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U.S. SOVEREIGN DEBT CRISIS:
TIPPING-POINT SCENARIOS AND CRASH DYNAMICS

Some Possible Consequences of a U.S. Government Default

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LINK TO ABSTRACT

Few now doubt that the U.S. government is rushing headlong toward a major fiscal crisis. Promised future outlays, mainly for Social Security, Medicare, and Medicaid, far exceed projected future revenue. The size of the fiscal gap is very sensitive to both demographic changes and economic fluctuations.

The latest estimate of Laurence J. Kotlikoff (2011) puts the gap's present value at the bone-crushing level of $211 trillion. A more modest estimate from Jagadeesh Gokhale and Kent A. Smetters (2006, 203) estimates the gap as of 2010 at $79.4 trillion. The Congressional Budget Office's (CBO's) most recent long-term outlook (2011, 80) has federal expenditures in its Alternative Fiscal Scenario—*not counting interest on the accumulating national debt*—rising by 2085 to nearly 35 percent of GDP whereas revenues will still be below 20 percent of GDP, a shortfall of almost 15 percent. Marc Joffe (2011), a former employee of Moody's Analytics, projects that by 2040 the national debt will have already reached more than 180 percent of GDP and that interest alone will swallow nearly 40 percent of federal revenue.

These projections admittedly assume no drastic entitlement or tax changes in the future. I have argued elsewhere (Hummel 2007, 2009, 2010; Henderson and Hummel forthcoming) that (a) federal tax revenue will never consistently rise much

1. San Jose State University, San Jose, CA 95152. I would like to acknowledge the vital assistance of Warren Gibson, David R. Henderson, Marc Joffe, and Justin Rietz, none of whom necessarily shares my conclusions.

above 20 percent of GDP (and certainly not above the 25 percent that federal taxes never quite reached during World War II), (b) politicians have little incentive to come up with the requisite expenditure cuts in time, and (c) monetary expansion and its accompanying inflation will no more be able to close the fiscal gap than would an excise tax on chewing gum. Here I explore the consequences, given those three likely constraints, of the only possible alternative: a very substantial default by the U.S. government on Treasury securities. Once a tipping point is reached, such a default will probably unwind swiftly, leaving American politicians with no other options. Whether the default will result in a restructuring that only reduces the U.S. government's debt burden or in something approaching a more complete repudiation is impossible to foretell. Either way, the short-run consequences for the economy will be painful. But the long-run consequences, both economic and political, could be beneficial, and the more complete the repudiation, the greater the benefits.

The Cascade into Default

The financial structure of the U.S. government has two nominal firewalls. The first, between Treasury debt and unfunded liabilities, is provided by the trust funds of Social Security, Medicare, and other, smaller federal insurance programs. These permit the illusion that the shaky fiscal status of social insurance has no direct effect on the government's formal debt. But according to the latest *intermediate* projections of the Trustees, the Hospital Insurance (HI-Medicare Part A) trust fund will be out of money in 2024, and the Social Security (OASDI) trust funds will run out in 2036. The *pessimistic* projections have Hospital Insurance empty by 2017 and Social Security by 2030.[2]

Whenever the trust funds are exhausted, payroll taxes will be insufficient and general revenues will have to finance these programs. Although other parts of Medicare and all of Medicaid already dip into general revenues, when HI and OASDI need to do so, the first firewall will vanish. Anticipation of this event is a potential tipping point, stripping away any illusion that the Treasury's ability to service its more formal debt is somehow independent of the unfunded liabilities of Social Security and Medicare. If investors react by requiring a risk premium on Treasury securities, the cost of rolling over the national debt will immediately rise. As of September 2011, 15 percent of the Treasuries held by the general public

2. Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds (2011, 38, 71) and Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds (2011, 3, 57).

(including the Fed), or nearly $1.5 trillion, were Treasury bills, which mature in less than one year (Bureau of the Public Debt 2011). A self-reinforcing cycle, in which the rising risk premium exacerbates the federal government's financial straits, would further raise the premium. Events would then move very fast, much like the collapse of the Soviet Union in 1990-1991.

The second financial firewall is between U.S. currency and government debt. The Federal Reserve *could* unleash the Zimbabwe option. My expectation is that, faced with the alternatives of seeing both the dollar and the debt become nearly worthless or defaulting on the debt while saving the dollar, the U.S. government will choose the latter. Russia in 1998 is just one recent example of a government choosing partial debt repudiation over a collapse of its fiat currency (Chiodo and Owyang 2002).

