides a further window into the soul of policymakers, revealing where their priorities lie on the inflation file.

3) Outgrow debt

Unlike inflation, faster economic growth is a force for unadulterated good in the war against high public debt. Mathematically, a bigger economy means a smaller public debt-to-GDP ratio.

Moreover, strong economic growth helps quiet public debt in a variety of indirect ways. For one, countries enjoying rapid economic growth are less likely to be identified as at risk of default, reducing the odds of succumbing to onerous borrowing costs.

Second, fast-growing countries usually benefit from naturally buoyant budget balances. Each additional percentage point of economic growth can be expected to reduce the debt-to-GDP ratio by around 1.4 percentage points. This is a refreshing contrast to the workings of higher inflation, which yields notably less than a 1 percentage point improvement per additional tick of inflation.

Easier said than done

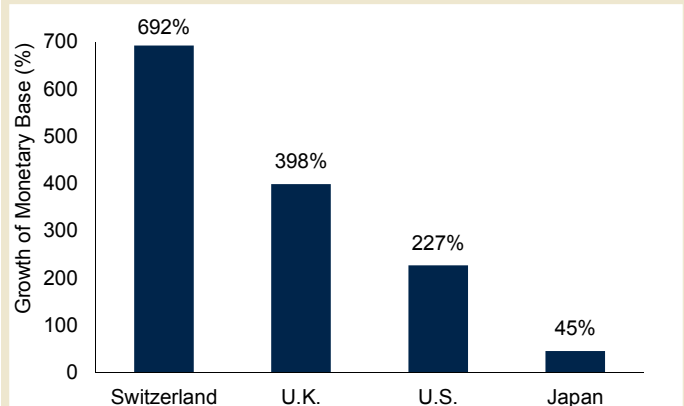
However, achieving sustainably faster economic growth is easier said than done. In theory, policymakers should already be implementing growth-maximizing economic policies, since a country benefits from verdant economic growth whether or not debt is elevated.

Faster economic growth was a key contributor to the taming of high global debt burdens after World War II (Exhibit 13). The war machine itself initially induced strong demand, and then a return to peacetime economics enabled a resumption of global trade, the application of new military technologies for civilian purposes and the return of tens of millions of soldiers to the working world. It also laid the groundwork for the rise of women in the labour force and the baby boom.

Since the 1960s, the economic environment has been somewhat less conducive to debt reduction on the basis of faster economic growth. In fact, rapid economic growth has not played a major role in taming excess debt burdens in the developed world for over 40 years.

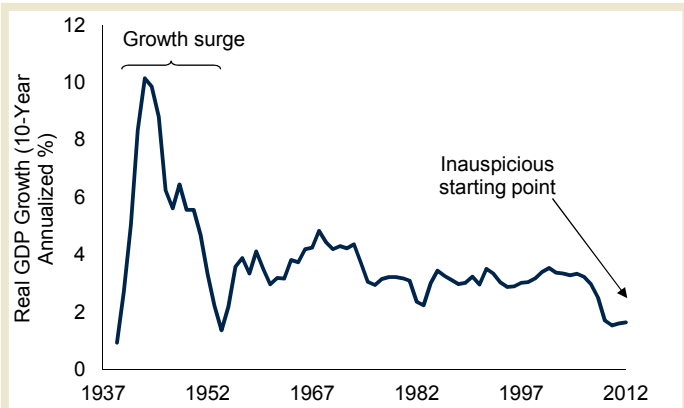
Today, central banks already have their pedal to the metal and fiscal stimulus is restricted by the need for less debt, not more (Exhibit 14). This closes off two potential avenues for extra growth. In any event, monetary and fiscal stimulus are inherently

Exhibit 12: Expanded Central Bank Monetary Bases



Note: Growth between Q3 2007 and latest available data point.
Source: Haver Analytics, RBC GAM

Exhibit 13: U.S. Economic Surge Helps Tame Debt



Source: Haver Analytics, RBC GAM

temporary, acting in more of a pothole-filling capacity than as catalysts for sustained economic growth.

What is needed is a multi-decade source of faster economic growth, not just a cyclical one. Unfortunately, the odds are stacked against faster growth over this timeframe as well. High public debt loads are associated with slower-than-usual economic growth. During 23 of 26 past high-debt episodes across the globe, the stricken nation sputtered along with subpar economic growth. The fact that the causality is unclear is not much consolation.

The dismal demographic trend is locked in place for the next several decades, and declining productivity trends would seem to offer little immediate hope given the popular notion that the rate of technological innovation is slowing.

But faster growth still possible

Despite all of this, there is reason to hold out hope for a smidgen of additional economic growth in the coming decades. There are five arguments endorsing this.

