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Modern Money Theory 101: A Reply to Critics

by

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ABSTRACT

One of the main contributions of Modern Money Theory (MMT) has been to explain why monetarily sovereign governments have a very flexible policy space that is unencumbered by hard financial constraints. Through a detailed analysis of the institutions and practices surrounding the fiscal and monetary operations of the treasury and central bank of many nations, MMT has provided institutional and theoretical insights about the inner workings of economies with monetarily sovereign and nonsovereign governments. MMT has also provided policy insights with respect to financial stability, price stability, and full employment. As one may expect, several authors have been quite critical of MMT. Critiques of MMT can be grouped into five categories: views about the origins of money and the role of taxes in the acceptance of government currency, views about fiscal policy, views about monetary policy, the relevance of MMT conclusions for developing economies, and the validity of the policy recommendations of MMT. This paper addresses the critiques raised using the circuit approach and national accounting identities, and by progressively adding additional economic sectors.

Keywords: Modern Money Theory; Price Stability; Full Employment; Financial Stability; Money

JEL Classifications: B5, E10, E11, E12, E31, E42, E58, E6, F41

INTRODUCTION

One of the main contributions of Modern Money Theory (MMT) has been to explain why monetarily sovereign governments[1] have a very flexible policy space that is unencumbered by hard financial constraints. Not only can they issue their own currency[2] to meet commitments denominated in their own unit of account, but also any self-imposed constraint on their budgetary operations can be by-passed by changing rules. As such, this type of government is not financially constrained in the way that non-sovereign units are, so that it can focus on issues such as full employment and price stability.

Through a detailed analysis of the institutions and practices surrounding the fiscal and monetary operations of the Treasury and central bank of nations like the U.S., Brazil, Canada, Argentina, the Eurozone, and Australia, MMT has provided institutional and theoretical insights about the inner workings monetarily sovereign and non-sovereign governments (Mosler and Forstater 1999; Bell 2000; Bell and Nell 2003; Bell and Wray 2002; Wray 1998, 2003a, 2003b, 2003c, 2007, 2012; Fullwiler 2006, 2009, 2011, 2013; Kelton, Fullwiler and Wray 2012; Mitchell and Mosler 2002; Muysken and Mitchell 2008; Rezende 2009). The institutional insights concern the central role of the Treasury in monetary policy, the way the central bank implements monetary policy, the balance-sheet implications of Treasury and central bank operations, the importance of national accounting identities, and the economic irrelevance of—but the political importance of—self-imposed financial constraints. The theoretical conclusions of MMT concern the usefulness of combining the Treasury and central bank into a government sector, causalities between desired and actual macroeconomic financial balances, the functional role of taxes and bonds, and the relevant constraints on government. All these institutional and

[1] Throughout this article we will restrict our use of the term "sovereign government" to indicate a government that issues its own currency. As we will discuss, a monetarily sovereign government can choose among alternative exchange rate regimes—fixed, managed, and floating—which impacts domestic policy space. A government that promises to convert its own currency on demand and at a fixed exchange rate is constrained by its ability to obtain that to which it promises to convert. In that sense, we can say that it is "financially constrained" even though operationally it cannot run out of its own currency. The problem is that it can be forced to default on its promise to convert (to a foreign currency or to a precious metal). For some purposes, it is useful to separate floating currency regimes from fixed and managed exchange rate regimes. Many of those who adopt MMT make such a distinction, arguing that only floating currency regimes are "fully" sovereign in the monetary sense. However, many of the principles we outline in this article apply to all currency-issuers—but it must be kept in mind that when a government promises to redeem its currency its policy space can be limited.

[2] The word currency is used broadly to mean monetary instruments with zero term to maturity ("current") in physical or non-physical forms denominated in a unit of account and issued by government (treasury or central bank) and private banks.

theoretical elements are summarized by saying that monetarily sovereign governments are always solvent, and can afford to buy anything for sale in their domestic unit of account even though they may face inflationary and political constraints.[3]

MMT has also provided policy insights with respect to financial stability, price stability and full employment. It argues these are important goals that have to be met independently from one another by putting in place structural policies that work independently of the current political climate, and that manage as directly as possible the goal that needs to be achieved. MMT rejects the traditional trade-off between inflation and unemployment, and does not rely on economic growth and fine-tuning to reach full employment.

Critiques of MMT can be classified according to five categories: views about origins of money and the role of taxes in the acceptance of government currency, views about fiscal policy, views about monetary policy, the relevance of MMT conclusions for developing economies, and the validity of the policy recommendations of MMT.

This article addresses each of these categories using the circuit approach and national accounting identities, and by progressively adding additional economic sectors. The first section focuses on the government sector. The section shows the importance of taxes for the smooth working of a government-based monetary system, and starts to deal with the consolidation hypothesis. The second section focuses on the domestic private economy and draws some conclusions about the conduct of fiscal policy and the proper stance of the government fiscal balance. The third section adds the central bank and studies the interactions among the central bank, the Treasury and the domestic economy. The fourth section adds the foreign sector and studies the impact on fiscal policy, the role of exchange-rate regimes as well as the level of development of a country. The fifth section focuses on the policy framework and conclusions of MMT.

One final point. Many criticize us for presenting nothing new, presuming we believe we have discovered something novel. However, from the beginning, we have always stressed our roots in the work of Knapp, Keynes, and Lerner; we uncovered the significant 1960s work by Minsky on the employer of last resort; we promoted the prescient articles on credit and state money by A. Mitchell Innes; and we credited economists like Goodhart and Vickrey who swam

[3] See note 1 for the case of a country that promises to convert its currency on demand. With a fixed exchange rate, access to foreign reserves can act as another constraint.

against the mainstream in which both had gained some respect. Mat Forstater plumbed the work of the "ancients" to find precursors of the "taxes drive money" throughout the history of economic thought and in economic history. Nay, it was the critic who argued for almost two decades that our work is unprecedented, wrong-headed, and a deviation from heterodox thought.

Now they claim we have got nothing new. And, yet, much of the thought that we integrated in MMT had been lost in the postwar period. Even the very best of the heterodox thinkers—people like Bob Eisner—had got caught up in debates over just how strong "crowding out" is. He took what we call a "deficit dove" argument, against the "deficit hawks". The debate took place largely on orthodox grounds, trying to find some "sweet spot" for budget deficits and debts. Most of our critics remain in the "dove" camp, arguing that deficits in recession are fine, but that if "too large" they become unsustainable. We developed the "deficit owl" position—a position that indeed can be found in the work of those we follow, but a position that was mostly lost by second and third generation heterodox economists.

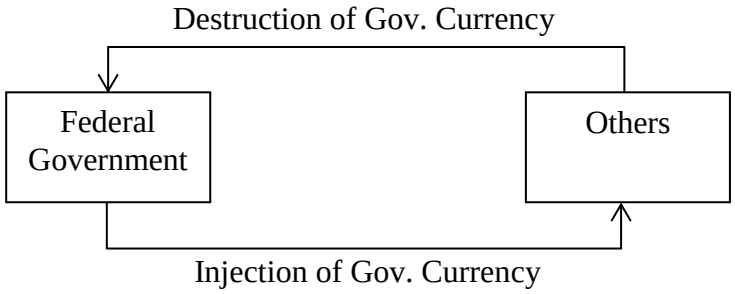
1. THE SIMPLEST CASE: THE CIRCUIT WITH A CONSOLIDATED GOVERNMENT

Palley argues that the monetary financing of government expenditures promoted by MMT leads to inflation, and he has been joined by Lavoie, Rochon, Fiebiger and others in their rejection of the consolidation hypothesis (Palley 2012; JKH 2012a, 2012b; Lavoie 2013; Fiebiger 2012a, 2012b; Rochon and Vernengo 2003; Gnos and Rochon 2002). They note that this hypothesis does not describe the current institutional framework of developed countries, and claim it pushes MMT into unnecessary strong logical claims. In this section, we will address these issues by tackling problems surrounding the nature of money and the role of taxes, and by beginning to deal with the consolidation argument.

