## CHAPTER 10

# Taxing and Spending: Taking a Closer Look at Fiscal Policymaking and Communication

The fiscal logjam in Washington brought vividly to mind the time Bill Dennis, my friend from Earlham College, asked me in early 2004 to address his class. He was teaching Washington interns, who were taking a semester with The Fund for American Studies, with the credits coming from Georgetown University. A student asked a very perceptive, skeptical question implying that the Bush tax cuts of 2001 and 2003 were ill-advised. Influenced by Keynesian orthodoxy but to my eternal shame, I responded that the first cut was appropriate under the prevailing recessionary conditions, but of course it would need to be rescinded during the ensuing phase of economic expansion. But instead another tax cut had been enacted in May 2003, despite Chairman Greenspan's protestations. The second tax cut had happened even though the recession had ceased in November 2001 according to the National Bureau of Economic Research and four years of structural federal fiscal surpluses had ended in the same year according to the Congressional Budget Office.[1] Prompted by Grover Norquest's pledge of no additional tax revenue, a large segment of Republicans later became unwilling to approve counteracting hikes in tax revenue. My answer to Bill's student has got to rank among the most naïve utterances of all time. I abjectly apologize to that student, who I bet—based on the astuteness of his question—is reading this book!

### Designing a Fiscal Policy for the Ages

That woeful experience has induced me to formulate the general principle that the best counter-cyclical fiscal policy is just to establish immediately the optimal long-run environment. With the central bank's help, the private sector will adjust soon enough if that process is not stunted by unjustifiably intrusive regulations and government policies breeding undue labor-market inflexibility. And the so-called "German hypothesis" of the early 1980s may assume more importance under current circumstances. It holds that in certain circumstances fiscal austerity can impart an expansionary impulse because cutting government debt generates an improvement in

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confidence among households and entrepreneurs.[2] The actual as opposed to structural federal deficit still would reflect the business cycle through "automatic stabilizers."

Let's recall an historical fact, however neglected it has been since the turn of the century: During most of the final two decades of the last century, conventional wisdom actually justified such a nonresponsive fiscal arrangement because political factors were thought likely to render the real-world passage of fiscal policy too delay-ridden to be an effective counter-cyclical tool.

Recent research also bolsters the case for fiscal stringency. As John Berry has written,

> In a speech in March, Carlo Cottarelli, director of the IMF's Fiscal Affairs Department, described some of the profound impacts of a high debt/GDP ratio found in recent research by IMF economists. For instance, debt service costs tend to crowd out private investment and reduce productivity growth. "The difference in potential growth between having a debt ratio of 120 percent of GDP and a debt ratio of 60 percent of GDP is about one percentage point . . . Italy and Japan, two high debt-low growth countries, are good examples of this kind of effects," Cottarelli said.[3]

This work builds on a burgeoning empirical literature stemming from an influential 2010 paper by Carmen Reinhart and Kenneth Rogoff. Thomas Grennes, an economics professor at North Carolina State University, supplied a bibliography to which he contributed.[4] The empirical research suggested that above a tipping point, an increase in the ratio of government debt to GDP begins to impair growth in potential GDP. The data-based literature underlying that conclusion gave the requisite theory somewhat short shrift until it was sketched out in a 2013 paper by Carmen Reinhart, Vincent Reinhart, and Kenneth Rogoff:

> The standard textbook discussion of connections between public debt and economic growth emphasizes two potential channels. The first channel operates through a quantity effect on private sector investment and savings. When public debt is very high, it will tend to soak up the available investment funds and thus to crowd out private investment. If the government at the same time is imposing policies that attempt to reduce its debt burden with higher taxes, a burst of unexpected inflation, or various types of financial repression, then investment may well be discouraged further. The second channel involves a rising risk premium on the interest rates for government debt. Sufficiently high levels of public debt call into question whether the debt will be repaid in full, and can thus lead to a higher risk premia [sic] and its associated higher long-term real interest rates, which in turn has negative implications for investment as well as for consumption of durables and other interest-sensitive sectors, such as housing.[5]

Such a mounting default premium was not always confirmed by the experience assembled in the paper. But that textbook description usefully could be augmented as follows, perhaps capturing more examples. Above the threshold, people also increasingly begin to fear an associated more oppressive tax burden down the road. But that's just the issue raised by the literature on Ricardian equivalence, as analyzed in detail in the appendix to this chapter. That doctrine posits that rational, forward-looking households consider a tax cut financed new federal borrowing to be identical to a future tax hike. Accordingly, they would increase their current saving instead of their consumption. As the prospect of higher taxes in the future intrudes more and more on the consciousness of households, aggregate demand would be repressed further, as summarized by in Governor Bernanke's 2003 speech in Japan.[6]

And as that psychology sets in, supply-side factors also would begin to retard the growth of potential output. To be sure, people's willingness to work wouldn't seem to be impaired. But investors would start to have an intensifying incentive to send capital abroad rather than invest in domestic government debt or other local financial assets with returns subject to higher prospective taxes. That reaction, as the debt ratio mounts further above the threshold, also would tend to elevate progressively domestic real interest rates even abstracting from greater default risk—not only on government securities but generally. Such financial responses successively would damp investment projects and retard potential as well as actual real growth. Now we're cookin' with gas!

Later, this chapter later will take quite seriously the worrisome ultimate prospect that US financial markets could well come to view a rising ratio of federal debt to GDP with alarm and at that point will begin to evaluate potential policy actions in that context. But first let's interrupt our gaze into the future to contemplate some historical facts. Here's one that has been neglected for too long: After an initial cut in tax rates, President Reagan was forced to hike tax rates several times in order to reduce the augmented federal deficit. The reason was that "supply-side economics"—according to which tax rate reductions under then-prevailing circumstances would stimulate effort, production, and reported income while diminishing tax avoidance enough to be self-financing—failed to persuade me when it was first enunciated and remains unpersuasive today.[7] So for a variety of reasons, there will never be a better time than the present for all the Bush tax cuts to expire![8, 9]

In addition, I considered reducing both the US military presence around the globe and government health care expenditures to be desirable. Thus, given the failure of the congressional "Supercommittee" to live up to its name in mid-November 2011, you can see why I also favored triggering the automatic sequester of federal spending cuts agreed to as a "Doomsday Machine" last resort. In principle across-the-board spending cuts were much inferior to a selective, flexible approach yielding the same amount. But in practice the political realm was incapable of achieving that end, so triggering the sequester represented the only hope for curtailing federal expenditures over time. (The Congress at first pushed back the timing of its inception from year-end 2012. But two months later it allowed the automatic across-the-board restraints on spending to kick in, with the expenditure caps becoming more and more binding with each passing year.)