Other events of course might serve as tipping points. In their extensive studies of past financial crises, Carmen M. Reinhart and Kenneth S. Rogoff (2009, 2010) have suggested that a government debt equal to 100 percent of GDP has passed a dangerous threshold. Both the CBO, in its Alternative Fiscal Scenario, and Marc Joffe project that the U.S. will breach this threshold soon after 2020. Paul Krugman (2010a, 2010b) disputes the significance of the 100-percent threshold. The U.S. national debt reached over 100 percent of GDP during the Second World War, and the United Kingdom was able to successfully manage and reduce a World War II-government debt that had climbed all the way to 250 percent of GDP.

Perhaps a more meaningful indicator is interest on government debt as percent of total revenue. This ratio varies not only with the debt's size but with changes in government revenue and interest rates. Doug Elmendorf (2009, slide 11), director of the CBO, provides some sobering calculations. The report's Alternative Fiscal Scenario estimated that if federal revenues remained in the neighborhood of 20 percent of GDP for the next 75 years, while federal expenditures net of interest rose to 35 percent of GDP (roughly similar to the 2011 CBO estimate), adding interest payments from the accumulating national debt would drive total federal expenditures up to 75 percent of GDP by 2083, and that would entail interest amounting to a fantastic 40 percent of GDP. Obviously government finances will have reached an explosive tipping point long before that level is ever reached.

Short-Run Consequences of Default

As of September 30, 2011, the total outstanding Treasury debt was $14,790,340 million, or 97 percent of Gross Domestic Product (Bureau of the Public Debt 2011). But $4,663,309 million were held by government agencies,

mainly the Social Security and Medicare trust funds. So the conventionally cited figure is the $10,127,031 million held by the public (including the Federal Reserve System), 67 percent of GDP (see Table 1 for comparable numbers as of second quarter of 2011). Even economists debate which is the more relevant number. Yet if one is concerned about the looming fiscal gap, then one needs to add not just the trust funds but the remainder of the fiscal shortfall, yielding as mentioned above a total variously estimated between $79 trillion and $211 trillion. For analyzing the short and long-run consequences of a Treasury default, how to count the trust funds diminishes in importance. By the time a fiscal crisis occurs, the trust funds will already have been depleted, whereas the amount held by the public will have increased. We can therefore concentrate on who among the "public" holds the debt, under the probable assumption that the relative proportions will not alter too much as the debt grows (see Tables 2 and 3).

The Federal Reserve, which is anomalously considered part of the public in official reports, holds about $1.6 trillion in Treasury securities as of September 2011, or almost 17 percent of the publicly held debt (Financial Management Service 2011). That percentage is not much higher than it was before the enormous increase in the Fed's balance sheet brought on by the recent financial crisis. It could grow substantially if the Fed monetizes more Treasury debt, unless the Fed sterilizes its purchases by selling off its nearly $1 trillion worth of mortgage-backed securities and assorted miscellaneous assets. But to the extent that the Fed is now paying interest on bank reserves (and at a rate that exceeds the return on short-term Treasuries), this portion partly represents indirect holdings of private commercial banks and other depositories.

About 45 percent of the publicly held U.S. Treasuries is owned abroad, more than three-quarters of that by foreign governments and their central banks (Bertaut and Tryon 2007; Hamilton and Wu forthcoming; Reitz 2011). China is the largest foreign investor in U.S. Treasuries, with its holdings (both government and any nominally private) combining to $1.137 trillion as of August 2011, or about a quarter of foreign holdings (Department of the Treasury/Federal Reserve Board 2011).

The remaining 40 percent of the publicly held debt is owned domestically. The proportions shown in Table 2 offer some idea of how losses from the national debt's total repudiation, to take the extreme case, would be distributed. Although the Fed would technically become bankrupt, that would represent merely an accounting fiction. Most of the interest that the Fed earns on its securities is now simply rebated to the Treasury, which consequently would directly lose an insignificant annual flow of revenue from repudiation. The Fed's ability to issue fiat base money would not be compromised, so long as Federal Reserve notes remain payable for taxes, and such issues could easily cover the Fed's operating

expenses (including any interest on reserves), as well as finance other government expenditures. More disturbing is the prospect that the Fed might then put new money into circulation by purchasing other private securities, making it an even bigger player in private financial activities and the allocation of savings than it has already become as a result of the financial crisis.