The theory of the circuit is a good starting point. Like all theories, it simplifies the existing economic system in order to draw causalities from logical reasoning. From the circuit theory, one can better understand Keynes's point that spending is what makes saving possible (Keynes 1939), and the importance of distinguishing financing (initial finance) from funding (final finance). Parguez (2002) and Bougrine and Seccareccia (2002) have shown how the circuit theory can be extended to include the state, and reached similar conclusions to MMT.

Let us first assume a very simple economy (Figure 1), with a federal government that injects currency by spending and imposes a tax that must be paid with this currency. The (federal) government also provides advances of government currency to the other sectors (private domestic sector, domestic state and local governments, foreign sector) that must be serviced by repaying government currency. This government is assumed to be free of any self-imposed constraint on its financial operations. (This example is similar to the case of two hundred years ago when governments issued currency in the form of coins, tally sticks, and bills of credit, and imposed taxes to be paid with the same financial instruments.)

Figure 1 A simple circuit with a monetarily sovereign government



The monetarily sovereign government is the monopoly supplier of its currency and can issue currency of any denomination in physical or non-physical forms. As such the government has an unlimited capacity to pay for the things it wishes to purchase and to fulfill promised future payments, and has an unlimited ability to provide funds to the other sectors. Thus, insolvency and bankruptcy of this government is not possible. It can always pay.[4]

Another important logical conclusion is that the injection of government currency (through expenditures or advances) into the other sectors must occur before the destruction of the government currency (through tax enforcement and repayment of advances). In an economic system in which a sovereign government operates through its own monetary system, spending (or lending) must occur before taxing. In addition, taxes are not a funding source in that logic. They are part of the destruction of government currency, i.e. they return currency to the issuing

[4] To be sure, a sovereign government can choose to default on commitments. In that case, creditors must pursue legal remedies. Sovereign government cannot be forced to default on a promise to deliver its own currency.

government. Thus, the government "budget constraint"[5] is more relevantly interpreted as an *ex-post* identity that shows the sources of injection and destruction of government currency. It is not an equation describing the choices to fund government expenditures. Within that logic, a fiscal deficit represents a net injection of currency that usually needs to be drained as explained in section 3.

A third logical conclusion is that taxing, "borrowing", and monetary creation are not mutually exclusive methods of funding a government. Indeed, all occur but at different stages of the circuit. They are complementary means for the government to work smoothly with the rest of the economy. Injection of the currency allows the government to obtain what it wants by fulfilling the desire of the non-government sectors for government liabilities (both high powered money and bonds—we will come back later to what creates that desire). Tax enforcement is part of the reflux mechanism, that is, it allows government currency to return to its issuer.

One may wonder why that reflux is necessary. The reason is found in the logic of finance. All monetary instruments are financial instruments and so they must obey the rules of finance to have a value. A central means to give value to a financial instrument is through the necessity of its issuer to take back that financial instrument in the future.[6] Households promise to take back their mortgage notes (when they repay their mortgages), businesses promise to take back their bonds (repaying principal due when bonds mature). When your neighbor returns to you your "cup of sugar" IOU, you must accept it and provide the sugar or another mutually acceptable payment. The same applies to government monetary instruments: the currency issuer must promise to accept the currency in payments to itself. Households meet that reflux requirement by working and earning a monetary wage, companies do it by making a monetary profit, government does it by taxing (broadly speaking—other types of payments to authorities can also be important, such as fees, fines, tithes, and tribute). Each of these means creates a demand for the financial instrument of the specific economic unit. The broader the capacity of the domestic private sector to earn monetary earnings, the easier it is to take back its financial

[5] The government budget constraint was brought into macroeconomics from the household budget constraint developed in microeconomics: Government spending = Tax revenue + treasuries offerings (borrowing) + currency issues. Of course, in difference from the household, it is recognized that government can "print money"; however this is to be avoided because it supposedly causes inflation.

[6] See Innes who poses a fundamental law of finance: The "very nature of credit throughout the world", is "the right of the holder of the credit (the creditor) to hand back to the issuer of the debt (the debtor) the latter's acknowledgment or obligation". (Innes 1914, 161)

instruments, and so the more broadly their financial instruments will be accepted. Generally, the broader the capacity to tax, the broader the demand for the government's currency.

Thus, taxes are essential because they help the government currency to circulate at par (thereby making the payment system more efficient) and because they promote price stability by removing some purchasing power from domestic economic units. This lesson was learned rapidly by the Massachusetts Bay colonies--so much so that while residents of the colonies were first skeptical about the value of the bills of credit for economic and political reasons, bills rapidly were used as currency and circulated at par:

> When the government first offered these bills to creditors in place of coin, they were received with distrust. […] their circulating value was at first impaired from twenty to thirty per cent. […] Many people being afraid that the government would in half a year be so overturned as to convert their bills of credit altogether into waste paper, […]. When, however, the complete recognition of the bills was effected by the new government and it was realized that no effort was being made to circulate more of them than was required to meet the immediate necessities of the situation, and further, that no attempt was made to postpone the period when they should be called in, they were accepted with confidence by the entire community […] [and] they continued to circulate at par. (Davis 1901, 10, 15, 18, 20)

This lesson was "relearned" in WWII. As Beardsly Ruml (who headed the NYFed during the war) put it:

> The war has taught the government, and the government has taught the people, that federal taxation has much to do with inflation and deflation, with the prices which have to be paid for the things which are bought and sold. If federal taxes are insufficient or of the wrong kind, the purchasing power in the hands of the public is likely to be greater than the output of goods and services with which this purchasing demand can be satisfied. If the demand becomes too great, the result will be a rise in prices, and there will be no proportionate increase in the quantity of things for sale. This will mean that the dollar is worth less than it was before - that is inflation. On the other hand, if federal taxes are too heavy or are of the wrong kind, effective purchasing power in the hands of the public will be insufficient to take from the producers of goods and services all the things these producers would like to make. This will mean widespread unemployment […].The dollars the government spends become purchasing power in the hands of the people who have received them. The dollars the government takes by taxes cannot be spent by the people, and therefore, these dollars can no longer be used to acquire the things which are available for sale. Taxation is, therefore, an instrument of the first importance in the administration of any fiscal and monetary policy. (Ruml 1946, 36)

Interestingly, the title of Ruml's piece was titled "Taxes for Revenue are Obsolete", correctly recognizing that "war finance" had taught that taxes are important for other purposes, not for financing sovereign government spending.