A compelling analysis by Ezra Klein already had appeared. Though he may not have been supportive himself, his column noted the wisdom of letting the sequester and the expiration of all the Bush tax cuts take place at the time of the original deadline:

> In August, Republicans scored what they thought was a big victory by persuading Democrats to accept a trigger that consisted only of spending cuts. The price that Republicans paid was (1) concentrating the cuts on the Pentagon while exempting Social Security, Medicaid and Medicare beneficiaries, and (2) delaying the cuts until Jan. 1, 2013. That was, they figured, a win, as it eschewed taxes. Grover Norquist's pledge remained unbroken.
>
> But 12 years earlier, George W. Bush had set a trigger of his own. To pass his tax cuts using the 51-vote sunset reconciliation process, he had agreed to let them sunset in 2010. A last-minute deal extended them through 2012.

> So now there are two triggers. One is an extremely progressive spending trigger worth $1.2 trillion that goes off Jan. 1, 2013. The other is an extremely progressive tax trigger worth $3.8 trillion that goes off . . . Jan. 1, 2013. If you count reduced interest payments, the two actions alone would reduce future deficits by about $6 trillion. That's far more than anything the "Supercommittee" came close to discussing. It is distributed far more progressively than anything the Democrats have even considered possible. And all that needs to happen for it to pass is, well, nothing.[10]

As a justification for reducing unemployment, the Keynesian logic of the Obama administration's initiatives all along was unpalatable to me. In early 2009 an ill-considered stimulus package of some $830 billion laden down with a grab-bag of pork-barrel projects was hastily ratified. Despite CBO's Keynesian-inspired estimates to the contrary, the program had little obvious macroeconomic effect beyond some direct impact on government spending and taxing. The latter ineffectiveness would be predicted by Milton Friedman's permanent income hypothesis of consumption, as noted in Chapter 9. And even the spending impact itself at best was delayed in the case of projects that were not "shovel ready." Still, the administration's faith in Keynesian orthodoxy persisted. For example, consider the alleged boost to consumption of the serial enactments of further extensions (on the heels of many years of life already) of a payroll-tax "holiday" and "emergency" unemployment insurance benefits? (Don't you just love the government's terminology? No, it wasn't coined by George Orwell.) The fact that each one was supposedly "temporary" of course would undercut any simulative spending impact.

Yet given the long-run insolvency of Social Security, a solution hardly would embody continuing a lower rate for payroll taxes. And the other component, which lengthened the duration of unemployment insurance when long-term joblessness already was way too high, had a flat-earth quality. The accepted theory of job search implies that lowering the cost of being without work will increase reservation wages, lengthen the average duration spent looking for a job, and raise the unemployment rate on average. That conventional economic theory was endorsed, if somewhat opaquely, by Chairman Bernanke in answer to a question in testimony we'll turn to soon. Vice Chair Yellen later plausibly attributed the rise in the unemployment rate relative to job vacancies to this very program.[11] Still, in supporting the initiative, Alan Blinder had called its implementation "a no-brainer."[12]

Mark Zandi of Moody's Analytics estimated the size of the extensions through year-end 2012 of the payroll tax cut and unemployment insurance (UI) adopted in February 2012:

> Keeping the 2-percentage point cut in payroll taxes in effect through the remainder of 2012 will put approximately $100 billion in workers' pockets, while extending the emergency UI program will provide $45 billion to the unemployed. Together, the benefit of these programs to American households equals almost 1% of GDP.[13]

So not only would this program end on the same day as the Bush tax cuts expired and the sequester began but each was about the same size in the first year as well. As one analyst concluded, "The upshot is that fiscal restraint in Q1 would probably be limited to less than $450bn (annualized), or about 3% of GDP."[14] Thus, my newly adopted viewpoint called for an additional fiscal drag of *only* around 3 percent of the economy at the start of 2013![15]

## Sidestepping the Fiscal Cliff

Given that position, you can well imagine my reaction to Chairman Bernanke's late-February 2012 testimony to the House Financial Services Committee:

> "Under current law, on Jan. 1, 2013, there's going to be a massive fiscal cliff of large spending cuts and tax increases," Bernanke told the House Financial Services Committee. "I hope that Congress will look at that and figure out ways to achieve the same long-run fiscal improvement without having it all happen at one date."
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> The tax hikes and spending cuts could knock GDP growth in 2013 down from 2.6 percent to 1 percent, according to Andrew Fieldhouse, a federal budget policy analyst with the liberal Economic Policy Institute.[16]

In light of that hit to projected economic growth, I could not help but think back to the attitude of the heroic Paul Volcker when the country faced an equally serious inflationary crisis rather than the current fiscal crisis. In May 1979 Volcker, still president of the New York Fed, said in an FOMC meeting that "we have to run not too scared" of a worse-than-expected recession.[17] In all fairness, Bernanke also had articulated his mantra earlier that month before the Senate's Committee on the Budget that we need a "credible plan for longer-term return to sustainability" in fiscal affairs, before he emphasized that such a lengthy horizon doesn't mean that in making decisions about the future the Congress can always "push it off mañana." Unfortunately, the two-month delay of the sequester itself to early March 2013 vividly demonstrated the political reality that the current legislature can't bind future congresses. Thus, kicking the can down the road is precisely the inevitable practical implication of Bernanke's mainstream advice. Mathew Dowd quipped on George Stephanopoulos's TV show *This Week* that when he hears someone say that they plan to "cut the grass," he doesn't believe it until he sees that the grass actually has been cut.

The appropriate approach instead is captured in this paraphrase of Senator Barry Goldwater (Republican, Arizona): "Extremism in defense of fiscal rectitude is no vice! And moderation in pursuit of a sustainable debt to GDP ratio is no virtue!" (Hmmm . . . Somehow that doesn't have the same resonance, does it? Even the original version helped cost Goldwater the 1964 election in a landslide.)[18]

Still, by the July 2012 Monetary Policy testimony, criticism from both parties of the Fed's fiscal timidity had intensified. For example, on July 17 Senator Bob Corker (Republican, Tennessee) noted that sequestration would amount to spending cuts of $1.2 trillion over the next ten years, while planned federal spending totaled $45 to $47 trillion in that period. He went on:

> *Senator Corker:* [W]e're talking about $108 billion dollars next year in reductions, half between defense and half in other mandatory reductions. You're seriously concerned that that small amount of spending reductions is something that is going to damage the economy? . . . Would you not also say that the best thing we can do to stimulate the economy, including any actions that the Fed might take, is for us to have real, balanced fiscal reform?
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> *Chairman Bernanke:* [T]he way the current law is written, we have the maximum impact right in the very short run on January 1, 2013, and much less happening over the next decade . . . [T]he timing should be adjusted to allow the economy a little more space to continue, but to make a serious effort to improve [fiscal policy] over the next decade.

