



Working Paper No. 843

Is a Very High Public Debt a Problem?

by

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July 2015

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<http://www.levyinstitute.org>

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ISSN 1547-366X

Abstract

This paper has two main objectives. The first is to propose a policy architecture that can prevent a very high public debt from resulting in a high tax burden, a government default, or inflation. The second objective is to show that government deficits do not face a financing problem. After these deficits are initially financed through the net creation of base money, the private sector necessarily realizes savings, in the form of either government bond purchases or, if a default is feared, “acquisitions” of new money.

Keywords: Fiscal Policy; Functional Finance; Modern Monetary Theory; Monetary Policy; Public Debt Sustainability; Zero Interest Rates

JEL Classifications: E12, E42, E52, E62, E63

1. IS A VERY HIGH PUBLIC DEBT A PROBLEM?

Lerner (1943) argued that a government should adjust its deficit so as to set aggregate demand at full employment—and thereby eliminate both unemployment and inflation. He recognized that, while this was unlikely to increase the public debt to very high levels, this possibility could not be ruled out.¹ However, he added, “this possibility presents no danger to society” (ibid., p. 42)—in the form of a government default or inflation.

A very high public debt does not have to end in default, Lerner argued, because “the interest on the debt can be met by... printing the money” (ibid., p. 47). Does this pose a risk of inflation? No, if total spending becomes too great the government can raise taxes to reduce it back to full employment. In sum, Lerner proposed a macroeconomic policy architecture involving (i) *money printing* as the way to rule out default and (ii) *taxation* as the way to prevent inflation.²

Lerner added that this taxation would not be a burden to the nation as a whole; rather, the burden would be restricted to the “inconveniences involved in the process of transferring money from the taxpayers to the bondholders” (ibid., p. 46). In its turn, Domar (1944, pp. 816–17) added that if that tax burden (measured as a percentage of income) “is to be light ... there must be a rapidly rising income. *The problem of the debt burden is a problem of expanding the national income*” (emphasis in the original).

In this paper, we propose a policy architecture that differs from Lerner’s in two aspects: it envisions a different way of preventing a very high public debt from ending in default, and it eliminates the burden associated with levying taxes to meet the interest payments on the debt (in one word, it eliminates the debt burden altogether). Our architecture requires flexible exchange rates. It involves (i) having the central bank impose near-zero nominal government bond yields for as long as necessary—a stance that should be

¹ The spectacular increase in the Japanese public debt over the past 20 years to 245.1 percent in 2014 confirms this possibility.

² Money printing as a way to rule out default is also defended by today’s followers of Lerner—the Modern Monetary Theorists (MMTs). For example, Wray (2012, p. 70) writes, “Suppose ... that the government debt’s ratio rises on trend. Will a sovereign government be forced to miss an interest payment, no matter how big that becomes? The answer is a simple ‘no’ ... So long as there are keyboard keys to stroke, the government can stroke them to produce interest payments.”

Note also that Lerner was a serious advocate of price stability. Shortly after World War II, he wrote, “the extraordinary complacency ... of the government ... in the face of the recent rise in prices can be appreciated only if” it is understood that it is equivalent “to a government declaration that it is going to default on say 30 per cent of its interest and repayments to holders of war bonds” (Lerner, 1947, p. 314).

Over the last 20 years, Lerner’s views have been forcefully advocated and developed by MMTs—see Bell (2000), Bell and Wray (2002–03), Forstater (1999, 2011), Forstater and Mosler (2005), Fullwiller (2006, 2007) Mitchell and Muysken (2008), Mosler (1997–98) and Wray (1998, 2012). Juniper et al. (2014–15) provide a very interesting analysis of MMT contributions and of the criticisms to which it has been subject.

accompanied by (ii) a replacement of monetary by fiscal policy as the instrument to control inflation.

A second objective of this paper is to show that government deficits associated with a full-employment fiscal policy do not face a financing problem. After these deficits are initially financed through the net creation of base money (Bell, 2000), the private sector's savings always come in the form of government bond purchases or, if a default is feared, of "acquisitions" of new money. (This second idea is implicit in the writings of modern monetary theorists [MMTs]; our contribution is to make it somewhat more explicit—*see pages 13–20 below*).

We first present our policy architecture and explain why governments do not face a financing problem. Then, we discuss whether it would be "fair" to impose near-zero nominal interest rates on government bondholders. Finally, we argue that fiscal policy, not monetary policy, is the appropriate way to control demand and inflation.

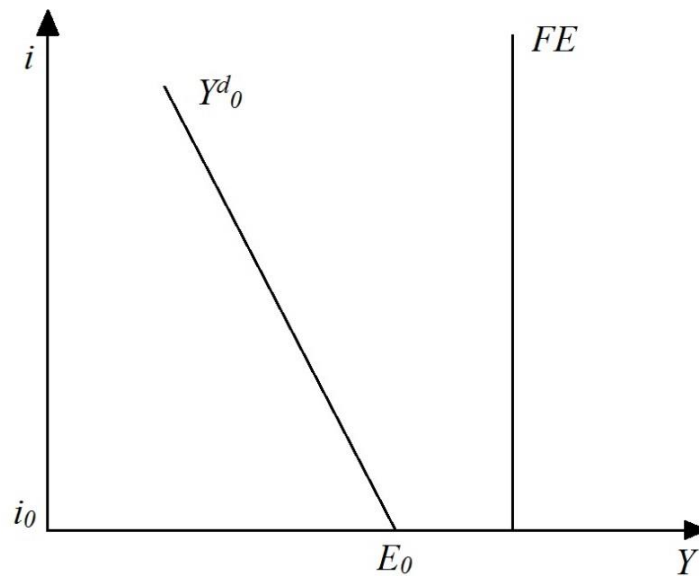
2. SOME REAL-WORLD BACKGROUND

There are today several countries with currencies with floating exchange rates—namely the US and the UK—whose central banks have long-ago cut interest rates to zero. Yet, aggregate demand in those countries has been, and still is, below full employment. Their economies can thus be thought of as being at a point like E_0 in Figure 1, where i , Y^d , Y and FE represent the nominal interest rate, aggregate demand, output, and full employment, respectively. Paul Krugman has famously referred to a point like E_0 —an unemployment equilibrium associated with a zero-percent central bank interest rate—as a liquidity-trap state of the economy.³

³ This paper relies on a simple Keynesian model with endogenous money (Moore, 1988; Wray, 1990). In this model, credit and aggregate demand depend *inter alia* on the interest rate set by the central bank. Then, credit determines the money stock while aggregate demand determines the level of output.