While this simplified monetary system is institutionally different from the contemporaneous one, it does provide some valuable lessons. Notably, it shows that it is relevant to frame issues surrounding taxes in terms of fairness and capacity to control inflation, instead of looking at government funding. Hence, we offer two justifications for providing the simple circuit model. First, it does correspond with historically important government financing procedures (something even the critics seem to recognize). But more importantly, it provides a logical framework for distinguishing between currency-issuers and currency-users. Any issuer can provide a potentially unlimited quantity of her own IOUs, and can agree to accept them back in payment. The trick, as Hyman Minsky said, is to get those IOUs accepted. By imposing taxes (or other obligations such as fees and fines) the sovereign government ensures acceptability. And so long as government only promises to accept back its own IOUs in payment of the obligation, it cannot be forced to default on that promise. (Again, if it promises to convert its IOUs to scarce metal or foreign currencies, it can be forced to default on *that* promise.) Further, the causal sequence is clear: those who have obligations to pay currency must obtain it before they can pay, and if government is the only supplier, then government must spend or lend the currency before taxes and other obligations can be paid. This logic then provides a framework that is useful for analyzing how modern government works, even though today's operations are more complicated.

We can now address two points that Palley brings forward:

> The central policy assertion of MMT is the non-existence of financial constraints on government spending below full employment. The claim is government can issue money to finance non-inflationary spending as long as the economy is below full employment. […] The only time expansionary fiscal policy pays for itself is with balanced budget fiscal policy, but that is ruled out by MMT which denies the need to finance deficits with taxes. In a static economy that means the money supply would keep growing relative to output, causing inflation that would tend to undermine the value of money. (Palley 2013, 14)

First, Palley's critique that MMT's "proposed" monetary financing of government spending is inflationary is wrong headed. His point rests on the view that tax and monetary creation are

choices within the budget constraint of the Treasury. As we have argued above, "money creation" and taxing are not alternatives but rather come at different points in the financing process. In other words, we are providing a description of the financing process, not a policy recommendation. Palley does not understand the logic of the financing sequence: the "money creation" must occur before the "money" is redeemed in tax payment.

Second, MMT does make a clear difference between real and financial constraints; this is one of the crucial points of MMT. Inflation is a real constraint not a financial constraint, so inflation does not prevent the government from funding itself—as such the capacity of the government to fund itself is independent of the state of the economy. Indeed, as the currency-issuer, government can always outbid the private sector, which certainly is a concern of MMT. At full employment, increasing government spending will be inflationary; before full employment government can cause bottlenecks and inflation of the prices of key inputs. Further, and more surprisingly, Palley seems to adopt a simplistic monetarist view of the cause of inflation when he claims that money supply growth greater than growth of output would "undermine the value of money". Like most heterodox approaches, MMT rejects the quantity equation explanation of inflation. In our view, 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.

Palley, Rochon and Vernengo, find MMT to be extreme in its linking of money and taxes:

> Unfortunately, MMT sets up unnecessary controversy by asserting that the obligation to pay taxes is the *exclusive* reason for the development of money (Palley 2013, 3)
> Sovereignty, understood as the power to tax and to collect in the token of choice, is not the main explanation for the existence of money, even if modern money is ultimately chartal money. (Rochon and Vernengo 2003, 57)

The word money is used too broadly in these quotes. To be more precise, MMT does argue that imposition by authorities of obligations (including taxes, fines, fees, tithes and tribute) is logically sufficient to "drive" acceptance of the government's currency. Some who adopt MMT (including us) believe that the historical record, such as it exists, does point to these obligations as the origin of money: government currency was first made acceptable through the imposition

of an obligation, and the creation of a monetary unit of account was also initiated by a government to denominate those obligations. Once these were established, government currency was used for other purposes as explained further in section 2. Over time financial instruments issued by others were denominated in the same money unit, and some of these also began to circulate.

But to be clear, MMT does not argue that taxes are *necessary* to drive a currency or money—critics conflate the logical argument that taxes are *sufficient* by jumping to the conclusion that MMT believes there can be no other possibility. In truth, MMT is agnostic as it waits for a logical argument or historical evidence in support of the belief of critics that there is an alternative to taxes (and other obligations). We have not seen any plausible alternative. The orthodox-Austrian Robinson Crusoe story is unacceptable as it contains several logical flaws (Gardiner 2004; Ingham 2000; Desan 2013). The other common explanation relies on an infinite regress story: Billy-Bob accepts currency because he thinks Buffy-Sue will accept it (Buchanan 2013). In our view, that is less than satisfying. If Palley, Rochon, or Vernengo has an alternative story, we would love to see it.

More importantly, as Rochon and Vernengo seem to agree, modern "chartal" currency is today "driven" by taxes. In other words, even if the "origins" of money are hidden in the "mists of time", we can look around the modern world and note that almost without exception each national government adopts its own money of account, imposes tax obligations in that unit, and issues currency as well as central bank reserves also denominated in that unit. In turn, the government accepts (and hence "destroys" in redemption) high powered money (bank reserves) in tax payment. For government currency, it is not an oversimplification to state that taxes play a central role in the origins of today's monetary systems. It is logical once one moves away from a commodity view of money and into the financial view of money in which the government plays a central role. Private money-denominated IOUs developed for other reasons than the imposition of taxes, but history suggests that government provided the foundation upon which modern monetary systems developed. When new countries are formed (for example, out of the disintegrating Soviet Union), their governments adopt a new money of account, impose tax and other obligations in that unit, issue a new currency in that unit, and accept their own

liabilities in tax payment. Whatever might have been the case in prehistoric times, with few exceptions we observe a familiar pattern throughout recorded history.

We now turn to the most contentious aspect of MMT. MMT argues that economies such as the Massachusetts colonies are sufficiently complex to shed light on the fiscal and monetary operations of contemporary economies with monetarily sovereign governments.[7] For example, the U.S. Treasury's fiscal operations and Federal Reserve's monetary operations are constrained in multiple ways but these constraints are self-imposed and do not change the logic at play in the circuit shown above. The core purpose of taxes and bond offerings remains the same; moreover, the Treasury and Federal Reserve can, and do, bypass easily the self-imposed constraints. These points will be developed in section 3. The essential point here is that the consolidation hypothesis is a theoretical simplification that makes sense once one understands the logic of the interrelations between the central bank and the Treasury, and between the government and non-government. The consolidated balance sheet of a monetarily sovereign government is shown in Figure 2.

Figure 2 Simplified Balance Sheet of a Sovereign Consolidated Government

Assets	Liabilities and Net Worth
A_1: Physical assets and financial claims on the non-federal sectors	L_1: Monetary liabilities held by banks and the rest of the domestic non-federal sector L_2: Other liabilities held by the domestic non-federal sector and the rest of the world plus net worth

L_1 is the monetary base of the country. It goes up when government spends into, or advances funds to, the domestic economy (A_1 goes up and L_1 goes up). L_1 (and A_1) goes down when government taxes. Once the consolidated balance sheet is understood, it makes sense to say that "sovereign government neither has nor does not have money" (Wray 2011). There is

[7] While MMT is criticized for consolidating treasury and central bank operations for the purposes of a balance sheet exposition--because the Fed is supposedly "independent"--this is actually done by many others. For example, Paul McCulley argues "We pretend that the Fed's balance sheet and Uncle Sam's balance sheet are in entirely separate orbits because of the whole notion of the political independence of the central bank in making monetary policy. But when you think about it, not from the standpoint of making monetary policy but of providing balance sheet support to buffer a reverse Minsky journey, there's no difference between Uncle Sam's balance sheet and the Fed's balance sheet. Economically speaking, they're one and the same." (2009, 11)

nothing "cryptic" about that statement contrary to what Fiebiger states (Fiebiger 2012a, 10); it is rather straightforward. Indeed, in that case the balance sheet of the government does not include any domestic monetary instrument on its asset side; it owns no money. All monetary instruments issued by the government are on its liability side and are created and destroyed with spending and taxing/bond offerings, respectively. It also makes sense to state that bond offerings are voluntary and taxes do not finance spending; tax receipts cannot be spent because taxes just reduce the liability of the government (L_1 goes down). It also makes sense to say that fiscal policy is responsible for "draining/adding reserves over a longer run" (Wray 2003a, 95) because monetary policy only involves advancing currency against collateral (including Treasury debt) and so the injection of reserves is only temporary, while fiscal policy involves outright purchases.