> *Senator Corker:* [R]ecommending that we simply kick the can down the road, not do sequestration, and make us look even more irresponsible to me is worse than the $108 billion that might be reduced out of the spending that the federal government's going to be doing this next year . . . I candidly wish we had a chairman of the Fed that sometimes would say, "Look. We're not doing anything else. We're pushing rope. And it's up to you to act responsibly to deal with these fiscal issues. Quit looking to us!"

Representative Michael Capuano (Democrat, Massachusetts) picked up the same cudgel the next day: "To suggest that shifting round $500 billion in an economy that's $15 trillion is going to change the dynamics of the world is a little concerning to me. If it's not going to be $500 billion, then what do you think is . . . a number that will not dramatically throw us off this cliff?" Bernanke replied, "There ought to be more gradual approach. I don't want it all to happen on one day." Representative Capuano responded that the impact won't all happen on one day, but will be spread out over a year. "This fiscal cliff thing really needs a tone of reality."

Representative Ed Royce (Republican, California) referred to two of the studies on debt to GDP discussed above, the one at the IMF and the other by Reinhart and Rogoff. Although the specific figures that he attributed to the first study sounded wrong, he correctly summarized its finding that a current decline in the ratio of debt to GDP in some foreign countries typically would be associated with a rise in economic growth, while the second work found that an increase of debt to GDP above a 90 percent cutoff would impede real growth. Bernanke gave no indication of having heard of the first study but said that he couldn't buy into the specific 90 percent figure, understandably so for today's United States, which is viewed as the best credit risk around. Needless to say, for a congressman to have a sharper interpretation of recent economic research than the Fed chairman surely would be discomforting.

In the event Vice President Joe Biden and Senate Minority Leader Mitch McConnell (Republican, Kentucky) worked out a deal that kept the less-wealthy income earners from falling off the fiscal cliff at year-end as far as taxes are concerned. The Democratic Party predominately had opposed both Bush tax cuts in his first term, appropriately defending sound federal financing. But only a decade later the administration helped to engineer a major reversal of that Democratic orthodoxy. As 2013 began it prevented a return to the higher Clinton-era tax rates for households with annual incomes below $400 thousand ($450,000 if married), though not for higher-income taxpayers. To be sure, it also allowed the 2011 tax-holiday that cut payroll taxes to expire and imposed new taxes to finance Obamacare.

The drumbeat of congressional resistance to the Fed's fiscal alarm continued into the New Year at the next monetary policy hearing:

> Last month, lawmakers dismissed Fed Chairman Ben S. Bernanke's warning to Congress that such short-term budget contractions "could create a significant headwind for the economic recovery."
>
> Congress would have "zero" credibility if lawmakers tried to "somehow postpone" the budget cuts and promise to implement them later, Republican Senator Patrick Toomey told Bernanke during the Fed chairman's Feb. 26 testimony before the Senate Banking Committee. "Our economy would respond in a very adverse way, because it would see that we have absolutely no willingness, no political ability to begin even the slightest imposition of fiscal discipline."[19]

Despite the opposition of the Fed and the administration that was partly based on the results of Keynesian-style model simulations issued by the CBO, the automatic sequester affecting federal spending did go into effect on March 1, 2013, essentially split evenly for 2013 between defense and non-defense categories. The consequent macroeconomic effects evidently proved to be much less severe than contained in the dire warnings of the Fed, the administration, and the CBO.[20]

The necessity of both a "continuing resolution" to keep the federal government open after the start of the new fiscal year on October 1 and a hike in the statutory debt ceiling came to a head at that time. As happened nearly two decades earlier, certain Republicans, in this case led by Texas Senator Ted Cruz, Nevada Senator Mike Lee, and a Tea Party-inspired block of conservatives in the House, threatened an unacceptable government shutdown. They demanded the incorporation of a series of strange and unpopular steps as part of the necessary continuing resolution to keep the government going.[21] They succeeded in late September in getting Speaker of the House John Boehner (Republican, Ohio) to include defunding all of Obamacare, then delaying all of it, then delaying just the individual mandate, which was no way to treat an innocent existing law, even a wayward one. The plan remained ill-advised despite these more-of-the-same tweaks, because the price of getting their way involved threatening to halt the government's full functioning.[22]

Anyone should have learned from the debacle of the Gingrich-Armey-induced shutdown of 1995–96 that at a bare minimum a politician who can't keep the trains running on time doesn't deserve to be entrusted with political power, however distasteful the alternative. Far superior is the traditional deliberative process in a representative democracy. That "regular order" consists of committee hearings and approval, votes in the House and Senate, conference compromises to hammer out final legislation, and then signature by the president. But the events of the last several years suggest that any such hope once again will prove to have been in vain.

The irrationality of the partial shutdown of the federal government in October 2014 certainly did not augur well for a successful resolution of the debt-ceiling debate, a much graver issue. Any initiative risking a suicidal failure to extend the debt limit implied non-payment of preexisting government obligations, even if a narrow "default" on interest and principal for Treasury debt were to be avoided. Such an outcome is unthinkable, despite the Panglossian reassurances by some Republicans (and their media allies such as the normally more sensible commentators on Fox News Charles Krauthammer, Brit Hume, and George Will) about the soundness of a strategy that could lead to "prioritizing" payments in the event that the threat of a binding debt constraint were realized.

The president and congressional Democrats also suffered in the public relations battle, though less than their political adversaries. That downtrend in public opinion picked up steam when the administration encouraged the National Park Service to barricade the outdoor World War II memorial on the National Mall, thereby proving that stupidity wasn't a monopoly of the GOP. American veterans of what the Russians call "The Great Patriotic War," who were often octogenarians in wheelchairs, successfully stormed the barricades, likening their action to the Normandy invasion. And the opening of the computerized health-care exchanges for individuals as October began was beset by fundamental design and programming problems that limited the number people who actually could sign up for mandated insurance even

if many more wanted to do so. (The public relations impact of this ominous substantive disaster at first was muted by the Republican's newsworthy shenanigans.) Then, Savannah Guthrie, moderating *Meet the Press*, remarked that "the president's stance is 'I Won't Negotiate!' And even if there is a host of reasons why that is a responsible position, as a bumper sticker, it's not the greatest, is it?"[23]

At the last minute, Senate Majority Leader Harry Reid brokered a simple deal with Minority Leader Mitch McConnell to avert a more momentous self-inflicted catastrophe. After a 16-day shutdown, the government was reopened on January 15, 2014, the debt ceiling was suspended until February 7, and a bi-partisan budget committee was instructed to report by December 13.[24] The pact also retained the increasingly constrained levels for baseline spending in the sequester legislation that had produced outright cuts for two straight years. But the budget committee reached a deal that reduced those automatic sequester cuts in the next two fiscal years, though paying for the higher discretionary spending with lower federal and military pensions and higher fees for airline security. The Congress thus punted on longer-term deficit reduction.