We define full employment as a situation in which, under an employer of last resort (ELR) program, "all who wish to work at a nominal wage fixed by the government will be provided with a full-time job" (Wray, 1998, p. 14). However, our argument can be applied to any of the other existing definitions of full employment (*vide ibid.*, pp. 13–5).

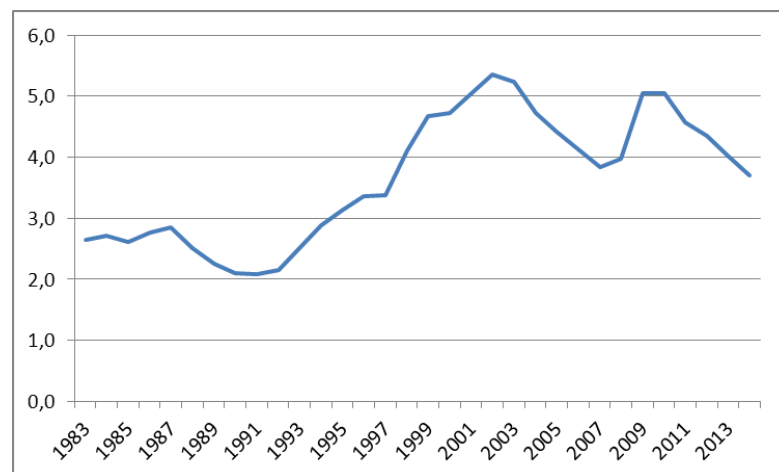
Figure 1 Unemployment Equilibrium with Zero Interest Rates



The only reason why the governments of these countries have not used fiscal policy to expand demand to full employment is the *belief* that it may lead to an increase in public debt with one of the following outcomes: a too high tax burden, a default, or inflation. The question is: Why is this belief incorrect?

It is convenient to start the discussion with the case of Japan. Following a crash in real estate and stock prices in the beginning of the 1990s, the Japanese government has run recurrent large deficits over the past two decades, and has thereby been able to keep demand not far from full employment (Koo, 2009, chapter 1):

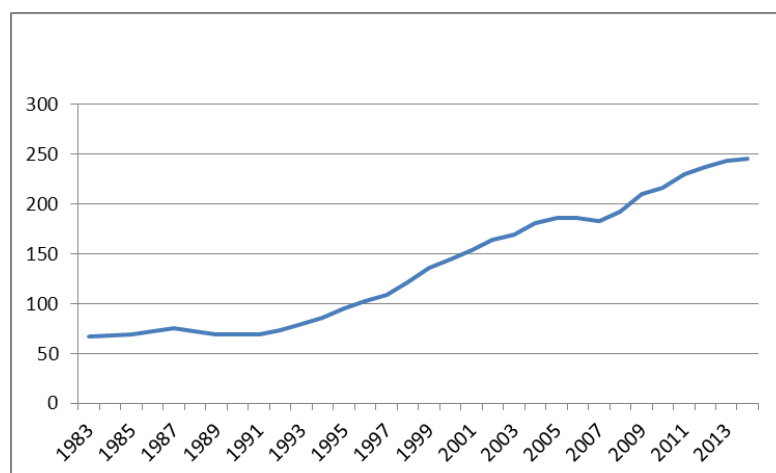
Figure 2 Japan's Unemployment Rate, 1983–2014⁴



⁴ The source of the data for figures 2 and 3 was the IMF World Economic Outlook database.

As a result of this, the Japanese public debt rose dramatically—from 68.8 percent of GDP in 1991 up to 245.1 percent of GDP in 2014 (Figure 3). But with a yield on five-year government bonds of just 0.295 percent on average over the last five years (Bank of Japan database), that implies interest payments on the public debt of around 0.72 percent of GDP: hardly a burden at all.⁵

Figure 3 Japan’s Government Gross Debt as a Percentage of GDP, 1983–2014



Be as it may, it is legitimate to ask: can this eventually lead to problems in the future? The next section analyzes two possible problems of a very high debt ratio.

3. TWO POSSIBLE PROBLEMS OF A VERY HIGH DEBT RATIO

A Sudden Panic of Investors

A first possible problem of a very high debt ratio is that financial investors may suddenly start fearing that the government will be unable to repay its debt. If this happens, there will be a sell-off of government bonds, pushing their prices down and their yields up—and this may arguably make the government unable to meet the interest payments on its debt.

However, the central bank can prevent the decline in the price and the increase in the yields of government bonds in a simple way: by buying all the bonds investors may want to sell with a newly printed monetary base. The result of this transaction is that investors will receive new deposits in their bank accounts in exchange for government bonds, and the intermediating banks will receive new reserves of the same amount.⁶

⁵ The average maturity of Japanese public debt in 2013 was equal to 6 years (Satyajit Das, 2013).

⁶ This shows that “government deficit spending is never subject to ‘market discipline’ regarding either the quantity of bonds sold or the price at which they will be sold, so long as the bonds are issued in the domestic currency” (Wray, 1998, p. 88). By contrast, as Wray (*ibid.*, p. 92) prophetically pointed out, in eurozone countries without their own central bank, “deficit spending

The usual question raised at this point is: Will this increase inflation? Under a fractional reserves system, the intermediating banks will be left with excess reserves. Will these banks increase credit to households and firms with the support of those reserves, and thereby lead to an expansion of demand above full employment and a consequent rise in inflation? No. Credit could only expand if the *demand* for credit rose; and this would only happen if the excess reserves somehow led to lower interest rates. But interest rates cannot fall because they are already zero.⁷

In sum, if investors suddenly start fearing a government default and prompt a sell-off of government bonds then (i) the central bank can buy those bonds, thereby maintaining their yields close to zero and the debt service at very low levels; (ii) investors will be left holding money instead of government bonds; and (iii) the intermediating banks will end up with excess reserves. But the newly acquired money and the excess reserves will not lead to a rise in demand and inflation. What happens to them will be analyzed below.