Palley, Fiebiger, Gnos, Rochon, and Lavoie complain that this is not descriptive of how fiscal operations work today. The Massachusetts colony experiment does not provide relevant insights about current fiscal operations. The contemporary Treasury is not a bank that can keystroke funds into existence, and it can run out of funds if it does not tax and issue bonds. While the U.S. Treasury can issue its own monetary instruments (coins), it typically does not operate that way and there are institutional and political constraints that prevent the Fed from directly funding the Treasury. Thus, they claim, one should interpret the accounting budgetary equation of the Treasury as a budget constraint with alternative choices. Lavoie argues that the consolidation hypothesis leads proponents of MMT to make counterintuitive and over-the-top logical conclusions that immediately put off new readers, and prevent the contributions of MMT from being accepted more widely:

> The government budget restraint shows the accounting relationship whereby governments that issue sovereign money can, in principle, finance spending by printing money. However, that also requires a particular institutional arrangement between the fiscal authority and the central bank. […]. This is an important issue of political economy. MMT dismisses this political economy and assumes there is and should be full consolidation of the fiscal authority and central bank. (Palley 2013, 6)

> Wray argues that the Treasury does not need to procure funds in order to spend but creates new funds as it spends such that in 'theory' fiscal receipts cannot be spent. This description of fiscal policy could perhaps be applied to monetary systems that existed centuries ago, for example, when the colonial government of Massachusetts issued the first fiat paper currency in America circa 1690. The bills of credit were spent into the

> economy and redeemable not for a precious metal but for tax liabilities. Does the US Treasury finance its expenses in the modern era in a way comparable to the colonial experiences of the 1690s-1700s? (Fiebiger 2012a, 3)
> In short there is no utility in depicting the "government" as financing all spending by net/new money creation when that claim applies only to the central bank (Fiebiger 2013, 66)

> One problem with the MMT "benign neglect" / "do not worry" analyses of public finances is that the "keystroke" theme is non-descriptive. […] MMT gets fiscal policy back-to-front by supposing that the Treasury expends funds without first procuring funds. The Treasury is not a bank and if it does not collect fiscal receipts it cannot spend because it has no 'money' (Fiebiger 2013, 71).

> While attempting to convince economists and the public that there are no financial constraints to expansionary fiscal policies (except artificially erected ones), neo-chartalists end up using arguments that become counter-productive. There is little or nothing to be gained from contending that government can spend by simply crediting a bank account; that the Treasury can act as if it were a bank; that government expenditures must precede tax collection; that the creation of high-powered money requires government deficits in the long run; that central bank advances can be called public spending; or that taxes and issues of securities do not finance government expenditures. This entire list of counter-intuitive claims follows a logic, premised on the consolidation of the government's financial activities with the central bank's operations, thereby modifying standard terminology. […] But MMT now brings itself to an end with a theory dependent on the counter-factual consolidation of the government and the central bank. This goes beyond a mere debate of (over-)simplification. The consolidation premise does not describe reality and it twists standard terminology (Lavoie 2013, 23)

The critique of lack of descriptiveness misses the point. The consolidation hypothesis does not aim at describing current institutional arrangements, rather, it is a theoretical simplification to get to the bottom of the causalities at play in the current monetary system. It is correct that, under current institutional arrangements, Treasury must receive funds to its account at the central bank before it spends and that this is accomplished through taxes and bond auctions, but that is not the point of MMT when using the consolidation logic. The logic of the argument is about a government sector that combines the central bank and the Treasury into one entity that issues currency. This logic ignores current self-imposed institutional and political constraints on the Treasury and the central bank for three reasons that will be developed in more detail in Section 3: First, the balance sheet outcome is the same regardless of the institutional framework. Second, the impact of Treasury spending, taxing, and bond offering on interest rates and

aggregate income is the same with or without consolidation. Third, ultimately, the central bank and the Treasury work together to ensure that the Treasury can always meet its obligations, and that the central bank can smooth interest rates. The central bank is involved in fiscal policy and the Treasury is involved in monetary policy.

Like all theories, MMT makes simplifications that aim at laying bare the foundation of our monetary system once all the political and institutional constraints that government imposes on itself are removed. The consolidation hypothesis and ensuing conclusions are not descriptive, they are logical conclusions. However, that logic was reached after an extensive analysis of the institutional framework of monetarily sovereign governments; it does not result from ivory tower thinking. The logic is important because it can be used to understand current debates about government, and to reframe them in order to provide relevant ways to solve problems for which government intervention may be needed. As shown in the last section, this provides means to cut through the current self-imposed constraints to deal directly with the issues at stake.

Finally, we note that the technique of consolidating the central bank and Treasury is frequently adopted outside MMT, for purposes quite similar to our purposes. Even Lavoie has used this technique in the textbook he co-authored with Wynne Godley.

> The government buys services and pays for them with money, which consists of pieces of paper which it prints. […] The government also levies taxes and ordains that these be paid in money, which therefore have to obtain by selling their services for it. […] this is sometimes called the cartalist or chartalist view. […] Some may regard it as an artificial assumption, others as an important and realistic assumption (Godley and Lavoie 2007, 58)

> The actions of Treasury and the CB are subject to their budget constraint. It is customary in macroeconomic models to lump the two constraints into one, since in practice Treasury is a residual claimant of the profits of the CB (through the seigniorage payments) and, from a purely economic perspective, the distinction between the two agencies is superfluous. (Bassetto and Messer, 2013)

We find it remarkable that MMT's critics waste so much ink trying to criticize a simplification that is commonly made for exposition purposes, particularly as MMT advocates have been able to relax the simplification as MMT extends analysis to account for the real world self-imposed constraints. Consolidating the balance sheets actually does help to clarify matters. The critics do not seem to understand the implications of government finance for a monetarily sovereign

government. Taxes cannot be a source of revenue in the consolidated balance sheet. They do not add monetary assets, they reduce liabilities. Similarly, Treasury offerings just change the composition of liabilities. This is clear in the consolidated balance sheet, but hidden when the two branches of government—the fiscal authority and the monetary authority—are treated separately. Hence, in MMT expositions, the consolidation not only helps to simplify the exposition but also enhances understanding.

2. ADDING THE DOMESTIC PRIVATE SECTOR

In the previous section, we focused mostly on the government side of the circuit. In this section, we study the interaction between the government and nongovernment sectors while retaining the consolidation hypothesis. For the purposes of the analysis, we will think of the nongovernment sector as equivalent to the domestic private sector, however, the analysis could just as well include state and local (nonsovereign) levels of government as well as the foreign sector in the nongovernment sector. In this section, we will further address the issue of potential inflationary pressures raised by Palley, the reasons behind the holding of government currency, and issues of net saving and financial instability raised by Fiebiger.