If a total repudiation took place today, initial direct losses to the U.S. private sector would total about $4 trillion, significantly less than any estimate of the U.S. government's enormous fiscal gap, even less than the $10 trillion fall in the value of the U.S. stock market between 2007 and 2008, and about equal to the fall in the value of U.S. real estate between 2007 and 2009 (Federal Reserve Board of Governors 2011, 94, 106). Outside of the household sector, with its unknown amount of hedge and trust fund holdings, the largest total dollar losses would fall on mutual funds, state and local governments and their retirement funds, and private pension plans. Looking at the overall portfolios within these sectors, the heaviest hit would be money market funds, whose holdings of Treasuries constitute 13 percent of their total assets. Other mutual and closed-end funds hold only a little more than 3 percent of their portfolios in Treasuries. But for private pension funds, the proportion is 8 percent, and for state and local government retirement funds, 6 percent. Commercial banks are still the economy's most important financial intermediaries, holding $10 trillion in total assets. Treasury securities are only 1.7 percent of that total (although government agency and GSE-guaranteed securities constitute a whopping 13.0 percent).

Admittedly such a crude reckoning ignores an array of secondary effects. Treasuries serve as collateral for other loans in a complex and interconnected financial structure in which savings often passes through two, three, or more layers of intermediation. Default will reverberate throughout credit markets, imposing losses on financial institutions with little direct exposure to government debt. The short-run economic consequences could be very severe and possibly trigger unfortunate political interventions. It is easy to conjure up apocalyptic scenarios of the sort that stampeded Congress into adopting the infamous TARP and that are now terrifying European governments. But the realism of such scenarios is open to question.

Nor are dollar losses strictly analogous to the government's fiscal gap, given that the gap estimates government transfers that may or may not occur in the future. Any full accounting of how such an event would affect the U.S. economy has first to consider that, prior to the crisis' final culmination, individuals and institutions will almost certainly start to dump Treasuries, fleeing to other assets. How the crisis ultimately plays out depends crucially on what they flee to. Still more important is that canceling of government debt is itself a transfer, with its own

offsetting liability that will likewise decline. And that brings us to the potentially desirable long-run consequences.

Long-Run Consequences of Default

The most important long-run *political* benefit of a Treasury default would be that it would make it more difficult for the U.S. government to borrow money. In other words, a default is a balanced-budget amendment with teeth, as David D. Friedman once put it. Sadly, that characterization is not strictly correct. Many defaulting governments have proved able to go back into the loan markets soon thereafter, although often at higher interest rates. Still, a default would help to encourage both greater fiscal responsibility and lower total expenditures on the part of the U.S. government.

A Treasury default would also bring long-run *economic* benefits. Loan transactions have two parties, the lender (or creditor) who forgoes the current use of money in exchange for a financial asset, and the borrower (or debtor) who gains the current use of money in exchange for a financial liability. All debt, whether private or public, therefore has both an asset side and a liability side. A sudden and unanticipated repudiation of a private debt, so long as no one expects it to be repeated or extended to other debts in the future, has only a distribution effect: The debtor gains by the exact same amount that the creditor loses, with no net wealth effect.

So where is the offsetting liability created by government debt? Although superficially it appears that government itself bears the liability, this impression misses the underlying economic reality. The liability ultimately rests on taxpayers, because their taxes will be almost the entire source of revenue to pay interest and, less frequently, the principal on the government debt. For nearly every financial asset created by government borrowing, therefore, a corresponding tax liability exists. Even if the debt is perpetually funded and never repaid, the discounted present value of this stream of future taxes roughly equals the total value of the debt.

In short, the inevitable default on Treasury securities will reduce taxes required in the future, and the more complete the repudiation, the greater the tax relief. How this affects the value of taxable assets, including human capital, depends on how perfectly people anticipate future tax liabilities. The degree to which they do so is a technical issue much debated by macroeconomists. The claim that people completely and correctly anticipate these future levies is known as Ricardian Equivalence. If Ricardian Equivalence holds even approximately, then the decline in the value of Treasuries should be mostly offset by an eventual rise in

the total value of both privately issued assets, such as shares of stock and corporate bonds, and expected future wage income.

If Ricardian Equivalence does not hold, and people do not perfectly anticipate their future tax liabilities, then they erroneously believe that Treasury securities represent net wealth. Suffering from what is sometimes called "bond illusion" or "fiscal illusion," they think they are wealthier than they actually are. Whether this illusion has desirable or undesirable economic consequences is one of the many questions involved in economic controversies over business cycles, fiscal policy, and economic growth. Regardless of the answers to these questions, repudiation of the national debt will bring people's perception of their net wealth into better alignment with reality. They will still enjoy a reduction in future taxes despite never having realized that they would have had to pay them.