First, research suggests that nations with high but falling debt loads do not always succumb to the same growth trap as those with high debt that is flat or still rising.⁵

Second, there is tentative evidence of what is called a “challenge-response” mechanism that sometimes provides a productivity boost whenever demographics become particularly unfriendly.⁶

Third, we do not subscribe to the view that innovation – and by extension, productivity growth – is permanently ebbing. The future path of innovation has always been opaque and the progress in basic scientific research is as fast as ever.

Fourth, negative economic shocks can sometimes be unexpectedly valuable if they manage to short-circuit entrenched dysfunctional practices. For instance, peripheral European nations are finally overcoming interest group opposition and inertia to deliver the competitiveness reforms necessary to achieve sustainably higher economic growth. This won't come about immediately – the shock of the transformation itself tends to cast quite a pall over the initial few years – but Europe could subsequently prove capable of growing more quickly than before.

Fifth, most economies are operating in a position of considerable economic slack (Exhibit 15). Even if some part of this slack ultimately proves exaggerated and the rest remains elusive for another few years, there should nonetheless be a point over the next decade when this slack is re-absorbed into its host economies via a period of above-potential economic growth.

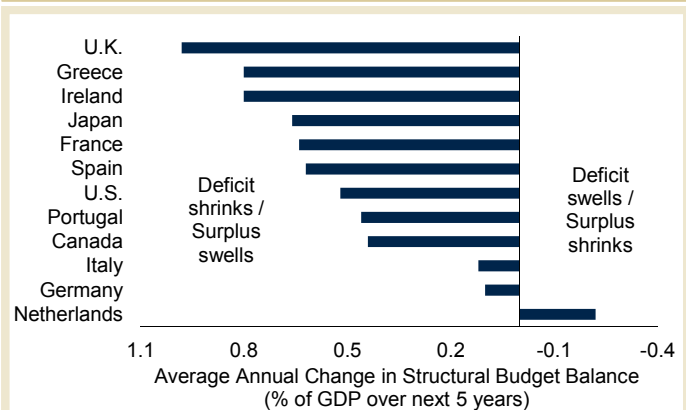
The bottom line is that economic growth should remain sluggish in the immediate future. But it is possible that growth will regain some semblance of rosy cheeks thereafter, helping in a modest way to reduce sovereign debt-to-GDP ratios over time.

4) Repress interest rates

The fourth debt remedy is to take steps to keep interest rates lower than they would otherwise be, minimizing the rate at which sovereign debt compounds. The technical term for this is “interest rate repression.”

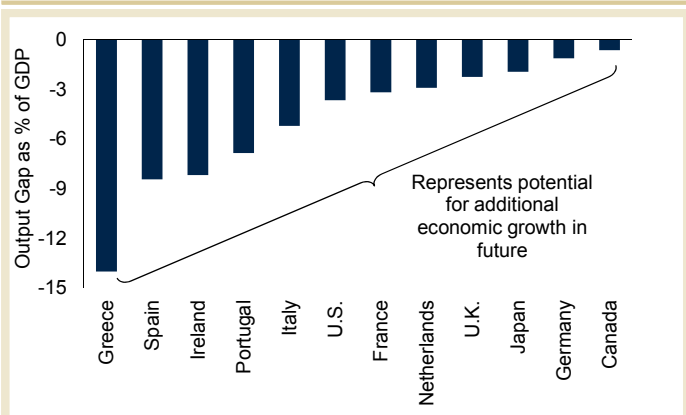
Holding down government bond yields is a strategy that goes hand-in-hand with pursuing faster economic growth. The challenge is to neutralize the natural tendency for bond yields to rise as growth and inflation pick up. When accomplished,

Exhibit 14: Governments Must Work Hard to Rein in Spending



Note: Based on IMF projections of annual structural balance for 2013 to 2017.
Source: IMF, RBC GAM

Exhibit 15: Ample Economic Slack in Most Countries



Note: OECD estimated output gap in 2012 for all but Canada (BoC).
Source: OECD, Bank of Canada, RBC GAM

the wedge driven between nominal bond yields and the rate of nominal economic growth allows the debt-to-GDP ratio to begin melting away even before a primary budget surplus has been struck.

Interest-rate repression has been well used in the past, particularly in combination with faster growth and higher inflation in the post-World War II period. In fact, U.S. interest rates averaged just one-third the rate of nominal GDP growth during that era, thanks in large part to a government edict (enforced by the Fed) that the U.S. 10-year yield not exceed 2.5%. This allowed for a remarkably fast and painless reduction in the debt-to-GDP ratio.

Low rates today

How likely is interest-rate repression to figure in future debt fighting? Quite likely, we suspect.