While Massachusetts-Bay governments emphasized the importance of a tax system for the stability of their monetary system, they also noted that taxes tended to drain too many bills out of the economic system compared to what was desired by private economic units. This created a dilemma:

> The retirement of a large proportion of the circulating medium through annual taxation, regularly produced a stringency from which the legislature sought relief through postponement of the retirements. If the bills were not called in according to the terms of the acts of issue, public faith in them would lessen, if called in there would be a disturbance of the currency. On these points there was a permanent disagreement between the governor and the representatives. (Davies 1901, 21)

Private economic agents desired to hold bills for other purposes than the payment of tax liabilities, namely daily expenses, private debt settlements, portfolio choices, and precautionary savings. However, by draining all or most of the bills via taxes, the government prevented the domestic private sector from accumulating the amount of bills it desired. At the same time, taxes were at the foundation of the monetary system so they needed to be imposed and collected as

expected. Ultimately, the governments of colonies were unsure how to proceed in terms of the amount of bills to recall.

Some knowledge of national accounting helps to solve this dilemma. Let us start with the flow of funds accounts. This accounting approach uses balance sheets to analyze the three main economic sectors of an economy: the domestic private sector (DP), the government sector (G), and the rest of the world/foreign sector (F) (Ritter 1963). For the moment, the foreign sector will be left aside. A balance sheet is an accounting document that records what an economic unit owns (assets) and owes (liabilities and net worth) (Figure 3).

Figure 3 A Basic Balance Sheet.

Assets	Liabilities and Net Worth
Financial Assets (FA)	Financial Liabilities (FL)
Real Assets (RA)	Net Worth (NW)

A balance sheet must balance, that is, the following equality must hold all the time: $FA + RA \equiv FL + NW$ or $NW - RA \equiv FA - FL$. Each macroeconomic sector has a balance sheet (Figure 4).

Figure 4 Balance Sheet of Each Macroeconomic Sector

A_{DP}	L_{DP}
FA_{DP}	FL_{DP}
RA_{DP}	NW_{DP}

A_G	L_G
FA_G	FL_G
RA_G	NW_G

Financial assets are claims on other economic sectors. Financial liabilities are claims of other economic units on an economic sector. For every lender there is a borrower, so if one adds together the claims of the lender and the borrower they must cancel out:

$$(FA_{DP} - FL_{DP}) + (FA_G - FL_G) \equiv 0$$

Thus, summing across sectors, it is true that the sum of all net worth equals the sum of real assets, that is, only real assets are a source of wealth for the whole economy.

$$(NW_{DP} - RA_{DP}) + (NW_G - RA_G) \equiv 0$$

Given that the previous identities hold in terms of levels, they also hold in terms of changes in levels ("flows"):

$$\Delta(FA_{DP} - FL_{DP}) + \Delta(FA_G - FL_G) \equiv 0$$

$\Delta(FA - FL)$ is called net lending or net financial accumulation. If an economic sector accumulates more claims on the other sectors than the other sectors accumulate claims on an economic sector, the economic sector is a net lender: $\Delta(FA - FL) > 0$. It is quite straightforward to notice that not all sectors can be net lenders at the same time. That is, if one sector accumulates a net amount of financial claims, another must be accumulating a net amount of financial debts. Usually, the domestic private sector is a net lender (i.e. it records a net accumulation of financial claims) and the government sector is a net borrower (i.e. it issues more debt than it accumulates financial assets).

This accounting framework is not theory but it provides a context to set proper policy goals. Indeed, regardless of the amount of economic adjustments—changes in the exchange rate, interest rate changes, aggregate income fluctuations, etc.—some desired financial outcomes can never be achieved and it is highly destructive to continue policies that aim at achieving incompatible desires. The most important policy implication is that, in a closed economy, it is inconsistent for a government to put in place policies that promote thriftiness in the private sector while aiming to reach a government surplus.

Beyond ensuring feasibility of policy prescriptions, the accounting identities also provide a framework to set up a theory. First, MMT argues the fiscal position of the government sector is ultimately driven by the desired net financial accumulation of the non-government sectors. We know that budget accounting requires that the following applies to the government (G is government spending and T is taxes): $G - T - \Delta FA_G + \Delta FL_G \equiv 0$ so $\Delta FL_G \equiv -(G - T) + \Delta FA_G$; therefore, at equilibrium, the accounting identity requires that the fiscal position is:

$$(G - T)^* = \Delta(FA_{DP} - FL_{DP})_d = \Delta(FA_{DP} - FL_{DP})$$

A more familiar way to present this can be achieved by noting that $\Delta(FA_{DP} - FL_{DP}) \equiv \Delta(NW_{DP} - RA_{DP}) = S_{DP} - I_{DP}$. In that case we have:

$$(G - T)^* = (S_{DP} - I_{DP})_d = (S_{DP} - I_{DP})$$

Usually the domestic private sector desires to net save (i.e. to accumulate net worth beyond the accumulation of real assets) so the government sector must be in deficit.

If the government fiscal position is in surplus, or in a deficit that is not consistent with the desired net saving of the domestic private sector, nominal national income will adjust as the domestic private sector changes its spending level. As national income changes so do automatic

stabilizers, and so the fiscal position will move to be consistent with the level desired by the non-government sector. How national income will change (change in output and/or price) will depend on the state of the economy and how adjustments affect desires.

Second, going back to the Massachusetts dilemma, one can conclude that, as long as the domestic private sector desires to have a net accumulation of government currency, there is no need to retire all of the emitted currency through taxation, i.e. there is no need to have a balanced budget. The question about what the proper federal fiscal stance is at full employment, or other economic states, cannot be determined independently of the non-federal government sectors' desire in terms of net accumulation of federal government financial assets.

Thus, contrary to Palley's argument, there is no need to assume that the government budget should be balanced at full employment to prevent inflation:

> There is no finance constraint on G because of the capacity to issue sovereign money. However, once the economy reaches full employment output, taxes (T) must be raised to ensure a balanced budget […] This balanced budget condition must be satisfied in order to maintain the value of fiat money. In a no growth economy, having the fiscal authority run persistent money financed deficits will cause the money supply to increase relative to GDP, in turn causing inflation. (Palley 2013, 8)

The fiscal balance at full employment will depend on the desired net saving of the non-government sectors at full employment income. If the desired net saving of the domestic private sector is positive at full employment income, there is no inflationary pressures from a fiscal deficit.[8] Similarly, if the budget deficit is too high relative to the desired net saving of the domestic private sector, there will be demand-led inflationary pressures around full employment. Again the Massachusetts experiment provides some great insights about wars leading to ballooning discretionary government spending and declining tax receipts and so upward pressures on prices.

However, as national income rises non-discretionary government spending will decline and taxes will rise. This will occur without changing the tax structure and without policy

[8] We recognize that inflation can result before full employment, and that government's spending (or taxing) policies can contribute to inflation through, for example, creating full employment. Here, however, we are focused on responding to Palley's claim that at full employment government must run a balanced budget to avoid causing inflation. We note also that Keynes reserved the term "true inflation" to indicate the situation where additional spending must cause inflation because the elasticity of output has fallen to zero when all resources are fully employed. This seems to be the scenario Palley has in mind. However, his argument that if there is a budget deficit at full employment, then there must be "true inflation" in Keynes's sense is flawed.

decisions aimed at lowering discretionary spending, but just due to automatic stabilizers. Thus, contrary to what Palley argues, there is no need to proactively raise taxes (i.e. raise tax rates or impose new taxes) and cut spending as the economy does better if strong enough automatic stabilizers are in place. But this does not mean that a surplus is needed during an expansion. To summarize, MMT certainly does not say that at full employment the fiscal position of the government cannot be balanced; it can, but that is not up to the government sector to decide.[9]

Third, the previous discussion does not mean that MMT is for a fiscal deficit, nor is it for a fiscal surplus or a balanced budget. MMT is agnostic regarding the fiscal position of a monetarily sovereign government per se. As Abba Lerner's "functional finance" approach insists, the fiscal position of the government is not a relevant policy objective for a monetarily-sovereign government. Price and financial stability, moderate growth of living standards, and full employment are the relevant macroeconomic objectives, and the fiscal position of the government has to be judged relative to these goals. If there is inflation that is demand-led, the fiscal position is too loose (surplus is too small or deficit is too large); if there is non-frictional unemployment, the fiscal position is too stringent. Also if financial fragility grows due to negative net saving by the domestic private sector, the government's stance is probably too tight.