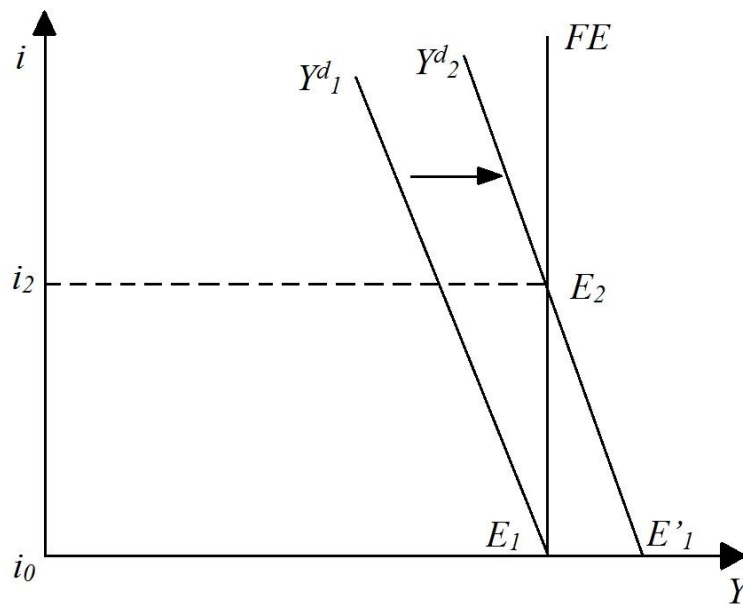
The End of Krugman's Liquidity Trap

A second possible problem of a very high debt ratio may arise when the economy eventually moves out of Krugman's liquidity trap. According to Krugman (2011), "someday *private* demand will be high enough that the Central Bank will have good reason to raise interest rates above zero to limit inflation" (emphasis added). This is illustrated in Figure 4. Starting from a liquidity trap position, E_1 , a revival of private demand will shift the aggregate demand curve from Y^d_1 to Y^d_2 . If central bank interest rates remain at zero percent, the economy will move to E_1' , a position above full employment associated with rising inflation. To prevent that, the central bank will raise interest rates from zero up to i_2 and, as a result, the economy will end up at point E_2 .

will require borrowing in [a] foreign currency according to the dictates of the private markets." In such countries "[government] expenditure can be financed only by borrowing in the open-market ... and this may prove excessively expensive or even impossible ... The danger, then, is that the budgetary restraint ... will impart a disinflationary bias that locks Europe as a whole into a depression that it is powerless to lift" (Godley, 1997, p. 2, quoted in Wray, 1998, p. 92).

⁷ Note that the question itself, "will the banks increase credit to the economy with the support of the excess reserves?", implicitly embodies the naïve assumption that banks expand loans only *after* they have received reserves from the central bank. By contrast, "in the real world, banks extend credit, creating deposits in the process, and look for reserves later" (Wray, 2012, p. 80). Be that as it may, that naïve assumption is unfortunately widespread. For example, to explain the supposed effects of quantitative easing, the Bank of England (2009, p. 9) writes: "Banks will find themselves holding more reserves. That might lead them to boost their lending to consumers and businesses." (quoted in Lambsdorff, 2011, p. 662).

Figure 4 The End of Krugman's Liquidity Trap



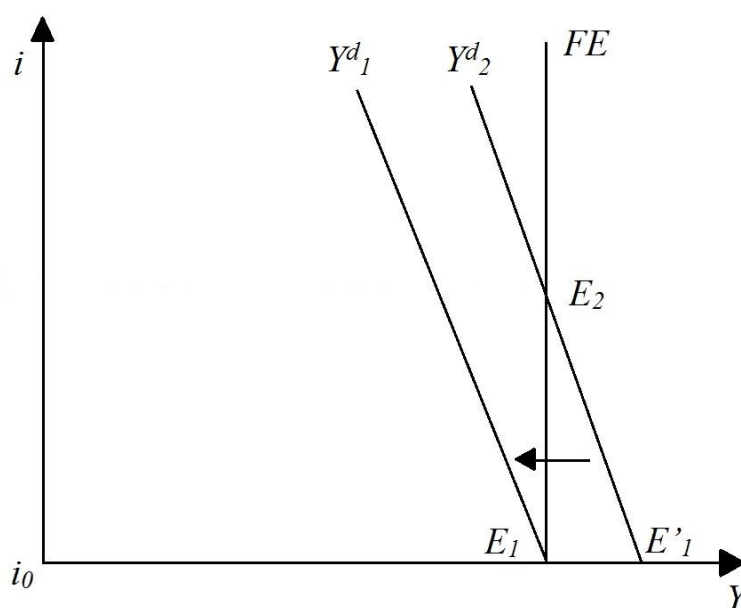
What is the implication of these developments if the debt ratio is very high? The end of zero-percent ventral bank interest rates will raise both current and expected future short-term interest rates, and thus the yield on long-term government bonds, as well (because this is, to a great extent, determined by the average between current and expected short-term interest rates). As a result, governments' interest payments will increase with the gradual rollover of public debt along time; and, if the public debt is very high relative to GDP, those payments will eventually become high relative to the tax revenues extractable from GDP. In this way, we arrive at the following conclusion drawn up by Krugman (2011): “the composition of government liabilities as between bonds and monetary base does matter in normal [i.e., non-liquidity trap] times”—the former imply interest payments whereas the latter does not.