In the near term, this is an easy prediction. Ultra-low interest rates are a reality thanks to risk aversion, slow GDP growth, moderate inflation, low central bank rates and quantitative easing. This has kept the true cost of elevated debt levels at bay (Exhibit 16). Since 2000, U.S. interest on the public debt as a share of GDP has fallen despite a more than doubling of public debt. It has been a similar experience for other countries.

Besides, so long as economies suffer from sizeable economic slack – as developed countries do – central banks will need little prompting to maintain low-rate policies.

Low rates tomorrow

Calling for interest rates to remain low beyond the next few years requires more effort, especially as economic growth begins to revive, risk appetite edges higher and given the pressure of high debt loads. In theory, rising debt loads alone should have increased government bond yields by an average of 1.2% since the onset of the global financial crisis. However, the link between public debt and public borrowing costs is maddeningly inconsistent: in more than 40% of past public debt spikes, interest rates failed to rise at all.

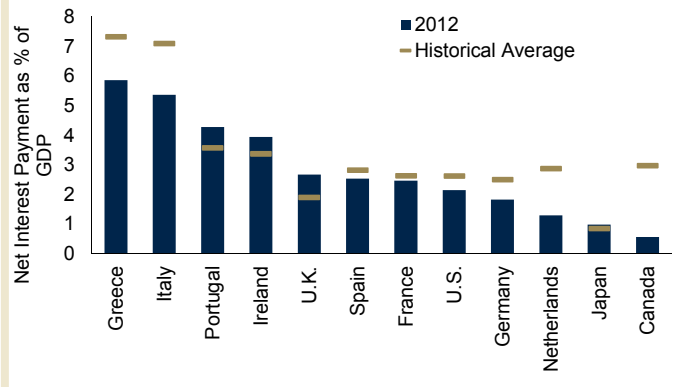
In fact, this ambiguity is reflected in how Standard & Poor's rates sovereign issuers. Debt and deficits certainly factor into the equation, but they constitute the distinct minority of the variables considered. So long as an indebted country has solid public institutions, a well-run central bank, decent economic prospects and some semblance of external balance, it can enjoy a healthy debt rating (and by extension, avoid the penury of high interest rates).

Interest rates are already being repressed by central bank buying, and by mounting Basel III requirements that financial institutions around the world hold more safe assets such as government bonds. It is an open question whether policymakers will employ additional repressive techniques. The well-worn toolkit includes outright interest rate caps, imposing a ceiling on the rate of return for substitutes such as bank deposits and loans, limiting outward foreign investment, and even banning certain investment alternatives (Exhibit 17).

As a final observation, one must not underestimate the inertia inherent in government bond yields. There have been multi-decade spans – such as the last two decades of the 19th century and 1935 to 1955 – when borrowing costs were very low and steady, despite occasionally similar debt predicaments.

Maintaining low interest rates is not a costless exercise. It punishes savers, rewards borrowers, and more generally risks re-inflating the very bubbles that necessitated the low rates to begin with. But compared to the cost of default, of running high inflation or the risk of doing nothing, a low-rate strategy has considerable allure. Consequently, lower-than-normal interest

Exhibit 16: Debt Servicing Costs Relatively Low



Note: Average net interest payment as % of GDP from 1990 to 2012, where data is available. Source: IMF, OECD, RBC GAM

Exhibit 17: Rate-Represion Options

Direct repression	<ul style="list-style-type: none"> Impose cap on sovereign debt borrowing costs (enforced by central bank in market) Subsidize sovereign debt via tax advantage
Debt stays high	<ul style="list-style-type: none"> Impose ceiling on deposit and loan rates at banks / substitutes Reduce government guarantee on deposits Ban alternative investments (e.g., gold) Limit outward foreign investment
Inflate demand	<ul style="list-style-type: none"> Induce central bank / government agencies / public pensions to hold more sovereign debt Oblige banks / insurance / pensions to hold more sovereign debt via regulatory changes

Source: Reinhart and Sbrancia, RBC GAM

rates are likely to persist over most of the coming decade if not longer, contributing to sovereign-debt reduction.

5) Fiscal consolidation

The fifth option – fiscal consolidation – is the tactic employed most and to greatest effect in recent decades. It is also probably the most conventional. Fiscal consolidation happens when governments use taxes and spending cuts to bring budgets into balance. This is arguably the most reliable path back to healthy public-debt levels. It avoids the investor anger of a default, the Pandora's Box of higher inflation and the vagaries of pursuing higher growth and lower borrowing costs.