## Analyzing How Quantitative Easing Alters Fiscal Policy's Effect

Let's now try to understand the interaction of QE3 with the prevailing fiscal policy that has featured huge federal deficits and an explosion of overall governmental debt. The president and the Congress to date have been incapable of enacting a program to scale back promised entitlements after another decade by enough to prevent the assent of the ratio of gross government debt to GNP. Reducing the prospective growth rate of total federal debt enough to approximate that of the country's trend rate of expansion of national income measured in current dollars would be needed. The Fed's augmentation of QE3 to encompass large-scale Fed purchases of longer-term Treasuries in December 2012 thereafter did finance a significant part of federal deficit. So, while of course not affecting overall gross debt, the Fed's unorthodox approach after year-end 2012 did appreciably retard the expansion of a measure of Federal government debt *excluding* the holdings of the Federal Reserve—that is, federal debt in the hands only of the true public. That effect has been especially noticeable for the *ratio* of that net debt measure relative to national income.

The analysis in the appendix to this chapter covers the interactions between monetary and fiscal policy and the changing significance of different debt concepts in varying states of the world. It concludes that if no households are forward-looking enough to consider that future taxes may have to rise to pay off the enlargement of federal debt, no concept of Treasury debt would matter one bit to consumption. But once some taxpayers start to worry about their future tax burden, so-called Ricardian equivalence between federal borrowing and current tax hikes in financing deficit spending would begin to apply. With historically sterile reserves, in the range beyond the threshold the relevant concept of net debt would *exclude* the holdings of *all* government agencies, which of course would encompass the Federal Reserve. Thus, the conventional measure of net governmental debt would *not include* the Fed's ownership.

But the passage of the Emergency Economic Stabilization Act of 2008 was absolutely consequential in this regard because that bill also accelerated the effective date of possible interest on reserves to October 1 of that year. Afterwards, the present value of the expected extra payments on excess reserves created by quantitative easing

effectively would fully offset the comparable measure of the expected extra interest income on the new bonds acquired by the Fed. It presumably would keep the interest rate on excess reserves closely aligned with its intended funds rate. So the expectations theory of the term structure would indicate that market expectations of the weighted average of the succession of interest payments on the added excess reserves would match the anticipated future interest return on the additional holdings of bonds (apart from a term premium). That correspondence would imply that the present value of the Fed's expected remittances to the Treasury would be unaffected, so the need for higher future taxes would not be curtailed by central bank purchases of longer-term Treasury securities.

Another implication of this analysis is that after the inception of interest on reserves, the measure of debt "in the hands of the public" that *includes* the Fed's holdings of Treasury securities would be what is relevant above the threshold. The name I have given to this concept consolidating the holdings of Treasury securities across the agencies of the government *other than* the central bank is "net* debt." In contrast to 2013's decline in the conventional net government debt ratio, the ratio of net* debt to income has not fallen in the last decade. Once the ratio starts to rise appreciably again in about a decade and the public later begins to become forward-looking, the underlying problem will get ever more acute regardless of whether the Fed augments, maintains, ceases, or reverses its program of quantitative easing.

Thus, since interest on reserves became effective in 2008, governmental net* debt relative to income would have been relevant in the United States in determining the threshold above which the growth of potential output would start to be repressed. But Tom Grennes informed me in mid-2012, "On empirical grounds, all the cross country studies, including ours, use gross debt because it is the only measure available on a consistent basis."[25] Still, the gross debt and net* debt constructs no doubt would continue to be positively correlated over time. That observation would be the case not only below the threshold where the distinction between the two debt measures doesn't matter, but also above the threshold where it would matter in practice, unlike the delimited theoretical results of the appendix that abstract from the trust funds. So even the inadequate international evidence relied on in those previous studies could have been interpreted to suggest indirectly that in the United States it would be the ratio of net* debt to GDP that above some tipping point would begin to impair the growth of potential output.

Yet until any taxpaying households start to worry about the future tax burden and bond vigilantes become concerned about potential default and begin to bid up real market bond rates, no measure of debt would matter a whit to real bond rates, consumption, or actual or potential economic growth. And with Treasury debt still considered the safest available investment in the world, I would assert that such a situation continues to apply. As yet, this country evidently has not reached the point where higher future taxes have become a concern and bond vigilantes have sprung into action out of worry about potential governmental default. But with current fiscal trends this complacency can't go on evermore. Someday those economic agents will start to become fully forward-looking and, in economist's jargon, "rational." At that point the debt threshold will be breached. And unless the looming fiscal problem is addressed successfully at that point, the situation will only worsen progressively. Still, as that happens, because reserves bear interest the Fed's hands will

be tied regardless of its posture regarding quantitative easing. The Fed's practice in 2013 of open-ended large-scale Fed purchases of government debt did not postpone that day made inevitable by the prospective overly large deficits. Indeed, any Fed decision of whether to expand, retain, cease, or unwind its policy of quantitative easing, despite a temporary impact on long rates, will not affect the timing of the eventual reckoning.

Seven months after I received Grennes's bibliographic email, which was reproduced earlier, a stimulating pager dealing with some of the same issues by David Greenlaw, James D. Hamilton, Peter Hooper, and Frederic S. Mishkin became available.[26] It attempted to quantify the historical effects in many countries of how much rising overall government debt relative to national income had raised longer-term interest rates. But I would criticize not only their paper but also of the existing literature on this subject as well, based on the theory in the appendix to Chapter 10. The appendix's theoretical analysis explained previous statistical results for the sudden emergence of an increasing retardation on potential output above a tipping point for debt by contending that Ricardian equivalence starts to apply as the public begins to worry both about an oppressive future tax burden and the risk of a governmental default on existing obligations for interest and principal. With sterile reserves the measure of net governmental debt should exclude central bank holdings, but after the authorization of interest-earning reserves, those holdings instead should be included. The authors don't refer to that important distinction. Of course, Ricardian equivalence does not hold at low levels of the ratio of debt to GDP, so over that lower range, no measure of debt would have mattered at all.

Thus, isolating this impact of debt on real rates would require looking for a threshold effect, which their paper didn't do. The approach still could identify a conventional "crowding-out effect" on real interest rates, though one might expect that the *increase* in debt associated with deficit finance would matter more than the *level*. That said, they wrote on p. 16, "The general findings in Gale and Orszag (2003), Reinhart and Sack (2000), Kinoshita (2006), Laubach (2009), and Baldacci and Kumar (2010) are that a one-percentage-point increase in the actual or projected debt-to-GDP ratio raises the long rate by 3–7 basis points."[27] Their own research, which found similar impacts, distinguished between the separate effects of gross and the conventional definition of net debt that presumably excludes central bank holdings.