There is, however, a response to Krugman's argument. To prevent the increase in inflation that may result from the revival of private demand (which shifts the aggregate demand curve in Figure 4 from Y^d_1 to Y^d_2), central bank interest rate hikes are not the single possible route. There is an alternative: restrictive fiscal policy. Specifically, the government can raise taxes and/or cut spending and thereby shift the aggregate demand curve from Y^d_2 back to Y^d_1 (Figure 5). Thus, instead of moving to Krugman's E_2 , the economy will end up at the original, noninflationary position, E_1 . This will have two consequences. First, and foremost, the economy will stay at full employment with a yield on government bonds close to zero and the government interest payments will remain negligible. Second, while the economy remains at E_1 the government will probably have surpluses that will continuously

reduce the level of the public debt. For this reason, we may conclude that the high public debt will not lead to persistently higher tax rates than otherwise, but only to temporarily higher tax rates—exactly at the times when they are needed.

In sum, we might agree with Krugman that a very high public debt could prevent the use of monetary policy to tackle inflation. However, this does not constitute a problem because the government can alternatively avert inflation through restrictive fiscal policy.

Figure 5 Tackling Inflation through Restrictive Fiscal Policy



Three final questions: First, would the economy fare better without the use of higher taxes to fight inflation? In particular, would investment be higher? Not necessarily. Even though higher taxes may possibly discourage investment, the alternative—higher central bank interest rates—would have the same effect.

Second, why do economists—with the exception of Post Keynesians—always take for granted that inflation is to be controlled through monetary policy and not even envision fiscal policy as a possible alternative? The answer probably lies in the generalized idea that “inflation is always and everywhere a monetary phenomenon,” along with the incomprehension, resulting from an exogenous view of money, that fiscal policy and money creation/destruction are inextricably linked.⁸

⁸ Lerner (1947, p. 314) was already aware of this link: “Depression occurs only if the amount of money *spent* is insufficient. Inflation occurs only if the amount of money *spent* is excessive.” The government, by virtue of its power to create money and “to take money away from people by taxation, is in a position to keep the rate of spending in the economy at the level required to fill its two responsibilities, the prevention of depression, and the maintenance of the value of money” (emphasis added).

The third and crucial question: Zero nominal interest rates imply no interest payments on the public debt. But what if recurrent *primary* deficits are needed to maintain aggregate demand at full employment? Will the government be able to finance these deficits no matter how high they are and how long they last? This question is discussed next.

4. ARE ZERO NOMINAL INTEREST RATES SUFFICIENT TO PERMIT A CONTINUED FULL-EMPLOYMENT FISCAL POLICY?

We start by explaining that a continued full-employment fiscal policy does not lead to an indefinite increase in the debt-to-GDP ratio. Afterwards, and more importantly, we argue that even if that were the case the government would have no problem in financing its deficits.

The Tendency for the Debt-to-GDP Ratio Not to Grow Indefinitely

As a matter of arithmetic, the debt-to-GDP ratio will rise if the growth of the debt exceeds the growth of the nominal GDP. The growth of the debt is equal to the nominal interest rate (i) plus the primary deficit as a percentage of the *debt* (PD/B), while the growth of the nominal GDP is equal to the growth of the real GDP (g) plus inflation (π). Thus, the debt-to-GDP ratio will rise if $i + PD/B > g + \pi$ or, in the case the central bank imposes $i = 0$, if $PD/B > g + \pi$.

Question: if the debt ratio grows for a while as a result of a continued full-employment fiscal policy, can we be confident that, instead of continuing indefinitely, the growth of that ratio will eventually stop? Yes. Of the five reasons advanced by Lerner (1943, pp. 48–9) we would underline two. First, “since one of the greatest deterrents to private investment is the fear that the depression will come before the investment has paid for itself, the guarantee of permanent full-employment will make private investment much more attractive ... [and thus] diminish the need for deficit spending” (ibid., p. 48). Second, government debt is *private wealth* and, as this grows relative to full-employment GDP, private expenditure also rises relative to full-employment GDP and further reduces the need for government deficit spending.

Does this link between fiscal policy and money creation/destruction still exist in modern times with an independent Fed? Yes. As Bell and Wray (2002–03) show, as long as the Fed funds rate is exogenously set by the Fed, monetary policy has *no alternative* but to cooperate with fiscal policy: “the only independence the Fed has is to administer the overnight interbank rate, which requires it offset any impact on reserves that results from fiscal operations” (ibid., p. 269). (See also Bell [2000], Forstater and Mosler [2005] and Wray [2012].)

To Lerner’s reasons we can add an “arithmetic” one. Suppose that the deficit needed to keep full employment is equal to 5 percent of GDP. With a public debt equal to 50 percent of GDP, this deficit amounts to 10 percent of the *debt*—implying a debt growth of 10 percent. But as the debt rises up to 100 percent or 200 percent of GDP, the deficit of 5 percent of GDP decreases to 5 percent and 2.5 percent of the *debt*, respectively—and so does the debt growth. In short, as the debt rises relative to GDP, the deficits needed to maintain full employment entail a continuous decline in the growth of debt (Table 1, second row).

Table 1 The Tendency for the Debt-to-GDP Ratio Not to Grow Indefinitely

Debt-to-GDP ratio	50%	100%	125%	200%
Debt growth	10%	5%	4%	2.5%
Change in the debt-to-GDP ratio with <i>nominal GDP growth at 4%</i>	6 p.p.	1 p.p.	0 p.p.	-1.25 p.p.

Note: It is assumed that *permanent* deficits of 5 percent of GDP are needed to maintain full-employment growth.

In addition, it should be noted that this debt growth will eventually become lower than the growth of nominal GDP, putting an end to the debt-to-GDP ratio’s increase. For example, with a full-employment nominal GDP growth of 4 percent, the debt-to-GDP ratio will stop increasing and start declining once it reaches 125 percent (Table 1, third row).