Repudiation of Treasury securities held abroad will entail a long-run net gain for Americans. Constituting a transfer to a wealthy U.S. from the rest of the world, this distribution effect may appear unfair. But it has the advantage of ending the coerced support paid to foreign governments, particularly China, by U.S. taxpayers. Indeed, we should keep in mind that the frequent and much-touted bailouts of governments to help them avoid or palliate sovereign defaults, such as of Mexico in 1994, usually end up benefiting creditors, who have willingly taken on the risk of loaning money to governments, at the expense of taxpayers in the "bailed out" country. Such will probably be the consequence of the ongoing fiscal crisis in Greece; and it repeats a pattern that dates back at least as far as the notorious U.S. military interventions into Latin America early in the twentieth century (Langley 1989).

Repudiation of the domestically held national debt would bring no change in net wealth, should Americans perfectly anticipate their future tax liabilities. Moreover, the existence of offsetting tax liabilities serves to mitigate the domestic distribution effects of repudiation. Since nearly everyone pays taxes or owns assets whose value is reduced by taxation, even many who hold government debt will gain overall. They will find over the long run that, as their government securities are wiped out, their other assets rise in value. Even if people do not perfectly anticipate future tax liabilities, they clearly anticipate a part of them, so there should be some compensating rise in the value of private assets.

No matter how incompletely gains show up in private assets, people will *in fact* tend to gain or lose on the basis of whether, over the range of their economic activities, they are net tax consumers or net taxpayers. Of course, the correspondence between net tax consumers and the losers from repudiation on the one hand and net taxpayers and the gainers from repudiation on the other will not be exact. Government debt is not the only means by which the state dispenses tax-generated largess. The correspondence, however, will be close enough to ensure

that a non-trivial number of the government's creditors will be helped more than they are harmed in the long run.

Those anticipating benefits from Social Security, Medicare, and Medicaid will be harmed most, because a Treasury default would almost certainly involve a concomitant collapse of those programs. Reliance upon these government promises constitutes a particularly egregious form of fiscal illusion. Here we have to be careful about estimates of the fiscal shortfall. Not all of it, particularly the part resulting from Medicaid, involves taxes earmarked for implicit promises to particular individuals. Moreover, Social Security and Medicare both create two different types of gaps: (a) the "open-group" obligation (or actuarial deficit), based on all future participants in the program, and (b) the "closed-group" obligation (or unfunded liability), based on only participants who currently have paid something in. The latter, which represents the present value of honoring all existing promises while otherwise shutting down the program, is usually larger.

The "closed-group" obligation is also a better proxy for losses inflicted by elimination of these benefits. The Social Security Trustees have kept their estimates of the liability fairly constant in their last four annual reports.[3] The Medicare Trustees, in contrast, drastically reduced their estimates after passage of Obama's Patient Protection and Affordable Care Act of March 2010.[4] Even the CBO's Alternative Fiscal Scenario evinces skepticism about the act's claimed ability to reduce expenditures (CBO 2011). Yet the Treasury's *Financial Report of the United States Government* reduced the 75-year closed-group shortfall for both Social Security and Medicare (Parts A, B, and D) from $52 trillion in 2009 to $43 trillion in 2010 (Financial Management Service 2010, 21). Whatever the correct number, the best way to alleviate future suffering is to repeatedly and emphatically warn the American people that these programs will go under. The more accurately people anticipate this inevitable outcome, the better prepared they will be.

As the inevitability of a U.S. default becomes increasingly apparent, more and more people will try to unload their government securities before others catch on. So some offsetting rise in the value of other assets should commence before default occurs. Exactly where individuals and institutions try to invest instead will affect both the short run and the long run. One possibility is assets dominated in foreign currencies, contributing to some depreciation of the dollar. But the three primary alternatives for most Americans will be a shift into (a) real assets, including commodities such as gold, as well as real estate, consumer durables, and physical

3. Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds (2011).

4. Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds (2009, 2011).

capital goods; (b) dollar-denominated financial instruments *other than* Treasuries and those that represent claims to Treasuries; or (c) dollars themselves, meaning Federal Reserve base money. If the shift is primarily into (a), it could further fuel inflation, but if the Fed successfully decouples its fiat money from Treasuries, as I expect, then we could instead see a major shift into (c), which if severe enough, could be deflationary.