A fourth conclusion is that for the stability of the economic system, it is usually important that the domestic private sector not be a net borrower. Indeed, if the domestic private sector is a net borrower, this implies that the amount of net financial assets held by the domestic private sector is declining because borrowing from other sectors grows faster than the gross accumulation of financial claims on other sectors. As a consequence net worth declines unless the nominal value of real asset grows fast enough through asset price appreciation. This is exactly what happened during the recent housing boom when the speculative boom of housing prices was rapid enough to sustain the wealth of households in spite of unprecedented borrowing. Of course, all this is in line with Minsky's Financial Instability Hypothesis (Tymoigne and Wray 2014). The implication of having a domestic private sector being a net

[9] We do not mean to imply that government decisions have no impact. For example, a "trickle up" policy to move income to the rich might increase the private sector's net saving desire, resulting in bigger budget deficits at full employment; a policy that uses New Deal-style job creation to achieve full employment might instead be consistent with a balanced budget. In other words, government policy can affect the private sector's behavior.

lender is that the federal government sector has to be in deficit unless the foreign sector is willing to be in deficit.[10].

A fifth conclusion, is that, contrary to what Palley, Rochon and Vernengo state, MMT does not believe that the only reason for holding the government currency is because of taxes. Taxes are just a sufficient condition for acceptability of currency—not a necessary condition, however historically taxes and other obligations to authorities did play a central role in the development of modern currency going back at least to Ancient Egypt. Government currency can be held for other reasons as the Massachusetts experiment showed. This is actually why the government can run a deficit as people want to hold government financial instruments (in monetary form or not) beyond the purpose of paying taxes (Wray 2012).

Sixth, Fiebiger is perfectly correct to state that the previous accounting framework is not enough to understand how financial fragility grows within a specific subsector of the domestic private sector because financial assets and liabilities held within that subsector are eliminated from the analysis above. However, the flow of funds identity helps greatly to conceptualize economic relationships between public and private sectors, which is one of the points of MMT. In addition, MMT does differentiate between saving (in the flow of funds it is the change in net worth: ΔNW) and net saving (saving less investment). Net saving shows how the accumulation of net worth occurs beyond the accumulation of real assets. For the domestic private sector, this comes from a net accumulation of financial claims against the government and foreign sectors. A central point here is that government deficits add to the saving and net saving of the private domestic sector. Lavoie notes:

> While it would seem that government deficits in a growing environment are appropriate — as it provides the private sector with safe assets to grow in line with private, presumably less safe, assets — it is an entirely different matter to claim that government deficits are needed because there is a need for cash. Even if the government kept running balanced budgets, central bank money could be provided whenever the central bank makes advances to the private sector. (Lavoie 2013, 9)

[10] Note that state and local governments—that are nonsovereign in the currency sense—strive to have budget surpluses. In the case of the US, almost all states have constitutions that forbid budgeting for deficits. In the case of the US, outside deep recessions, state and local governments run surpluses and the foreign sector runs significant surpluses against the US. For the domestic private sector to have a surplus means the federal government must run a large deficit to balance against state and local surpluses, foreign surpluses and the domestic private sector surplus. There is no reason to expect that this would be inflationary—regardless of the level of unemployment.

This is correct but this is not the point made by MMT. Providing advances does not lead to net saving of government currency as financial assets of the domestic private sector increase by the size of the increase in financial liabilities. Stated another way, advances have to be repaid so the gain in government currency is only temporary. Only a government deficit induced by fiscal policy leads to net saving. Monetary policy can change the composition of net saving by substituting currency for other assets, but it cannot change the size of net saving, i.e. the net accumulation of financial assets. A central bank *advances* currency into existence while the Treasury *spends* currency into existence. The difference is important: fiscal policy creates net financial assets; monetary policy only "liquefies" financial assets.

3. ADDING THE CENTRAL BANK

Palley (2013) argues that MMT does not account for the flooding of reserves in the economic system that results from a monetary financing of government spending. In this case, a deficit leads to a decline in interest rates and potential financial instability. Fiebiger (2012a, 2013) notes that Treasury operations do not lead a change in the level of central bank liabilities and so no monetary creation, and that it is disingenuous to exclude the Treasury General Account at the Fed (TGA) from the money supply. He also wonders why the Treasury continues to issues bonds when the FFR is effectively zero today, if, following MMT, bond offerings are voluntary operations used to drain excess reserves.

In order to address these issues, this section removes the consolidation hypothesis by distinguishing between the central bank and the Treasury in the federal government sector (grey area in the figure below). To simplify, a strict separation is also made between what the Treasury does and the central bank does (Figure 4). Treasury is the only federal government entity involved in injecting CB currency through purchases of goods and services (spending of CB currency).[11] These operations involve the exchange of financial assets for real assets ("fiscal

[11] Here we use the word "currency" to include central bank notes, treasury coins, and central bank reserves (together normally called high powered money), so central bank currency includes notes and reserves. To use the term even more broadly, we could include Treasury bonds and central bank bonds (which are issued by some central banks) in our definition of currency. Bonds are simply longer maturity and reward holders with higher interest.

policy")[12]. Receipts of CB currency due to the Treasury come from taxes and bond offerings, and so the Treasury is also involved in some financial transactions but merely to remove CB currency from the nongovernment sector and to obtain credits to the Treasury's account at the CB.

We will assume the central bank only injects CB currency through financial operations that is, through open market purchases of treasuries, and outright purchases of non- government financial instruments. Central bank operations ("monetary policy") do not change the mix between real and financial assets of the non-federal government sectors. In practice, the distinction is not that clear as the central bank is involved in limited operations on goods and services (it hires labor and buys office supplies, for example), and the Treasury is involved in financial operations (various kinds of loans and loan guarantees, for example). There are three sources of injection of CB currency into the non-federal sector: advances, purchases of financial assets, and purchases of goods and services. There are four sources of removal of CB currency from the non-federal sector: repayment of advances, taxes, sales of financial assets, and sales of goods and services by government.