In CBO's February 2014 forecast, the ratio of the federal debt including Fed holdings relative to nominal income was seen as reaching 74 percent at the end of calendar 2014—the highest since 1950 when the WWII bulge was dissipating.[28] A mounting overage of that figure was in prospect within a decade, even with optimistic current-law fiscal policies, once the ratio dipped to 72 percent in the next few years. If the Fed maintains the administered rate on the excess reserves created by its purchases of securities in line with its intended funds rate, the appendix indicates that such an approach would prevent decisions about quantitative easing from stopping households from starting to worry that a more oppressive tax burden will be needed to keep public finances whole. Then consumption increasingly would become damped by concerns about government default on the interest and principle. Such an eventuality would induce investment funds progressively to shift abroad, pressuring domestic real bond rates ever higher.

The fact that federal spending now is financed by borrowing at a low interest cost is not really important. What is important is that the fundamental problem would not be alleviated by quantitative easing even though much of the substantial borrowing by the Treasury in effect is financed by the Fed purchases in the secondary market. To be sure, the public never will have to repay the interest and principle as it comes due on the portion of the national debt owned by the Fed. Instead, all the extra payments of interest and principal on the new Fed purchases of government bonds now will go to the central bank, which will return every penny (after an adjustment for its capital gains or losses) to the Treasury. But higher anticipated interest payments on the enlarging bank excess reserves would keep the present value of the expected Treasury remittances from rising at all, apart from any influence of a term premium. So the eventual fiscal problem would come ever nearer despite the Fed's QE decisions.

When the Fed buys MBS, it is not loading up on literal Treasury debt. But the government's guarantee through Fannie and Freddie of the payments underlying these securities makes the fiscal impact of such Fed acquisitions essentially identical to overt purchases of Treasury debt. And the banks similarly gain more interest-earning excess reserves, again offsetting any fundamental augmentation of Treasury remittances. The eventual effects on market and consumer sentiment are virtually the same as if the Fed were buying Treasuries.

The appendix now will show why, given interest-earning reserves, decisions about QE won't affect the timing of any emergent concerns about future taxes or government default on its debt. It sets the stage by analyzing a 2003 speech by Governor Bernanke in Tokyo.

# CHAPTER 10 APPENDIX

# Understanding from the Ground Up How Monetary and Fiscal Policies Interact

In May 2003 then Governor Ben Bernanke presented a momentous speech in Tokyo on the appropriate monetary policy by the Bank of Japan (BOJ) to a group of monetary economists:

> My thesis here is that cooperation between the monetary and fiscal authorities in Japan could help solve the problems that each policymaker faces on its own. Consider for example a tax cut for households and businesses that is explicitly coupled with incremental BOJ purchases of government debt—so that the tax cut is in effect financed by money creation. . . .
>
> [T]he government's concerns about its outstanding stock of debt are mitigated because increases in its debt are purchased by the BOJ rather than sold to the private sector. Moreover, consumers and businesses should be willing to spend rather than save the bulk of their tax cut: They have extra cash on hand, but—because the BOJ purchased government debt in the amount of the tax cut—no current or future debt service burden has been created to imply increased future taxes. Essentially, monetary and fiscal policies together have increased the nominal wealth of the household sector, which will increase nominal spending and hence prices. . . .
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> Potential roles for monetary-fiscal cooperation are not limited to BOJ support of tax cuts. BOJ purchases of government debt could also support spending programs, to facilitate industrial restructuring, for example. The BOJ's purchases would mitigate the effect of the new spending on the burden of debt and future interest payments perceived by households, which should reduce the offset from decreased consumption. More generally, by replacing interest-bearing debt with money, BOJ purchases of government debt lower current deficits and interest burdens and thus the public's expectations of future tax obligations.[1]

## Setting the Analytical Stage for Assessing Governor Bernanke's 2003 Japan Speech

Those words offered a novel prescription for handling the threat posed by the zero bound on the short-term interest rate used to conduct monetary policy. In examining the speech's content, one should emphasize at the outset that his analysis of monetary

policy was exceptionally lucid in principle and prophetic as well. His treatment of its influence under the disinflationary or even deflationary conditions of the zero bound as opposed to a normal situation was spot on, unlike the later inflationary concerns in our country of monetarists and some other conservative economists.

Governor Bernanke's speech did conclude correctly that with the state of the world prevailing in Japan and then in the United States of sterile excess reserves, the central bank's security purchases in fact would eliminate the subsequent elevation of the debt service burden perhaps requiring higher future taxes. The central bank's action would mean the Treasury's payment of interest and principal on the securities no longer held by the public would go to the central bank. Absent capital gains or losses, the central bank soon would return those payments to the Treasury. Expectations of that effect with rational economic agents would raise household wealth, offsetting fully the drop in consumption otherwise caused by expectations of higher future taxes. Bernanke noted too that the sellers of newly issued government debt would receive additional cash to replace their prior holdings of an interest-bearing asset. In response to the lower taxes and boost to wealth, consumption would rise. At the lower bound, large-scale central bank purchases of government securities with rational actors thus would have had a crucial effect under the actual conditions of sterile reserves that always has prevailed in Japan and at that time applied to the United States as well.

This appendix will look in more detail at the speech's examination of the fiscal impact of a cooperative strategy. Constraints on complexity and space in his oral speech meant that Bernanke understandably could not have tried to cover all the bases. By contrast, a written appendix in a book empowers the author to attempt to be comprehensive, despite the inevitable complications. This appendix therefore will conduct a guided tour of all the cases capturing the possible permutations of three alternative states of the world: (1) bank reserves that lie idle versus earning interest; (2) households, businesses, taxpayers, and bond-market participants that are naïve and backward-looking versus rational and forward-looking; and (3) a central bank that conducts only orthodox open market operations versus quantitative easing via large-scale purchases of government securities. There are eight permutations of these three states of the world either one way or another (2 × 2 × 2).

We shall see how altering the combination of those three states of the world would affect the meaning of three different measures of debt: (a) gross debt that encompasses all forms of government debt; (b) net debt held only by the true public sector that deducts government debt held by *all* agencies of the government, including the central bank; and (c) net* debt that *includes* debt held the central bank but deducts *only* the government debt held by all other government agencies. New federal borrowing initially would have increased gross government debt and net* debt by a like amount. Net debt would stay unchanged rather than rising comparably only if the central bank via quantitative easing buys all the newly issued securities from the true public.