Unfortunately, the fiscal consolidation path has more than its fair share of brambles. Not only is it politically difficult to achieve, given the unpopularity of tax increases and spending

cuts, but it is economically damaging in the short run. Every dollar added in taxes or lost in government spending means roughly a dollar lost from economic output. This may even be understating the cost given the feeble state of national economies today.

Making matters worse, the pain of fiscal austerity is front-loaded: it takes years of austerity before deficits turn into surpluses and the debt can begin to decline (Exhibit 18). Fortunately, once the desired budget surplus has been achieved, it is the best of all worlds: the drag on growth disappears yet the debt reduction continues.

Despite this high cost, some form of fiscal consolidation is unavoidable. Most developed nations are still running gaping primary structural deficits⁷ that cannot be fully neutralized by faster growth, higher inflation and low interest rates (Exhibit 19). Fiscal consolidation pressures normally begin to build once a country has burst through the 100% public debt-to-GDP threshold, as several now have.

At a minimum, countries will need to return to a balanced primary budget (bringing revenues into alignment with expenses, excluding interest costs), and ideally a primary budget surplus of around 2%. This more aggressive goal is what was historically necessary to manage significant debt reduction. To get to that point in a timely yet practical manner means closing primary deficits at a rate of between 1% and 2% of GDP per year, unavoidably leaving a trail of subpar economic growth.

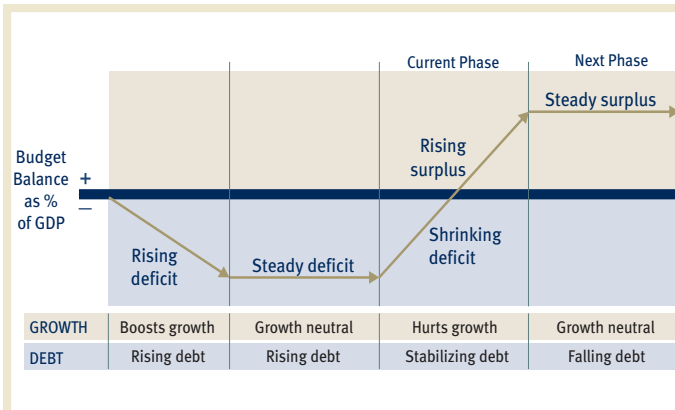
Governments can achieve budgetary surpluses in a variety of ways. Traditionally, successful austerity combines spending cuts and tax increases, tilted to the former. But the formulation is not set in stone. The governmental share of GDP varies by a remarkable factor of two among developed nations (Exhibit 20), and there is no obvious link between this and economic growth (Exhibit 21). Ultimately, the optimal path to primary surplus may simply be a matter of cultural preference.

Either way, primary budget surpluses will need to play an important role in public-debt reduction. This will require strong political stomachs, as the public may in particular struggle to accept the eventual juxtaposition of sizeable budget surpluses and entitlement cuts.

6) Maintain elevated debt

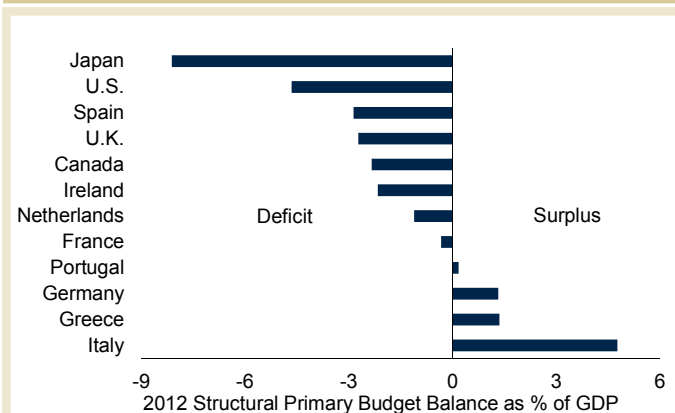
As a final option, if policymakers find all other strategies unpalatable or fail in their implementation efforts, debt levels could simply remain quite high. There is precedent for this option. Japan has allowed its debt load to mushroom to previously unheard-of dimensions, without being called to account by the bond market (Exhibit 22).