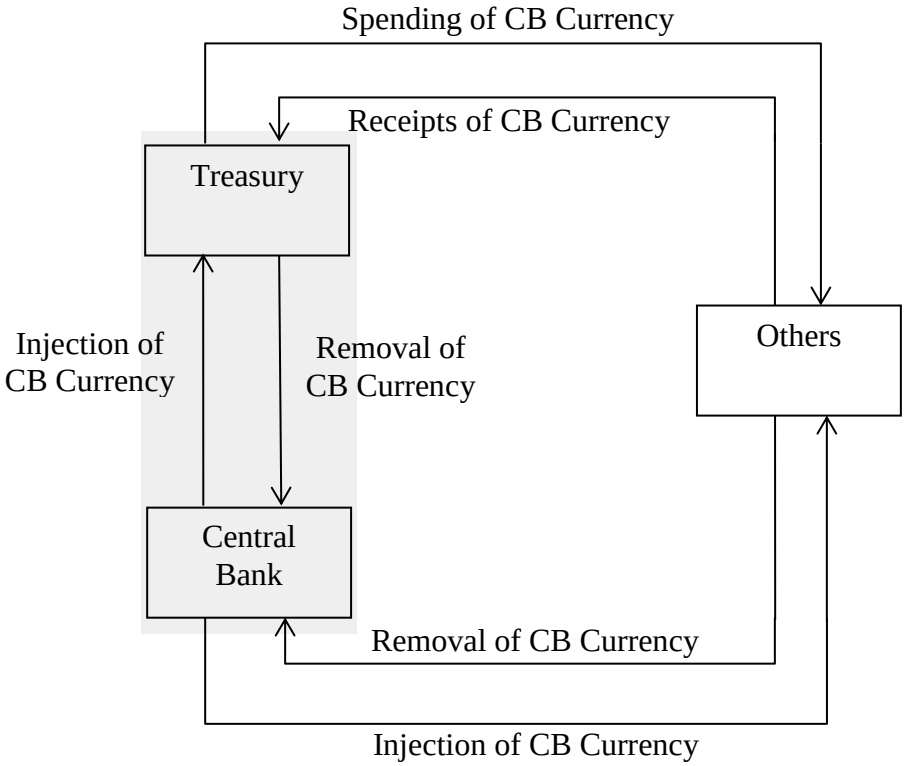
Figure 4 assumes the central bank can directly advance funds to the Treasury which may not true for all real world cases. Whether such activity is permitted is not that relevant for the logic at play (and so for MMT as we will explain). Indeed, the crucial elements in this circuit are injections and removals of CB currency that occurs between the grey area (federal government) and the others. The reason is that transactions within the federal sector have no direct impact on macroeconomic variables. For example, purchases of treasuries by the central bank directly from the Treasury do not lead to an injection of CB currency in the non-federal sectors, and so have no direct impact on the interest rate as long as the Treasury does not spend. However, there could be an indirect effect if financial market participants account for a new buyer in the primary market (so they assume fewer treasuries will be sold into financial markets). But that ultimately depends on how the central bank bids in the primary market.

Again, it is logical that injections of CB currency must come before removal of CB currency from the non-federal sectors can occur. This means that the central bank must advance

[12] Treasury spending also converts a legal claim against the Treasury (for example, legislated Social Security benefits) into a monetary claim.

CB currency either to the non-federal sectors or to the Treasury before any of the following can occur: tax collection, treasuries purchases by non-federal sectors, and spending by Treasury.

Figure 4 The Circuit with Central Bank and Treasury



There is a more precise way to look at the sources of injection or removal of CB currency. Figure 5 shows the simplified balance sheet of the central bank of a monetarily sovereign government.

Figure 5 Simplified Balance Sheet of a Central Bank

Assets	Liabilities and Net Worth
A_1: Treasury securities A_2: Other assets	L_1: Monetary Liabilities held by banks and the rest of the domestic non-federal sector L_2: Monetary Liabilities held by the Treasury L_3: Monetary Liabilities held by others plus net worth

L_1 is approximately the monetary base (Treasury currency held by the domestic non-federal-government sector must be added), and L_2 is the outstanding amount of central bank currency held by the Treasury. Given that a balance sheet must balance we know that:

$$L_1 \equiv A_1 + A_2 - L_2 - L_3$$

MMT works with this identity because it shows the sources of injection and drainage of currency. MMT focuses especially on the Treasury and central bank operations that lead to changes in L_1. These changes affect the federal funds rate (FFR) and are central to the economic relationship between the public and private sectors. When a consolidated government is used in the argument, the balance sheet shown in Figure 2 is used instead.

Another point of MMT related to the previous identity is that fiscal policy (change in L_2) leads to fluctuations in L_1 for reasons unrelated to the changes in the demand for monetary base by the domestic non-federal sector; it is an exogenous fluctuation (or a "vertical" injection of base) for the domestic non-federal sector even though it may be endogenous to the state of the economy. Thus, a central bank needs to offset any change in L_1 due to Treasury operations in order to maintain the amount of CB currency equal to what is demanded in the open market so as to maintain the FFR on target. All this of course does not mean that MMT is throwing away the endogenous component of variations in L_1, which are due to central bank's defensive operations to respond to the demands of open-market participants. While Lavoie does not see any gain from "making references to vertical components" (Lavoie 2013, 8), MMT shows that these components are important for fluctuations in L_1 and explain why the Treasury and central bank need to coordinate with each other. This coordination is one reason why consolidation makes sense.

To simplify, let us assume that all economic transactions involve electronic transfers of funds (no use of central bank or Treasury physical currency). As the Treasury spends in the domestic economy (L2 goes down), the amount of reserves held by banks rises (L1 goes up) simultaneously with the bank accounts of non-bank economic units. As the Treasury taxes (L2 goes up), the amount of reserves held by banks declines (L1 goes down). If the Treasury spends more than it taxes (i.e. runs a deficit), there is a net increase in L1 due to an increase in the amount of funds at the central bank accounts of banks. Surpluses lead to exactly the opposite effect; they drain reserves out of the banking system and so reduce the monetary base.

Given that the demand for reserves by banks is highly inelastic, in normal times any[13] excess reserves will tend to push the FFR below the Fed's target and any shortage of reserves will drive up the FFR. Thus, the central bank will need to offset Treasury's fiscal operations unless it targets a FFR of zero percent (in which case it can leave excess reserves in the system) or gives up FFR targeting (and accepts potentially highly unstable overnight interest rates). Both the Treasury and the central bank are involved in these reserve management operations to maintain interest-rate stability.

If one focuses on a deficit, the central bank drains excess reserves by moving A_1 in the opposite direction of L_2; the traditional open market operations (OMOs). OMOs involve selling treasuries to banks so that A_1 declines and excess CB currency held by the banking system is drained (L_1 declines). However, the central bank has a limited amount of treasuries that it can use for OMOs, so the Treasury must supply an adequate amount of treasuries for FFR targeting to be effective. (The alternative is for the central bank to offer higher interest paying liabilities—some central banks actually issue bonds that serve the same purpose as Treasury bonds.)

More broadly, a growing economy normally requires a growing monetary base, and so a growing amount of assets held by the central bank given the FFR target, which usually means that the amount of treasuries held by the central bank must rise, which ultimately means that the Treasury must be in deficit. If there is a fiscal surplus, the outstanding amount of treasuries shrinks which is a problem for a central bank that performs OMOs with that instrument (unless

[13] This is a simplification as banks may want to hold a small amount of excess reserves to avoid an overdraft in interbank settlements and to meet customer withdrawals (Marquis 2002).

the central bank provides the reserves through discount window loans—however, without Treasury debt this will require that it is willing to accept other collateral submitted by banks).

Beyond the provision of an adequate supply of treasuries, the Treasury is also involved in FFR targeting through the use of the Treasury tax and loan accounts (TT&Ls). TT&Ls are accounts of the Treasury at private banks. These accounts were first set up in 1917 to receive proceeds of liberty bond offerings, and in 1948 they also began to receive tax collections. They were created to smooth the impact of fiscal operations on the supply of reserves (U.S. Treasury 1955; U.S. Senate 1958). Bell (2000), the U.S. Treasury (1955), MacLaury (1977) and Meulendyke (1998) show that the daily coordination between the Treasury and the central bank is extensive. The Treasury will help the central bank by timing transfers between its TGA (L_2) and its TT&Ls. The timing is done in relation to spending needs so as to maintain L_2 relatively stable. Rochon and Gnos unfortunately confuse the issue when they quote Wray incorrectly by stating that, according to Wray, "taxes are a means 'to maintain stability in the market for reserves'" (Gnos and Rochon 2002, 49). If one goes back to the full quote, Wray talks about the timing of spending and transfer of tax receipts to TGA, not taxes. It is all about limiting L_2 fluctuations. Taxes are not a tool to maintain the stability of the reserve market, they are a tool to maintain price stability; bonds and TT&Ls-TGA transfers are the tools used to maintain reserves at the right level and thus enable the central bank to hit its rate target.