We'll always consider a borrowing-financed tax cut. We'll see that the academic notion of Ricardian equivalence is relevant. It's a concept named for David Ricardo, the British economist who lived from 1772 to 1823, but resuscitated in 1989 by Robert Barro.[2] It posits that rational households foresee that a future tax hike is the same as today's deficit spending financed by borrowing. Thus, they consider today's borrowing as equivalent to a tax increase. Anytime Ricardian equivalence holds fully, all households, businesses, taxpayers, and investors have become rational, so we are

**Table 10.A1** The Interaction of Monetary and Fiscal Policies with a Deficit-Financed Tax Cut

| | *Public* | *Central Bank* | *Public* | *Central Bank* |
|---|---|---|---|---|
| | 1. Ricardian | Traditional | 2. Ricardian | QE |
| **Reserves** | All debt up | | Net debt same | |
| *Sterile* | Wealth same | | Wealth up | |
| | Consumption same | | Consumption up | |
| | 3. Naïve | Traditional | 4. Naïve | QE |
| **Reserves** | All debt up | | Net debt same | |
| *Sterile* | Wealth impact ignored | | Wealth impact ignored | |
| | Consumption up | | Consumption up | |
| | 5. Ricardian | Traditional | 6. Ricardian | QE |
| **Reserves** | All debt up | | Net* debt up | |
| *Earn Interest* | Wealth same | | Wealth same | |
| | Consumption same | | Consumption same | |
| | 7. Naïve | Traditional | 8. Naïve | QE |
| **Reserves** | All debt up | | Net debt same | |
| *Earn Interest* | Wealth impact ignored | | Wealth impact ignored | |
| | Consumption up | | Consumption up | |

way above the debt threshold where that circumstance has just started to emerge. Under those conditions, as Bernanke correctly claimed given sterile reserves, the central bank's asset acquisitions would augment wealth and consumption by preventing households from anticipating that the new tax cut would imply a heightened prospect of more burdensome future taxes. Those perceptions otherwise would embody a more probable risk of government default and enlarged incentives to invest abroad, which would induce bond vigilantes to elevate further the term premiums on real interest rates. Higher real rates would erode the growth of potential output. But with interest-bearing reserves, this appendix will cast doubt on Bernanke's contention that with Ricardian actors, security purchases by the central bank would forestall those developments and increase the public's wealth and consumption.

I learned the hard way that the human brain simply is incapable of keeping straight all the various cases with the different combinations. So I was forced to construct Table 10.A1.

## Trekking on a Guided Tour of Varying States of the World and Roles for Government Debt

At last we are ready to begin an orderly excursion through the eight possible cases. In the first case, reserves are sterile and Ricardian equivalence holds but the central bank conducts no large-scale security purchases. With all the new government debt being held only by the true public, both net and net* debt measures also would have risen. (Recall that net debt is gross debt minus debt owned by *all* government agencies like the Social Security trust fund in the United States *as well as* the central bank. Net* debt subtracts only the debt owned by government agencies *other than* the central bank.)

The rational public would have realized that the current increase in all three measures of gross, net, and net* debt ultimately would have to be paid off via an equally sized future hike in taxes. The addition to household wealth caused by the tax cut

would have been just offset by the prospect of higher future taxes, leaving household wealth unchanged. Rational households voluntarily would have been induced to have saved just the amount of that ultimate tax increase—equal in size to the current tax cut—by having reduced their consumption from its level otherwise. Completely rational consumers, whom Ricardo himself doubted existed, willingly would have used the proceeds of their higher saving to have fully financed their purchases of all the newly issued government securities.

The increment to current government borrowing and to all the debt concepts in this way would have tended to depress consumption by an amount comparable to the effect of a hypothetical same-sized boost in taxes. The full offset to the simulative effect of the current tax cut would imply that on balance consumption would have remained unchanged. That constancy in this case also would have occurred if no net change in taxes had occurred at all. The increases in the two measures of net debt would have equaled the rise in gross debt, also correctly signaling the stability in household spending.

Obviously, Ricardian equivalence means that the economy would have reached a point way above the aforementioned debt threshold because all agents already would have become concerned about the burden of future taxes and the probability of default. The prospect of enlarged taxes may have raised the odds on eventual government default, in which case bond vigilantes may have boosted real interest rates as the perceived term premium has risen.

Now consider the second case that seems consistent with Bernanke's conclusions. A borrowing-financed tax cut again is combined with sterile reserves and Ricardian equivalence but now with comparably sized central bank purchases of government securities. Net debt held by the true nongovernmental public, which excludes the holdings of *all* government agencies, would not have changed despite the enlarged gross debt. But net* debt, which instead *includes* the new ownership by the central bank, would have risen along with gross debt.

The central bank would have planned on having all the new interest and principal payments simply take a round trip, since all new Fed revenue (apart from capital gains or losses) would have been returned automatically to the Treasury. So now, even in the presence of Ricardian equivalence, the public no longer would have expected higher future taxes, and perceived wealth would have increased with the permanent current tax cut. The public would have had more cash in exchange for the previous interest-bearing asset, and consumption would have risen in response to the current tax cut. In this second case with Ricardian equivalence, the central bank's large-scale asset purchases would have mattered by boosting consumption.

Moreover, unlike the first case, overall consumption would have gone up despite the increase only in gross and net* debt, as the cut in taxes would not have augmented the now relevant measure of net debt. In this second case the stability of the true public's holdings of net debt would have correctly signaled the higher consumption, while enlarged gross and net*debt measures would have given misleading signals. Household spending would have gone up even though all those rational households already would have been situated way beyond the threshold where only a few of them have begun to take account of possible future tax hikes in their consumption decisions. Still, the central bank's QE has forestalled any higher future taxes.

But Ricardo himself doubted whether the government's debt actually would ever have to be paid off, which seems justified, at least at low ratios of net debt to GDP. Such an

attitude severely questions the correctness of Ricardian equivalence. If the extreme third case where everyone shared this skeptical view were true, any implications of the present tax cut financed by government borrowing for future taxes would have been completely ignored, so Ricardian equivalence wouldn't have applied. The current tax cut financed by government borrowing as always would have induced a rise in gross debt, but in the third case no central bank purchases occur. So with no deduction for any new bond holdings by any government agencies, the two net debt measures also would have climbed. That universal debt increase implies that they all would have sent a misleading signal about the rise in consumption. Also, the unaltered perception of future taxes would imply that the public's expectation of the eventual day of reckoning where the threshold debt ratio would be breached would not have been advanced. Of course, the mounting levels of all three debt measures owing to the financing of the tax cut would mean that in fact the time of the start of heightened concern about an eventual tax hike or government default would have been brought nearer. At that advanced time, those concerns would start to engender a rising term premium that would show through in the real market bond rate.