Exhibit 18: Pain is Front-Loaded



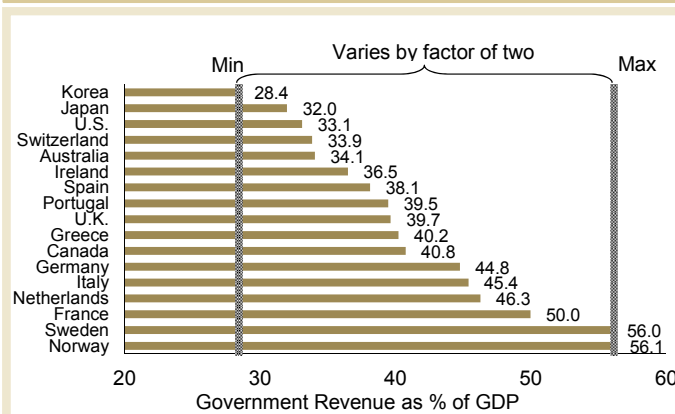
Source: RBC GAM

Exhibit 19: More Consolidation Needed for Most Countries



Source: IMF, RBC GAM

Exhibit 20: Government Size Varies Hugely



Note: Reflects average government revenues as % of GDP over past twenty years. Source: OECD, RBC GAM

As a slight variation on this option, some would argue that while public sector debt must eventually decline, now is not yet the time for it given that the cost of running deficits for a few more years is minimal due to rock-bottom interest rates. Moreover, so long as significant swaths of the private sector are in thrall to deleveraging, the public sector might be ill-advised to pile on. There is no denying that fiscal austerity – especially in Europe – remains much more painful than usual due to the weak economic backdrop and the fact that many countries are endeavoring to cut simultaneously.

In fact, regardless of how forthrightly policymakers pursue a solution, debt levels in the developed world will remain elevated for many years. Short of default, debt-to-GDP ratios can only decline slowly, even if a potent combination of faster growth, higher inflation, low interest rates and a primary budget surplus is deployed.

The IMF calculates that the average country with a 100%-plus debt-to-GDP ratio has historically managed to whittle only 10 percentage points off the ratio over the subsequent 15 years. Moreover, debt consolidations from start to finish have tended to average just a 26-percentage-point-decline in the debt-to-GDP ratio, whereas most developed nations today have further distance than that to travel.

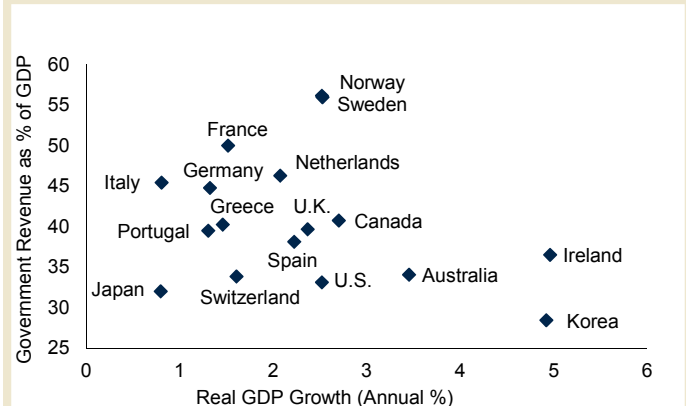
Nevertheless, it is worth making Herculean efforts to reduce public debt loads. In addition to the aforementioned growth-depressing and risk-augmenting consequences of high debt, four additional problems arise. First, there is always the risk that the bond market will suddenly balk at absorbing the debt, resulting in a debt crisis. Second, high debt loads unavoidably result in greater debt-servicing burdens, regardless of whether interest rates remain low. Third, elevated government debt siphons off private sector savings and therefore impedes other, more productive private sector uses such as buying a home or building a factory. Fourth, eventual repayment of the debt – or even just stabilization of the debt – demands a period of austerity that usually translates into subpar economic growth. It is only a question of when.

The way forward

There is no magical fix for high public debt loads. A variety of tactics will have to be employed simultaneously, with particular emphasis on improving primary budget balances and keeping interest rates low, and possibly – and more provocatively – receiving some assistance from faster economic growth and an additional crumb of inflation.

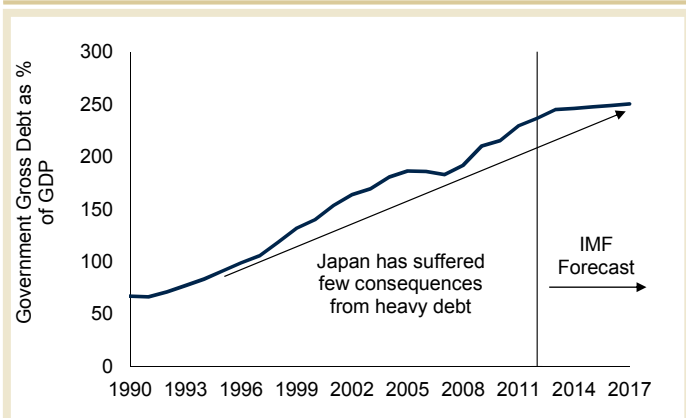
Debt normalization will take many years even in a best-case scenario and there is the distinct risk that policymakers throw up their hands and simply allow public debt levels to remain high,

Exhibit 21: Not Much Link Between Government Size and Economic Growth



Note: Twenty-year average used for each series.
Source: OECD, RBC GAM

Exhibit 22: Japan Has Survived Under Heavy Debt



Source: IMF, RBC GAM

despite the unfortunate drag that such decisions would inflict on long-term growth rates.