Government Deficits Do Not Face a Financing Problem

Having explained that a continued full-employment fiscal policy does not lead to an indefinite increase in the debt ratio, we now argue that, even if that were the case, the government would have no problem in financing its deficits. We consider an open economy with flexible exchange rates. Such an economy has a key feature that should be underlined from the outset: if some financial investors flee from the domestic currency, their money ends up not in the central bank, but in the hands of other private agents. Hence, *for the private sector as a whole*, foreign assets are not an alternative to the domestic currency.

Suppose that, at a full-employment GDP, net exports are zero and the private sector desires to have a surplus (saving – investment) of \$10 billion. In this case, the government will need to run a deficit of \$10 billion to keep demand at full employment. How will this deficit be financed? No matter whether there are willing buyers of new government bonds or not, *in the first instance* the deficit will be financed by base money printing (Bell, 2000;

Forstater and Mosler, 2005; and Wray, 2012, pp. 114–24).⁹ Thus, a government deficit of \$10 billion will initially increase both the banks’ reserves and the nonbank private sector’s deposits by \$10 billion. And, as a result, banks will be left with excess reserves. Now, these facts raise two questions.

First Question: What Happens to the New Private Sector’s Deposits?

a) The first thing to note is that these deposits are associated with saving in excess of private investment and that, therefore, they will not be used to buy new issues of corporate stocks and bonds. By contrast, if the private sector is not afraid of a government default, the net saving associated with the new deposits can be applied in the purchase of new government bonds. If this is the case, the government deficit will be *ultimately* financed by the purchase of government bonds by the private sector. And the nonbank private sector’s deposits and the banks’ reserves of \$10 billion, created when the government deficit was initially financed, will be extinguished.

b) What if, because it fears a government default, the private sector does not use the \$10 billion in deposits associated with its net saving to buy new government bonds? It should first be noted that it is unlikely that a significant proportion of those deposits will be used to buy consumption goods and services. Indeed, consumption depends on income and its distribution, wealth, expectations, and maybe interest rates—not on the fact that wealth is held in the form of deposits rather than government bonds. This is the case if households are rational; if they are not and, because deposits are 100 percent liquid, they do not resist the temptation to use part of them—say \$2 billion—to increase consumption, then aggregate demand will be pushed above full employment. But this will not constitute a problem because the government shall then reduce its spending by the exact value of the consumption increase. As a result, aggregate demand will fall back to full employment and the size of the

⁹ A clarification: MMTs recognize that, under the current institutional arrangements, “the level of Treasury deposits at the Federal Reserve limits the Treasury’s capacity to net spend unless more borrowing is undertaken” (Juniper et al., 2014–15, p. 290)—and that the Treasury cannot sell debt to the Fed on the primary market. “But despite the initial need to sell Treasury Bills to the nongovernment sector ... the Central Bank subsequently purchases Treasury Bills from the commercial banks on the secondary market” (ibid, p. 291). And “the Central Bank and the Treasury work together to ensure that the Treasury can always meet its obligations” (Tymoigne and Wray, 2013, pp. 13–4). Thus *in essence* “modern governments actually finance all of their spending through the direct creation of high-powered money” (Bell, 2000, p. 603).

government deficit will decrease to—and be financed by—the reduced value of the new deposits the private sector still wishes to stick to, \$8 billion.¹⁰

Before proceeding with the discussion, it should be noted that whether expenditure depends or not on the fact that wealth is held in the form of deposits rather than government bonds is a particularly contentious issue. The quantity theory of money and common sense suggest that extra money must somehow be linked with extra expenditure.¹¹ This has led some critics of MMT to reject its claim that “government can issue money to finance non-inflationary spending as long as the economy is below full-employment” with the argument that “in a static economy ... the money supply would keep growing relative to output, causing inflation that would tend to undermine the value of money” (Palley, 2012, p. 14). Two comments should be made about this assertion. First, as already explained in this paper, in a growing economy, full-employment deficit spending will not lead to an indefinite increase in government debt—bonds or money—relative to output. Second, while extra money instead of extra bonds may, if agents are not rational, lead to extra expenditure, this will not end in inflation as long as the government reduces spending by the exact value of the private expenditure increase (as explained above).¹²

c) Third, and continuing with the case of a government default fear, some of the \$10 billion in deposits created by the government deficit may be used by the less risk-averse private savers to “invest” in the (secondary) stock and real estate markets. Those deposits will then shift to the sellers of those assets, who in turn may use them again in their stock and real estate investments, and so on. Or, after eventual asset price increases, the asset sellers may prefer to stick to the new deposits or to use them to pay debts (leading to the destruction of those deposits). This leads to two conclusions. First, while some of the deposits created by the government to finance its deficit may be kept as a store of value or be destroyed, the remaining deposits may move from hand to hand—but will be *necessarily* held by some private sector agent. Second, the possibility that these deposits may initiate or feed real estate and/or stock markets bubbles, or help them recover from recent crashes, cannot be

¹⁰ There is a problem of synchronization here, but it is of minor importance.

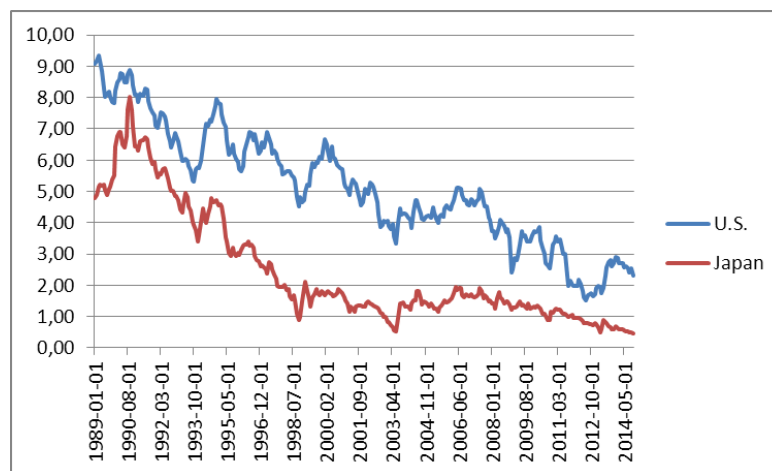
¹¹ Ironically enough, Milton Friedman himself would probably be skeptical about this link. Indeed, according to him, consumption depends on permanent income (which includes wealth), but not on the fact that wealth is held in the form of money rather than government bonds.