Deflation raises the specter of default triggering a financial crisis similar to that beginning in 2007. But the duration and severity of any resulting depression would depend on what other government policies are imposed in response. Perhaps the most chilling prospect: the U.S. government repudiates its debt and simultaneously raises taxes, thus confiscating taxpayer gains. Yet how would politicians get away with doing so when they are unable to raise taxes high enough to prevent default in the first place? We can only speculate about what interventions might follow a Treasury default. Nonetheless, the national debt, by its nature, obligates the government to make future payments. That obligation can ultimately be honored only through taxation or monetary expansion. Repudiation, by eliminating that obligation, may be the most desirable among feasible alternatives.

Historical Case Study

Historical case studies can be a rich source of anecdotal evidence. I will explore only one striking case, from the early history of the United States. It dramatically contradicts the common presupposition that sovereign defaults are necessarily dire. Indeed, it substantiates my argument that default can usher in such desirable results as decreasing government intervention and expanding prosperity. The case involves the default of state governments in the 1840s.

After the War of 1812, New York State began construction of a canal connecting the Hudson River with the Great Lakes. The Erie Canal, completed in 1825, was one of those rare instances where a socialist enterprise actually made a good profit; it encouraged other states to emulate New York. An orgy of canal building resulted. Usually, state governments owned and operated these new canals. In those few instances where the canals were privately owned, the states contributed the largest share of the financing. By 1840, the canal boom had blessed the United States with 3,326 miles of canals at an expense of $125 million, a large sum in those days. Virtually all the new canals were a waste of resources and did not deliver the hoped-for monetary returns. Instead the heavy state investments, when added to budget growth stimulated by the War of 1812, led to massive borrowing (Ransom 1964; Taylor 1951).

Then in May of 1837 a major financial panic engulfed the country's 800 banks, forcing all but six to cease redeeming their banknotes and deposits for gold or silver coins. The panic brought on a sharp depression that was quickly over (McGrane 1924; Rezneck 1935). Amazingly, after recovery, the outstanding indebtedness of states nearly doubled, with a third of that invested in state-chartered banks in the Midwest and South (Wallis, Sylla, and Grinath 2004). By the end of 1839, a second bank suspension spread to half the country's banks. Over the next four years nearly a quarter of state banks failed, the country's money stock (M2) declined by one-third, and prices plummeted 42 percent (Hummel 1999; Temin 1969). The state governments faced financial stringency, and during the deflation of 1839-1943 many became desperate. By 1844, $60 million worth of state improvement bonds were in default. Four states—Louisiana, Arkansas, Michigan, and Mississippi—as well as the territory of Florida repudiated debts outright, while four others—Maryland, Illinois, Pennsylvania, and Indiana—defaulted temporarily. New York and Ohio escaped similar straits only by taking extraordinary measures (Ratchford 1941; Wallis 2002).

Rather than having disastrous long-run effects, this combination of default and repudiation generated a widening circle of benefits. To begin with, it prompted state governments to make major fiscal reforms. As John Joseph Wallis (2001, 1) reports: "Beginning with New York in 1846, almost two-thirds of the states wrote new constitutions in the next ten years. The constitutions restricted state investment in private corporations; limited or banned incorporation by special legislative act; created general incorporation laws for all types of business; altered the way state and local governments issued debt; put absolute limits on the amount of debt governments could issue; and fundamentally changed the structure of the property tax." As Thomas J. Sargent asks in his Nobel Prize lecture (2011), how likely would have been such reforms if the state governments had been bailed out by the national government, as many in Congress wished to do at the time?

States became wary of investing in internal improvements or anything else. This ensured that the states left development of the railroad network primarily to the market. Nearly all the previously state-owned lines were unloaded. Although the state and especially the local governments continued to subsidize railroads through some direct investment and in less conspicuous ways, private sources ended up providing three-quarters of all the capital for American railways prior to 1860 (Fishlow 1972, 496). Indeed, the period after the fiscal crisis was when the states finally threw off their mercantilist heritage and, for the first time, moved toward *laissez faire*.

Foreigners—particularly the British, who had invested about $100 million in state bonds—now became extremely cautious about loaning money to state governments. Investor caution even extended to the national government. When

American agents investigated the possibility of borrowing money in Europe in 1842, they were told that U.S. bonds could not be marketed there because of a feared federal government default (English 1966; McGrane 1935). Moreover, the state constitutional restrictions on borrowing bequeathed a salutary fiscal legacy that, despite subsequent undermining, has lingered to the present day (Kiewiet and Szakaly 1996; Wallis 2005).