To determine the likely timeframe involved, we built a model and ran 72 simulations of the future path for public debt-to-GDP ratios through 2050. Each of 12 countries was subjected to six scenarios: i) a “passive” scenario; ii) a scenario involving fast growth and low rates; iii) a high-inflation scenario; iv) a big surplus scenario; v) an “aggressive” scenario that combined fast growth, low rates, high inflation and a big surplus; and vi) a “happy medium” scenario that assumed a fair amount of austerity and interest rate repression, but only a sliver of extra economic growth and inflation. This last could be fairly characterized as our baseline expectation. More details and caveats are available in Appendix A.

The results of these simulations are best depicted graphically. Exhibit 23 shows how long it will take each country to restore its debt-to-GDP ratio to pre-crisis levels under each scenario.

Exhibit 24 shows the expected date at which a country can expect to restore its debt-to-GDP ratio to a “normal” level of 60%. For Ireland, the latter target is the much easier of the two. For Japan, it is the reverse. Realistically, countries will target whichever is the less onerous of these two goals (Exhibit 25).

It is striking how long many countries will need to reach their targeted debt loads under our “happy medium” scenario. Fortunate nations such as the Netherlands, Germany and Canada can expect to achieve these goals within something like four to six years. France, Italy, the U.K., Spain and the U.S. will need to continue working into the 2020s to fully normalize. Japan, Portugal and Ireland must sustain the effort all the way into the 2030s. Ominously, our baseline scenario does not envision a path for Greece back to a normal public debt ratio by 2050.

Out of debt, out of danger

These findings have several implications for the economy and financial markets.

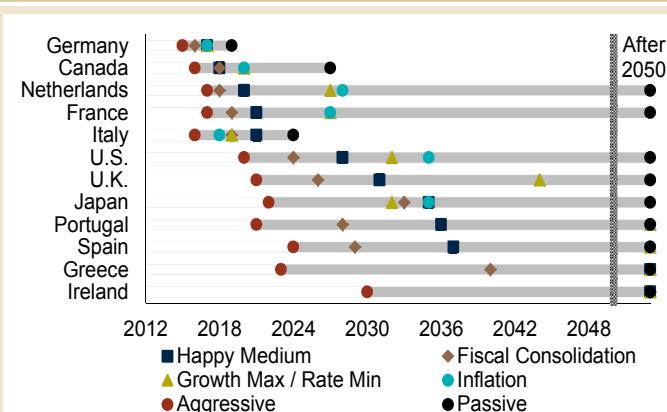
So long as debt loads are high, global risks remain elevated given the everpresent fear that bond markets will object to high debt loads or that a financial crisis could strike at a time when governments are unable to respond. This will be a fact of life for decades, not years.

Economic growth should remain uninspired over the next several years given the link between high debt and slow growth, and as governments slog through the task of restoring primary budget surpluses. Once this is done, however, much of the economic suffering will cease, even as surpluses persist and public debt loads continue to fall. In short, the fact that many nations must work toward normal debt loads over the next 10 to 30 years does not curse them to subpar growth for the entire span.

There is even the chance that the rate of sustainable economic growth could perk up somewhat⁸ as hard-won structural reforms in Europe (and perhaps Japan) begin to bear fruit.

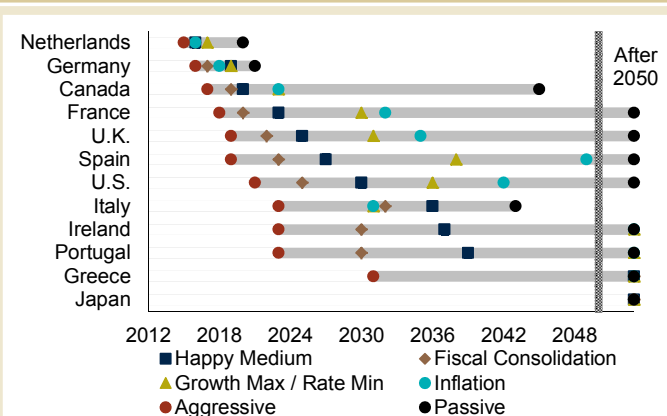
For the bond market, high public debt loads are unlikely to have the textbook effect of increasing interest rates. Rather, interest rates may well stay fairly low as governments use every trick in the book to minimize their debt-servicing costs and offset the drag from fiscal austerity.