¹² Hence, we concur with Tymoigne and Wray (2013, p. 9) when they say that “inflation would result if the relation between government spending and taxing were wrong, not because the ratio of money supply (however measured) and GDP were wrong. In that, we follow the traditional ‘endogenous money’ view that the ratio of money stock to national output is an uninteresting residual.”

ruled out. But such bubbles can be prevented by having the government raise margin requirements as much as necessary.

d) Finally, and still in the case of a government default fear, the private savers who are not afraid of exchange rate risk may exchange some of the new \$10 billion in deposits for foreign currencies—leading to a depreciation of the domestic currency—in order to purchase bonds of foreign governments. Could this create problems? No. On the one hand, the competitiveness of the economy would improve, boosting net external demand. As a result, the need for fiscal deficits to support demand at full employment would decline or even disappear. On the other hand, the depreciation of the domestic currency would *ceteris paribus* create an expectation of a subsequent appreciation of an equal size. Therefore, the expected return of foreign bonds measured in the domestic currency would decline—putting a quick end to the purchase of those bonds by the domestic private sector.¹³ Note furthermore that, in a flexible exchange rate system, private savers can only shift from domestic deposits to foreign bonds if there are some other private sector agents willing to acquire those deposits. Thus, the private sector *taken as a whole* will necessarily be tied to the new deposits created by the government to finance its deficit.

Figure 6 Japan vs. US 10-year Treasury Nominal Interest Rates, 1989–2014¹⁴



¹³ It is this mechanism that allows a country with flexible rates, like Japan over the past 20 years, to offer much lower interest rates than those that can be earned abroad (see figure 6).

Note also that the depreciation of the euro relative to the dollar of nearly 25 percent between March 2014 and March 2015 may be a result of the mechanism under consideration: “How much of the [recent] move in the euro can be explained by changes in the real interest differential with the United States? U.S. real 10-year rates are about the same as they were in the spring of 2014; German real rates at similar maturities (which I use as the comparable safe asset) have fallen from about 0 to minus 0.9. If people expected the euro/dollar rate to *return to long-term normal* a decade from now, this would imply a 9 percent *decline right now*. What we actually see is almost three times that move, suggesting that the main driver here is the perception of permanent, or at any rate a very long term European weakness” (Krugman, 2015; emphasis added).

¹⁴ The source of the data for this figure was the Federal Reserve of St. Louis database.

Conclusion: If it is afraid of a government default, the nonbank private sector as a whole has essentially no alternative but to stick to the new deposits created by the government to finance its deficit—and keep them as a store of value. The government deficit will thus end up financed by the “acquisition” of money by the private sector.

Second Question: What Happens to the Banks’ Excess Reserves?

Assume a regime in which the central bank pays a support interest rate on banks’ reserves equal to 0.1 percent and, at the same time, pegs the interest rate on government bonds at 0.25 percent.¹⁵ Under this regime, banks will obviously not lend their excess reserves in the interbank market at a rate below 0.1 percent. By contrast, if they are not afraid of a government default, banks may use the excess reserves to buy new government bonds. In this case, the government deficit will end up financed by the banks’ purchases of government bonds, ultimately backed by the nonbank private sector choice of holding its net saving in the form of new deposits.

But what if, because they are afraid of a government default, banks do not use the excess reserves to buy government bonds? It should first be noted that, at an unchanged central bank interest rate, banks will not be able to expand credit to the economy based on those reserves. On the other hand, it should be recognized that, like the nonbank private sector, banks can exchange the excess reserves for foreign currencies in order to purchase bonds of foreign governments. But as argued above, this will not make a difference as long as the economy is in a flexible exchange rate system. Hence, we may conclude that, if they fear a government default, the banks taken together will have no significant alternative but to stick to their excess reserves. And the consolidated government sector will end up financing its deficit at an interest rate of 0.1 percent instead of 0.25 percent.

Finally, it should be noted that the government would not need to offer interest on its bonds, nor would the central bank need to pay interest on reserves. As Wray (2012, p. 114) writes, “we’d accept cash and banks would accept reserves without interest; there’s no default risk ... and we need them to pay taxes” and *to accomplish our collective desire to accumulate net private financial wealth*. In fact, interest is “a form of charity” (ibid.) by the government to a private sector which, throughout history, has always insisted to hold

¹⁵ Another regime could be considered—one in which the central bank would not pay interest on reserves but would have a target of 0.1 percent for the interbank interest rate. However, as Wray (2012, pp. 115–16) shows, the results would be the same.

positive net financial wealth. The current negative Euribor rates and the near zero interest rates on Japan's and Germany's 10-year treasuries vindicate Wray's claim.¹⁶

Overall conclusions of the present section: (i) with a full-employment fiscal policy, a government deficit is merely the result of a private sector's desire to "net save," and is initially financed through the net creation of base money and the corresponding deposits; (ii) afterwards, the private sector exchanges these for government bonds or, if a default is feared, has no significant alternative but to accept the new deposits (in the nonbank private sector's case) and the new base money (in the banks' case) as a store of value; (iii) what all this means is that a government deficit never faces a financing problem: in the first instance, the government spends through the creation of base money; and ultimately, private sector's savings always come in the form of government bond purchases or of "acquisitions" of new money; and (iv) finally, there is a double-sided, symbiotic relationship between government deficits and private sector's desired net savings. These can only be realized if there are government deficits, and the financing of these deficits is *ultimately* based on private sector's net savings.

Functional Finance in Action

Table 2 illustrates the previous conclusions by considering the case of a country with a stagnated nominal GDP and recurrent large budget deficits associated with a full-employment fiscal policy (functional finance budgets).