As a fourth scenario let's look at the case with neither reserve remuneration nor Ricardian equivalence but with central bank security purchases. The central bank would have bought all the added debt, so net* debt would have been augmented along with the increase in gross debt, but net debt held by the true public would have remained the same. The constancy of this net debt measure would have correctly signaled the elevation in consumption, which would have picked up as in the third case. Because the public would ignore any implications of higher future taxes for perceptions of its wealth, the central bank's actions whether or not to buy debt wouldn't have mattered to the enlarged consumption in this case where Ricardian equivalence didn't apply. Higher overall consumption still would have emerged from the current tax cut that would have augmented gross and net* debt this time, just as in the second case.

Absent any cognizance by agents of a rise in future taxes that would heighten the chance of a government default, the perception of the eventual day of reckoning when the threshold debt ratio would be breached again would have remained unaffected. But in contrast to the previous case, importantly in this fourth case, the stability of net debt, despite the fact that the tax cut would have raised gross and net* debt, correctly would have implied that the central bank's purchases in fact would have prevented the prospect of eventual government default from being advanced in time despite the current tax cut.

Bernanke himself seemed to suggest that his 2003 speech in Japan had held up well in the interim when he concluded his presentation a decade later at Jackson Hole by referring to it:

> Early in my tenure as a member of the Board of Governors, I gave a speech that considered options for monetary policy when the short-term policy interest rate is close to its effective lower bound. I was reacting to common assertions at the time that monetary policymakers would be "out of ammunition" as the federal funds rate came closer to zero. I argued that, to the contrary, policy could still be effective near the lower bound. Now, with several years of experience with nontraditional policies both in the United States and in other advanced economies, we know more about how such policies work. It seems clear, based on this experience, that such policies can be effective, and that, in their absence, the 2007–2009 recession would have been deeper and the current recovery would have been slower than has actually occurred.[3]

But in fact the Fed's prompt exercise of the authority to pay interest on bank reserves in October 2008 had altered the appropriate analysis. After all, since then the banks have earned an administered interest return of 25 basis points on the extra excess reserves created by any Fed incremental purchases of securities.[4] And when the Fed eventually firms, it surely will keep that administered rate aligned with its rising funds rate target. That outcome is particularly likely because that approach represents the only reliable way for the actual funds rate to move up in the face of still massive amounts of surplus reserves. So let's redo our above analysis of Ricardian equivalence and central bank large-scale security purchases in light of this new reality.

As a fifth scenario, consider the case of a borrowing-financed tax cut with interest-bearing excess reserves and Ricardian equivalence but without central bank purchases of Treasury securities. The prior analysis in the first case still holds. Gross government debt of course would be pushed up by the new federal borrowing. And without central bank involvement, both net debt and net* debt also would have risen because all the new government debt would have been acquired only by the true public sector. Despite lower taxes, no change would have occurred in that sector's perceived wealth, since the rational public would have realized that the current bulge in all the debt measures ultimately would have to be paid off through an equal-sized hike in taxes. The rise in expected future taxes to pay interest and principal on the new government borrowing would have induced a fall in consumption, other things equal, that would have been comparable to the effect of a hypothetical same-sized current boost in taxes. So on balance the simulative effect on household spending of the actual current tax cut would have been fully offset, and consumption at the end of the day would have been unaffected. Again, it would be as if no overall decline in taxes had occurred at all. The higher levels of all three debt measures would have provided a valid identical indication of the unaltered consumption.

Now consider the sixth case of a borrowing-financed tax cut with the following three states of the world: interest-being excess reserves, Ricardian equivalence, and comparable central bank purchases in the secondary bond market. In case six, central bank purchases again have yielded higher gross and net* debt, while having left net debt unchanged. Let's keep in mind the observed fact that levels of currency in the hands of the public, vault cash, and all deposits have stayed completely unaffected by the Fed's large-scale operations, while the volume of excess reserves would have risen commensurately. Thus, we may as well assume for simplicity but without loss of generality that the Fed has dealt only with banks that exchange interest-bearing Treasury bonds for excess reserves. And after interest on reserves in the United States, their interest return would always closely follow the Fed's intended funds rate. According to the expectations theory of the term structure, in this case the future interest payments on the bonds (apart from a term premium) would equal the weighted average of the expected succession of interest payments on the new excess reserves. So once the Fed started paying interest on bank reserves, the expected return that banks would receive over time on their extra excess reserves (apart from the term premium) would exactly counterbalance their expected loss resulting from the interest payments on the Fed's newly acquired bonds. Private wealth simply would have remained the same.

It follows that, even with the central bank's purchases of government debt, in case six the public still would have expected a hike in future tax liabilities as time passes, as in the fifth case just examined. Similarity, any boost to consumption on balance is again

prevented. But the outcome in the sixth case starkly contrasts with that of the second case in the pre-October 2008 world when central bank purchases would have lifted consumption. The same rise in net* debt, unlike the flat net debt, now has correctly signaled that consumption wouldn't have risen despite the tax cut. Notice that even with Ricardian equivalence, Fed purchases in the sixth case wouldn't have stopped the ratios of gross- and net* debt-to-income from moving further above the threshold with the greater odds of a tax hike or governmental default, unlike the situation before interest on excess reserves.

In the pre-October 2008 state of affairs of the earlier first case without central bank purchases but with Ricardian equivalence, the tax cut implied lower future tax revenue and a resultant boost to taxes that would have retarded current consumption. But in the second case the central bank rather than the banks had received a similar stream of added interest income on holdings of Treasuries, abstracting from the term premium. In that second case, the Fed actually would have returned automatically to the Treasury its higher incremental interest payments, so taxes wouldn't have to rise. In contrast, in the present sixth case the expected Fed remuneration to the Treasury no longer would have been boosted by the Fed's security acquisitions because of its implied payments of interest on excess reserves. That's the reason for the conclusion in this case that, other things equal, the expected stream of future taxes wouldn't have been lowered by the central bank's asset purchases at all. In other words, the future expected payments on excess reserves would just have equaled the public's reduced interest income on its relinquished bonds. Now interest on excess reserves has prevented an augmentation of the Fed's remittances despite the central bank purchases.

With the sixth case's Ricardian equivalence and interest on excess reserves, the central bank's decision whether or not to engage in large-scale asset purchases wouldn't have mattered to consumption, which would have been unchanged in any event. Moreover, it is now the rise in net* debt but not the constancy of net debt that would have provided a reliable signal. And like the fifth case without purchases by the central bank, consumption with them now wouldn't have risen in the presence of the tax cut but stability in net debt. Also, unlike the pre-October 2008 situation in the second case, large-scale central bank purchases of government securities now no longer would have kept the bond vigilantes from reacting to more probable tax increases or prospective government default by elevating real bond rates further. The reason is that large-scale asset acquisitions by the central bank no longer would have reduced the public's expected future tax burden or the associated risk of default.