Exhibit 23: Simulating a Return to Pre-Crisis Debt-to-GDP



Note: Depicts when debt-to-GDP returns to pre-crisis (2007) level under different scenarios. Source: IMF, RBC GAM

Exhibit 24: Simulating a Decline to 60% Debt-to-GDP



Note: Depicts when debt-to-GDP declines to 60% under different scenarios. Japan’s debt-to-GDP will not reach 60% before 2050 under all scenarios. Source: IMF, RBC GAM

Exhibit 25: Achieving Public Debt Goal via “Happy Medium” Scenario

	Year	Necessary Debt Reduction (ppt)
Netherlands	2016	8
Germany	2017	18
Canada	2018	21
France	2021	26
Italy	2021	23
U.K.	2025	29
Spain	2027	31
U.S.	2028	40
Japan	2035	54
Portugal	2036	51
Ireland	2037	58
Greece	>2050	63

Note: “Public Debt Goal” defined as easier of 60% debt-to-GDP ratio or pre-crisis (2007) debt-to-GDP ratio. Source: IMF, RBC GAM

APPENDIX A: PUBLIC DEBT SIMULATIONS

We built six scenarios for each of the 12 countries examined in this study. In each scenario, some combination of real GDP growth, inflation, interest rates and the primary budget balance are tweaked, and a rudimentary economic simulation is run to determine the probable effect upon the public debt-to-GDP ratio.

The simulator is not especially sophisticated. In addition to reflecting the basic accounting relationship between key variables, it also captures the most important secondary impulses, such as the drag that fiscal austerity exerts upon growth, the boost to government revenues supplied by faster economic growth and the effect of higher inflation on interest rates (assumed to negate half of the benefit). It also assumes that economic slack will be steadily closed over a five-year period, starting in 2014 for European nations and 2013 for others.

The purpose of these simulations is not to predict the path of debt reduction with precision. The assumptions are too stylized for that, too homogenous across countries, and for that matter there are too many moving parts to have any hope of being precise. The results should be viewed as merely indicative of the attainable trajectory for public debt normalization.

The actual country-by-country experience will likely vary substantially, not just because politicians may prove less up to the task than we hope, but also because each country has its own idiosyncrasies. Peripheral European players could continue to see the terms of their bailouts sweetened. Structural growth rates could improve by more than we assume for Europe, given the impressive competitiveness reforms being made. The U.S. suffers from greater political gridlock than most, but benefits from safe haven currency status, reducing the urgency to resolve its debt. Canada has a high gross debt-to-GDP ratio but a tame net debt-to-GDP ratio and so may not feel compelled to consolidate quite as quickly as our simulations assume. Japanese bond yields and inflation could end up materially different than we assume, depending upon whether the latest shot of stimulus succeeds.

With those caveats in hand, we now review the assumptions for each of the six scenarios:

Passive Scenario

The Passive Scenario is a slight misnomer in that it nonetheless assumes that governments will achieve a primary budget balance, eventually. But true to form, it makes no heroic assumptions about the rate of economic growth, inflation or interest rates.

Specifically, the scenario envisions that the primary budget deficit shrinks by one percentage point per year until primary budget balance is achieved. If a country is already in primary budget surplus, that surplus persists. Real GDP grows at its potential rate, adjusted upward by the closing of the output gap and downward by

the aforementioned fiscal austerity. Inflation remains at the central bank's target throughout. Term interest rates rise gradually, reaching normal levels by 2018.

Growth Max / Rate Min Scenario

The primary budget deficit shrinks by one percentage point per year until primary budget balance is achieved. If a country is already in primary budget surplus, that surplus persists. Real GDP grows by 1 percentage point per year more quickly than in the Passive Scenario, starting in 2014. Inflation remains at the central bank's target throughout. Term interest rates are 1 percentage point per year lower than in the Passive Scenario, starting in 2013.

Inflation Scenario

The primary budget deficit shrinks by one percentage point per year until primary budget balance is achieved. If a country is already in primary budget surplus, that surplus persists. Real GDP grows at its potential rate, adjusted upward by the closing of the output gap and downward by the aforementioned fiscal austerity. Inflation jumps to 2 percentage points above target in 2013 and remains there throughout. Term interest rates are 1 percentage point higher than in the Passive Scenario, reflecting a partial adjustment of inflation expectations.

Fiscal Consolidation Scenario

The primary budget deficit shrinks by two percentage points per year until a primary budget surplus of 4% of GDP is achieved. If a country is already beyond that surplus, its existing surplus persists. Real GDP grows at its potential rate, adjusted upward by the closing of the output gap and significantly downward by the large fiscal austerity. Inflation remains at the central bank's target throughout. Term interest rates are in line with the Passive Scenario.