In each of the first 20 years, government deficits exactly match private sector's full-employment desired net savings and thereby keep output continuously at full employment (first four rows). As a result, the government debt in the form of bonds—private net financial wealth—rises from zero up to \$200 (fifth and sixth rows). Now, this path of the economy raises two questions. First, can it eventually end in default? For example, if in year 21 investors refuse to buy new issues of bonds, will the government afford to *repay the maturing bonds*? Yes, it will repay them by creating new base money and the correspondent deposits—which will be ultimately "acquired" by the private sector. (The table illustrates the case of a \$20 repayment of maturing bonds and of a \$10 government deficit in year 21,

¹⁶ The role of taxes in ensuring the general acceptability of money was beautifully explained by Lerner (1946, p. 693): "If the government announces its readiness to accept a certain means of payment in settlement of taxes, taxpayers will be willing to accept this means of payment because they can use it to pay taxes. Everyone else will then be willing to accept it to buy things from the taxpayers, or to pay debts to them, or to make payments to others who have to make payments to the taxpayers, and so on" (quoted in Forstater, 2011, p. 11).

ultimately financed by the private sector’s “acquisition” of \$30 of newly created base money and deposits.)

Table 2 Functional Finance in Action

Years	1	2	...	20	21	22
Full-employment GDP	\$100	\$100	...	\$100	\$100	\$100
Private sector’s net savings at full employment	+\$10	+\$10	...	+\$10	+\$10	-\$50
Functional finance budgets	-\$10	-\$10	...	-\$10	-\$10	+\$50
Government liabilities	\$10	\$20	...	\$200	\$210	\$160
Government bonds	\$10	\$20	...	\$200	\$180	\$130
Base money and deposits resulting from past and present budget deficits	\$0	\$0	...	\$0	\$30	\$30

Second question: Can the path of the economy end in inflation? For example, suppose that in year 22 the private sector ceases to net save and, on the contrary, decides to use a very substantial part of its accumulated net financial wealth, say \$50, to buy goods and services. Will this lead to too much spending and inflation? No. The government will react by shifting from a deficit of 10 percent of GDP to a surplus of 50 percent of GDP. As a result, demand will be kept at full-employment and price stability will be maintained.

5. THE “FAIR” LEVEL OF INTEREST RATES

We now discuss whether it would be “fair” to impose, as our policy architecture prescribes, near-zero nominal interest rates on government bondholders (and more generally on financial rentiers). Given the current worldwide high levels of debt and of the corresponding wealth held in the form of debt, this is an important issue.

This discussion is related to a question that divides Post Keynesians: Which level of the interest rates should be chosen by the central bank at any particular moment? On this issue, Smithin (2007) advocates a zero real interest rate rule; Pasinetti (1981) argues for a real interest rate equal to productivity growth; Forstater and Mosler (2005) and Wray (2007) support a zero nominal interest rate peg (the Kansas City rule); finally, Fontana and Palacio-Vera (2006) advocate discretionary fine-tuning of aggregate demand through counter-cyclical changes of interest rates.

Smithin (2007, p. 114) explains in a brilliant way why a zero *real* interest rate rule would be the most fair form of monetary policy. With such a rule, “the real value of existing sums of money, representing *past* effort in the form of work and enterprise, would be preserved, but there would be no increase in their value arising from the mere possession of money. Further accumulation would only be possible by contributing further work or enterprise.” A zero real interest rate would thus be a fair rate.

By contrast, setting the real interest rate equal to productivity growth—the Pasinetti rule—“would allow possessors of existing financial capital a share in the rewards from *current* increases in productivity ... If, however, accumulated financial capital represents the proceeds of *past* productive activity, whereas the essential contribution to ongoing production is that of entrepreneurs plus workers” that interest rate rule would not be fair: it would guarantee “a share for existing wealth holders (as opposed to entrepreneurs or workers) in *current* productivity increases” (ibid., p. 115).

In its turn, a zero *nominal* interest rate rule would lead—in the presence of positive inflation—to an unjustifiable decline in the real value of money obtained with past work and enterprise effort. Therefore, a zero nominal interest rate rule would not be fair either.

Finally, we may say that a monetary policy characterized by counter-cyclical changes of interest rates would be a-moral from a Smithinian perspective; depending on the state of the economy, it would preserve, erode or increase the real value of money obtained with past effort.

Having said this, it can, however, be argued that the appropriateness of a given level of interest rates should not be assessed only by the Smithinian criterion of fairness. Another criterion ought to be used: whether that level of interest rates is the one that most contributes to full employment and price stability. What can be said about this issue?

Start by noting that, as long as a country remains in a Krugman’s liquidity trap, saving causes unemployment—unless the government incurs deficits that increase the public debt. Hence, in a liquidity trap saving is an “anti-social behavior” that should be discouraged through the lowest possible nominal interest rates—zero, even if this implies a decline in the real value of money obtained with past effort.

Will zero nominal interest rates still be justifiable after private demand eventually recovers and the economy moves to a point like *EL'* in Figure 4? Under these circumstances, saving ceases to be an antisocial behavior. But because the country has accumulated a very high public debt along the preceding liquidity trap years, zero nominal interest rates may still

be appropriate during a further period—this time not to discourage saving, but to maintain the burden of the public debt at negligible levels.

Conclusion: Even though zero nominal interest rates may erode the real value of money obtained with past effort, they may be justified for prolonged periods of time—to discourage saving during liquidity trap times and, subsequently, to maintain the burden of the public debt piled up during those periods at low levels.

6. FISCAL POLICY IS THE APPROPRIATE TOOL TO CONTROL DEMAND AND INFLATION

We have become accustomed to the expression “zero lower bound on nominal interest rates” as a summary of the inability revealed by monetary policy over the past few years to push economies to full employment. The discussion undertaken in this paper suggests a symmetric expression. Countries with very high debt ratios can be viewed as facing an “upper zero bound on nominal interest rates,” and be interested in replacing monetary by fiscal policy as a counter-cyclical tool.