Next consider the seventh case with interest on excess reserves but without either Ricardian equivalence or central bank security purchases. The current tax cut financed by government borrowing as always would have produced a rise in gross debt, but in the seventh case, as in the third, the central bank refrains from quantitative easing. So again no government agencies take on any new debt to deduct, and the two net debt measures also would have increased. The public again would have ignored any implication of the current deficit-financed tax cut for higher future taxes, although in fact there may have been some such effect. In response they would have lifted their consumption. A current deficit-financed tax cut also had generated a rise in gross debt and in both net debt measures in the case-three world with sterile reserves but without forward-looking households. As in that case, all three enlarged debt measures rather misleadingly would accompany the higher consumption in this instance as well.

The expected and actual breaching of the threshold debt-to-income ratio is identical to that third case as well. Absent the recognition of a more probable rise in future taxes that would enhance the chance of a government default, the public would have ignored its reduced wealth. Also, its expectation of the day of reckoning when the threshold debt ratio would be breached is no closer than before. By contrast, of course, the more rapidly mounting levels of all three debt measures caused by the current tax cut actually would have advanced the time when economic agents start to worry about a potential default and begin to require a higher real bond rate.

Finally, we have arrived on our trek to the eighth case with interest on excess reserves and central bank security purchases but without Ricardian equivalence. Along with the increase in gross debt, the central bank's new assets would have bolstered net* debt, though net debt held by the true public would have recorded no change. Once again, as in the seventh case, naïve, backward-looking households would have consumed more out of the current tax cut, again implying that the signal having come from the rise in gross and net* debt still is misleading.

As noted in the previous seventh case, backward-looking households would have ignored completely any hike in future taxes. But unlike the seventh case, by happenstance they now in one sense would have been correct to have ignored the central bank's purchases, since in reality the purchases, unlike the forth case, would have implied no lessening whatsoever of the need for higher future taxes. Thus, also unlike the fourth case, naïve bond vigilantes in that sense inadvertently would have correctly presumed that the chance of a future hike in taxes or heightened risk of ultimate default would not have been reduced by large-scale purchases. But the naïve vigilantes are wrong in another sense, because in fact central bank purchases no longer would have kept the expected future tax burden or the risk of default from rising. This conclusion holds even though net debt in the hands of the true public is unchanged in this case. Thus, an important consequence of this eighth case is that the central bank's purchases, unlike cases two and four but like case six, would not have prevented an actual advance of the eventual day of reckoning where the threshold debt ratio would be breached.

Comparing cases seven and eight in one sense is similar to a comparison of cases five and six that also assumed interest on excess reserves but instead posited the Ricardian equivalence that would have kept consumption unchanged. In all four cases, the central bank's decision whether or not to buy long-term government debt also wouldn't have affected consumption. A difference from the earlier comparison is that in cases seven and eight the current tax cut elevates consumption without Ricardian equivalence regardless of the central bank's strategy.

In sum, gross and net* debt always would have moved in concert for all the combinations of interest on excess reserves, Ricardian equivalence, and central bank purchases. In all eight cases, no distinction between gross and net* debt affects the signal of the behavior of consumption, which sometimes is correct and sometimes not. To make sense of the signal, the analysis suggests three general inferences. First, absent forward-looking households to impart Ricardian equivalence to household decisions, as in cases three, four, seven and eight, the behavior of none of gross, net, nor net* Treasury debt matters one bit to consumption. But second, switching the assumption to Ricardian equivalence but without central bank purchases, assuming either sterile or remunerative excess reserves, as in the first and fifth cases, still implies that the rise in both net debt and net* debt correctly signals the unchanged consumption. Third, let's

finally consider the crucial factor of whether excess reserves are sterile or not. Assuming Ricardian equivalence and central bank purchases, while positing sterile excess reserves, as in the second case, means that it is the stability of net debt rather the increase of net* debt that provides the accurate signal of the boost to consumption. Importantly, however, again assuming Ricardian equivalence and central bank purchases but instead converting to the assumption of interest-bearing excess reserves, as in case six, causes a radical transformation. Now it is the rise in net*debt not the stability in net debt that offers the correct signal of unaltered consumption. Given the reality of interest on reserves under the Fed's authority in the TARP package in 2008 as well as the likely emergence of Ricardian equivalence, this analytical conclusion vindicates the CBO's otherwise strange (and unstated) inclusion of the Fed's ownership of government securities in its only measure of debt "held by the public" in February 2013.[5]

In terms of practice as opposed to theory, I would argue strongly that Ricardian equivalence even in part evidently has yet to take hold in the real-world United States. Investors still consider Treasury debt to be the safest asset in the world. That fact implies that federal debt to date can be ignored in assessing the outlook. However, Chapter 10 showed that international evidence suggested that above some threshold, different for each country, further increases in the ratio of debt to GDP increasingly would retard potential economic growth. That chapter argued that the reason is that Ricardian equivalence at some point will start to come into its own.

The above discussion of government debt indicates that paying interest on excess reserves was truly consequential. As a result of such payments, the Fed's later augmentation of QE3 in December 2012 also augmented the false optimism created in September. The resulting Fed purchases of Treasuries have appreciably reduced net debt held by the true public, especially relative to national income. But the Fed's massive acquisitions of Treasury debt have not prevented the ultimately more relevant measure of net* debt, which includes Fed holdings, from maintaining its previous steep uptrend. We saw the mounting problem in case eight with backward-looking taxpayers in the absence of Ricardian equivalence.

The problem would become more acute after Ricardian equivalence sets in, as has already happened in the sixth case. It captured the extreme situation when everyone, having reacted to the worsening fiscal situation by turning rational and forward-looking, would worry obsessively about a potential government default. Then Fed retention or expansion of its unorthodox policy strategy similarly would provide no solace, as the growing problem would be correctly signaled by the continued rapid ascent of net* debt, by then the relevant measure. QE couldn't keep the real interest rate from moving up ever more sharply. Today's case eight threatens at some stage to transmogrify into the far worse case six. Our nation has moved beyond the point at which actions by the well-intentioned Fed can substitute for a significant turn to much more responsible fiscal decisions by the less well-intentioned elected politicians.[6]

Now let's move from macroeconomics to microeconomics in Chapter 11. We'll see how recent legislation has affected the Fed's supervision and regulation. But first we'll compare the Aldridge Report issued *before* the Fed's creation with the report of the Financial Crisis Inquiry Commission that wasn't finished until *after* the Dodd-Frank bill.