Nor did the economic distress of the deflation of 1839-1843 extend far beyond the state governments and state-chartered banks. Many economists have been struck by the comparison between this episode and the Great Depression of 1929-1933. Qualifying as the two most massive monetary contractions in American history, they were of identical magnitude and duration. But there the similarities end. During the Great Depression, as unemployment peaked at nearly 25 percent in 1933, U.S. production of goods and services collapsed by 30 percent. During 1839-1843, investment fell but the economy's total output did not; it actually rose somewhere between 6 and 16 percent, and real consumption rose even more. This nineteenth-century episode was nearly a full-employment deflation. And once it was over, the country continued to enjoy the sustained economic growth that had begun in the 1830s, with its rising real incomes and increasing prosperity (Temin 1969, 157; Friedman and Schwartz 1963, 299; Carter et al 2006, Table Ca219).

Conclusion

Within the next two decades, the U.S. government will likely default on its explicit and implicit promises. Although how and when are uncertain, the fundamental and massive budgetary changes required to prevent a fiscal crisis are politically unimaginable. Whether the fiscal gap is $211 trillion or $79 trillion, it can only be closed with some combination of benefit cuts and revenue increases whose total present value equals the shortfall. If politicians today abolished Medicare and Medicaid, then some judicious combination applied to the remaining gap could save Social Security on a pay-as-you-go basis. Or opening the borders to unrestricted immigration might funnel enough new taxpayers into the front end of the entitlement programs to make the required reforms less drastic. Otherwise, only default can impose the necessary fiscal discipline. The state government experience of the 1840s suggests that this may provide the most durable long-run solution.

Tables

TABLE 1. How Big Is the National Debt? (2011-Q2; in billions)

Gross Treasury debt*	$14,270
Held by government agencies	−4,614
Outstanding debt	$9,656
Held by Federal Reserve	−1,345
Held by private investors (including commercial banks)	$8,311
Held abroad	−4,479
Held domestically	$3,832
(U.S. GDP as of 2011-Q2: $15,023 billion.)	
*Omits $24 billion of debt issued by government-owned agencies and $6455 billion of liabilities issued by government-sponsored enterprises.	
Source: Financial Management Service (2011).	

TABLE 2. Holdings by Sector of the Outstanding National Debt (2011-Q2; percentages of $9,714 billion total)

Households and nonprofit organizations	8.60%
Nonfarm nonfinancial corporate business	0.47%
Nonfarm nonfinancial noncorporate business	0.46%
State and local governments	4.99%
Rest of the world	45.68%
Federal Reserve	16.67%
Commercial banks and other depositories	2.93%
Insurance companies	2.58%
Private pension funds	5.35%
State and local government employee retirement funds	1.91%
Federal government retirement funds*	1.40%
Money market mutual funds	3.52%
Mutual funds	3.16%
Closed-end and exchange-traded funds	0.63%
Government-sponsored enterprises	0.65%
Issuers of asset-backed securities	0.34%
Security brokers and dealers	0.64%
* Federal Employees Retirement System Thrift Savings Plan "G Fund."	
Source: Table L.209 in Board of Governors of the Federal Reserve System (2011).	

TABLE 3. Foreign Holdings of Treasury Securities (August 2011; in billions)

China, mainland	$1137.0
Japan	936.6
United Kingdom	397.2
Oil exporters	236.3
Brazil	210.0
Caribbean banking centers	161.2
Taiwan	150.3
Switzerland	147.5
Hong Kong	107.9
Russia	97.1
Canada	82.6
Luxembourg	62.0
Germany	60.2
Singapore	58.3
Thailand	54.5
Turkey	39.2
India	37.7
Ireland	33.6
South Korea	32.4
Belgium	31.8
France	29.0
Poland	28.7
Mexico	28.0
Philippines	25.1
Italy	23.7
Netherlands	22.6
Norway	22.0
Sweden	21.3
Colombia	21.0
Chile	19.4
Israel	18.3
Malaysia	13.4
Australia	11.6
All other	214.9
Grand total	**$4572.5**
Foreign governments	$3261.8
Of which Treasury bills	387.3
(Oil exporters include Ecuador, Venezuela, Indonesia, Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, the United Arab Emirates, Algeria, Gabon, Libya, and Nigeria. Caribbean banking centers include Bahamas, Bermuda, Cayman Islands, Netherlands Antilles, and Panama.)	
Source: Department of the Treasury/Federal Reserve Board (2011).	

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