Because of this, we now analyze the common belief that central bank interest rates are a better tool to regulate demand and inflation than taxes and government expenditure. To begin with, it is often argued that central bank interest rates can be changed every month, “whereas the politically sensitive nature of tax and expenditure decisions and the need for those to be taken by Parliament prevents this” (Arestis and Sawyer, 2010, p. 336). Second, it is frequently asserted that certain expenditure decisions like the construction of an important bridge or highway must be heavily debated and, therefore, may require more than a year to be made (leading to a “decision lag”). Moreover, once a decision to construct a bridge or a highway has been made, an auction must be set up, bids must be submitted by construction companies, and a decision must be made on the award of contracts (leading to an “implementation lag”).

These practical objections against the use of fiscal policy as a counter-cyclical instrument may however be criticized in the following way. Start with the first objection (the politically sensitive nature of fiscal policy). Increases in interest rates by the central bank imply benefits to one group of the population (the rentiers) at the expense of other group of the population (the debtors), and therefore are also politically sensitive. So, if the politically sensitive nature of tax and expenditure decisions does require them to be subject to parliamentary approval, central bank interest rate decisions should not be exempt from such approval either.

A more reasonable stance, however, would be to recognize that, because of the needed swiftness, changes in interest rates and in *specific* fiscal instruments could be decided on a monthly or quarterly basis without parliamentary approval—by the central bank in the former case, by a “Fiscal Stabilization Authority” in the latter (Arestis and Sawyer, 2010). And, it should be added, those fiscal instruments can include some that have a quicker effect on demand than changes in interest rates: changes in the value-added tax, in social security contributions, and in unemployment and other social benefits, not to mention employer of last resort (ELR) schemes.

Consider now the second objection—the decision and the implementation lags associated with the construction of important infrastructures. These lags are not inevitable. In fact, the decisions to construct important infrastructures and the selection of the respective construction companies can be made years in advance of actual construction. If this is done, at any given moment a portfolio of infrastructure projects will exist, ready to be started as soon as the appropriate moment arrives—falling aggregate demand.

Conclusion: There is no reason to believe that fiscal policy necessarily implies lags that make it a less effective way to regulate demand than monetary policy.

We can now add that, on the contrary, there are at least seven reasons to believe that fiscal policy is more appropriate to regulate aggregate demand and inflation than monetary policy. First, fiscal policy never faces the lower zero bound problem. Second, as exemplified above, there are fiscal policy measures that have a quicker effect on demand than changes in interest rates. Third, certain types of government expenditure, in particular those associated with ELR schemes and the construction of infrastructures, can be geographically concentrated in the regions with high unemployment (Mitchel and Muysken, 2008); and a specific type of government transfers—unemployment benefits—is, by nature, concentrated in such regions. By contrast, the effect of central bank interest cuts on aggregate demand is dispersed throughout the country, including in the areas with full employment. Fourth, “interest rate changes within the usual ranges have small effects on aggregate demand; larger policy changes have larger effects, but are now avoided due to the policy of gradualism, based in the fear that big changes have undesirable effects on financial markets ... To make matters worse, we usually have no *a priori* reason for guessing the sign, much less the precise magnitude”¹⁷ (Wray, 2007, p. 138). Fifth, even if higher interest rates did reduce

¹⁷ To put things in a concrete way: with an expenditure multiplier equal to two, a \$100 billion cut in government spending reduces aggregate demand by \$200 billion. But do central bankers know if a 25-basis-points interest rate hike will have any effect on aggregate demand? And do they have any

aggregate demand, it is not clear that they would reduce inflation. As Wray (2007, p. 133) writes, “interest is also a cost, most importantly an addition to working capital expenses. Much as rising energy costs are passed along in higher prices, interest costs are incorporated in sales prices”—and may trigger a wage-price spiral. Sixth, as Smithin (2007) points out, positive real interest rates are unfair; they transfer part of the proceeds of the current production from the essential contributors to it—entrepreneurs and workers—to passive possessors of financial wealth. Finally, by reducing the prospective returns of the essential contributors to production, positive real interest rates discourage capital accumulation by entrepreneurs and possibly work effort, as well.

7. CONCLUSION

This paper has proposed a policy architecture that can prevent a very high debt ratio from resulting in a high tax burden, a government default, or in inflation. This architecture requires flexible exchange rates. It involves (i) having the central bank impose near-zero nominal government bond yields for as long as necessary, a stance that should be accompanied by (ii) a replacement of monetary policy by fiscal policy as the instrument to tackle inflation. The implications of such a framework are as follows.

First, a very high public debt will not end in a high tax burden or in default because the central bank can maintain the yield on government bonds as low as is necessary to contain the debt service at negligible levels. Second, a very high debt ratio will not end in inflation because, even if that ratio may make the central bank reluctant to raise interest rates above zero, the government can alternatively avert inflation through restrictive fiscal policy.

The concept of zero nominal interest rates implies no interest payments on the public debt, but recurrent *primary* deficits may still be needed to ensure full-employment growth. However, this does not pose a “financing problem” because these deficits will be a mere reflection of the private sector’s desire to make net savings. And, after an initial finance of such deficits through base money creation, those desired private net savings will always be realized in the form of government bonds purchases or, if a default is feared, through “acquisitions” of new money.

One implication of the policy architecture proposed in this paper is that a country with a very high public debt should live with zero nominal interest rates for a protracted

idea about how much aggregate demand will fall following a five-percentage-point rise in interest rates?

period of time. It is true that, with positive inflation, this will erode the real value of the money obtained with past work and enterprise effort. Despite this, a long period of zero nominal interest rates may still be justified—to discourage saving during liquidity trap times and, subsequently, to maintain the burden of the public debt piled up during those periods at low levels.

Another implication of this paper is that a country with a very high public debt should replace monetary policy with fiscal policy. However, this does not constitute a problem because taxes and government expenditures are a more appropriate tool to regulate demand and inflation than central bank interest rates.

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