Aggressive Scenario

The Aggressive Scenario might be thought of as a "best-case scenario" for public debt reduction, but it is ultimately quite unlikely. It assumes that nations improbably manage to magpie the best attributes from all of the other scenarios, securing materially faster economic growth, notably higher inflation, substantial interest rate repression and heroic fiscal austerity.

Specifically, the primary budget deficit shrinks by two percentage points per year until a primary budget surplus of 4% of GDP is achieved. If a country is already beyond that surplus, its existing surplus persists. Real GDP grows by 1 percentage point more quickly than its potential starting in 2014, adjusted upward by the closing of the output gap and significantly downward by the large fiscal austerity. Inflation jumps to 2 percentage points above target

in 2013 and remains there throughout. Term interest rates are ultimately the same as in the Passive Scenario, but only because 1 percentage point of rate repression is precisely offset by the additional inflation.

Happy Medium Scenario

The Happy Medium Scenario can be viewed as our base-case scenario, representing a pragmatic (if slightly stylized and a hair optimistic) take on how governments might best tackle their debt reduction. It involves a significant amount of fiscal austerity and interest rate repression, combined with a small amount of additional economic growth and inflation.

Specifically, the primary budget deficit shrinks by 1.5 percentage points per year between 2013 and 2015 and then by 1 percentage point per year thereafter until a primary budget surplus of 2% of GDP is achieved. If a country is already beyond that surplus, its existing surplus persists. Real GDP grows by 0.25% more quickly than its potential starting in 2014, adjusted upward by the closing of the output gap and downward by the large fiscal austerity. Inflation edges to 0.25% above target in 2013 and remains there throughout. Term interest rates are initially set at 50 basis points lower than the Passive Scenario, but a portion of this is whittled away by the higher inflation.

End Notes:

¹Throughout this report our references to debt-to-GDP are shorthand for the gross governmental debt-to-nominal GDP ratio, as calculated by the IMF. It is arguably the international gold standard, but could just as easily be depicted using “net” instead of “gross” figures (which would reduce Japan and Canada’s apparent debt burdens considerably since these countries hold sizeable financial assets that partially offset their debt), or “federal” instead of “governmental” since the latter includes the debt of all levels of government, even though this collective total is under no single entity’s control.

The decision to depict debt as a ratio to gross domestic product (GDP) instead of as an absolute level handily provides a sense for the relative ease with which an economy can shoulder its debt. Even here, there is room for debate, as one could argue that Irish debt might more accurately be contrasted to the size of gross national product (GNP), which better reflects the revenue base available to a country like Ireland that demands little recompense from foreign-owned firms.

Finally, some will note with concern that our definition does not include certain implicit and/or contingent liabilities such as the future unfunded cost of government pensions, social security schemes, health care costs and potential future liabilities such as future bailouts of systemically important financial institutions, or the risks associated with the debt held by / guarantees offered by government agencies. In response, we note that the international norm is to exclude these items, and moreover many of these obligations can be altered to the government’s advantage. For instance, countries can and are reducing their pension obligations by increasing the minimum retirement age, and they are mandating that banks hold additional capital to reduce the likelihood of future bailouts.

²Outward foreign direct investment may decline due to the fear that foreign creditors will claim ownership of the assets. Inward foreign direct investment may decline due to the fear that the government in default could continue with its erratic behavior by absconding with private assets as well.

³A small amount of reported inflation is needed to provide a protective buffer against the ravages of deflation, ensuring that households and firms are incited to spend or invest, instead of leaving their money idle. Positive inflation also provides extra room for central banks to reduce nominal interest rates during crises, to address the problem of nominal wage rigidity and to compensate for the upward distortion built into the measurement of the consumer price index.

⁴Despite the mighty efforts of central banks via massive money creation in recent years, inflation is little found in the developed world. Simply put, there is not enough oxygen for it to survive when inflation expectations remain mostly anchored, banks still lend only cautiously and the global economy is mired in a position of excess supply.

⁵Once again, the causality is in question. It would make sense if fast growing economies had an easier time paying down their debt.

⁶One possible explanation for the challenge-response mechanism is that when labour is in short supply, upward wage pressures may encourage greater innovation and ultimately the creation of new technologies to address the labour shortage, boosting productivity growth.

⁷The primary structural budget balance disentangles the effects of low interest rates and temporarily weak economies from that of government deficits, and is defined as the budget balance excluding the cost of servicing debt and stripped of the additional (inherently temporary) deficit that results from a cyclically-weak economy.

⁸At least, economic growth may improve on a counterfactual basis once worsening demographic drags are factored in.

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