Ultimately, the financial operations of the Treasury and the central bank are so intertwined that both of them are constantly in contact to make fiscal and monetary policy run smoothly. The Treasury gets involved in monetary policy and the central bank gets involved in fiscal policy. As such the independence of the central bank is rather limited and it must ultimately financially support the Treasury in one way or another (Tymoigne 2013). MacLaury from the Federal Reserve Bank of Minneapolis summarizes all these points quite nicely:

> The central bank is in constant contact with the Treasury Department which, among other things, is responsible for the management of the public debt and its various cash accounts. Prior to the existence of the Federal Reserve System, the Treasury actually carried out many monetary functions. And even since, the Treasury has often been deeply involved in monetary functions, especially during the earlier years. […] Following the 1951 accord between the Treasury and the Federal Reserve System, the central bank was no longer required to support the securities market at any particular level. In effect, the accord established that the central bank would act independently and exercise its own judgment as to the most appropriate monetary policy. But it would also

> work closely with the Treasury and would be fully informed of and sympathetic to the Treasury's needs in managing and financing the public debt. […] The Treasury and the central bank also work closely in the Treasury's management of its substantial cash payments and withdrawals of Treasury Tax and Loan account balances deposited in commercial banks, since these cash flows affect bank reserves. (MacLaury 1977)

The central bank and the Treasury must work together to support the monetary and financial systems because they are ultimately two sides of the same coin, the government sector. The most recent example occurred during the recent financial crisis when the Treasury issued bills at the request of the Fed to drain reserves (Tymoigne 2013). Thus, Fiebiger is correct when he notes that:

> But it must be acknowledged that, in the modern era, the US Treasury sells bonds to acquire the funds it needs to finance deficit-spending and that without this financing operation would be short of "money" (Fiebiger 2012b, 31)

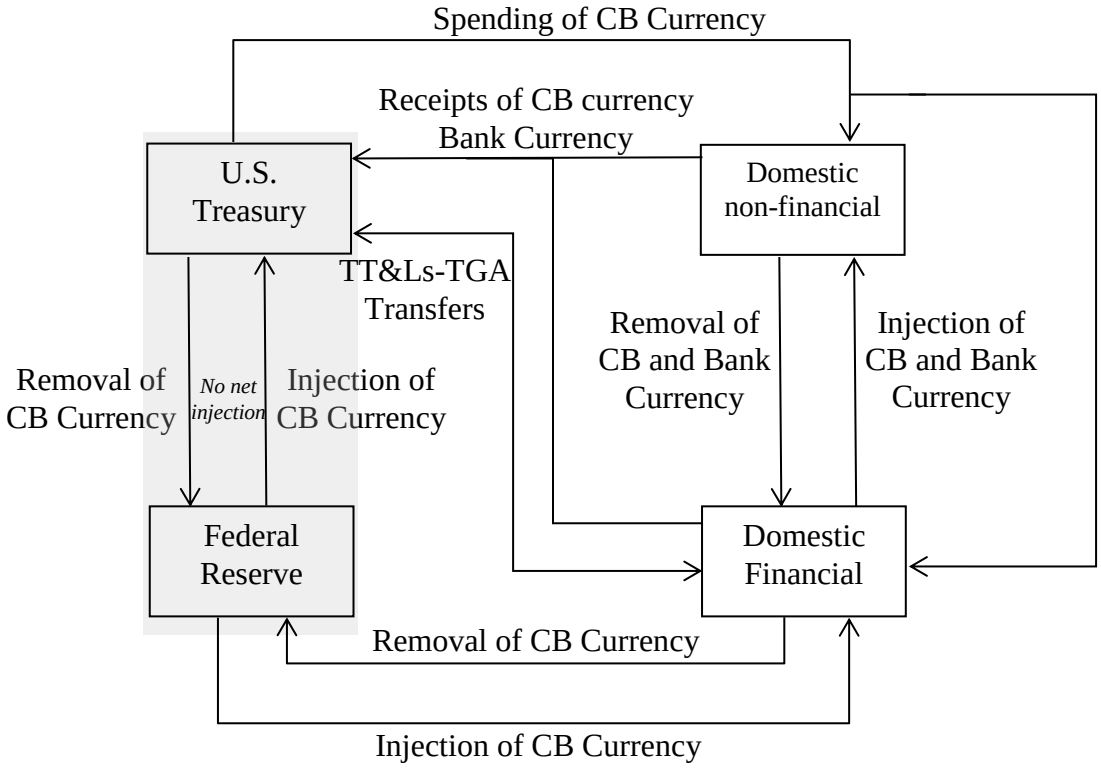
MMT does not deny this when one accounts for all of the institutional framework. The point is that, in that extreme case where nobody wants to buy bonds from the Treasury, the central bank will intervene, or the Treasury will finds ways to avoid having no funds in their coffers. They have done so for centuries now due to their privilege in the monetary system. They have done so not only to finance Treasury but also to avoid financial instability that results from a federal government that does not perform its monetary duties properly. Thus, if one wants to account for institutional aspects in order to be more descriptive, one should account for all of them, namely those that constrain Treasury-Central Bank operations, and those that allow Treasury to bypass these constraints (Tymoigne 2013). For example, in the US special dealer banks always stand by to purchase treasuries and the Fed ensures there are sufficient reserves to do so by supplying them through temporary repos (a matched purchase of Treasury debt with a requirement that the seller must repurchase later). While the Fed is not in that case directly buying the new issue directly from the Treasury, it uses the open market purchase to buy an existing bond in order to provide reserves needed for a private bank to buy the new security. The end result is exactly the same as if the central bank had bought directly from the Treasury.

The reader may note that none of the preceding is a theoretical analysis. It is an analysis of balance-sheet accounting and the impact of government spending and taxes on the CB currency supply, as well as an analysis of the interaction between the central bank and the Treasury. However, MMT does draw some theoretical conclusions from the preceding. One of

them is that consolidating the central bank and the Treasury in the government sector makes theoretical sense. One could separate the Treasury and central bank instead of consolidating, but this simply adds assumptions and intermediate steps without changing the nature of the operations. Indeed, it has the potential of masking the true nature of the operations, which makes it decidedly less useful as a starting point.

Thus, MMT recognizes that there are some self-imposed constraints on the financial operations of the government. Consider how operations are really done in the US—where the Treasury holds accounts in both private banks (TT&Ls) and the Fed (TGA), but can write checks only on its account at the Fed (it cannot spend bank currency, that is, its deposits at private banks). Further, the Fed is prohibited to be a net buyer of treasuries in the primary market (and is not supposed to allow overdrafts on the Treasury's account) and thus the Treasury must have a positive balance in its account at the Fed before it spends. Thus, the Treasury must replenish its own account at the Fed either via balances collected from tax (and other) revenues or debt issuance to "the open market". Fullwiler, Kelton and Wray (2012) have shown that these constraints do not change the end result of fiscal policy in terms of balance sheets, even though the order of financial transactions changes. One way or another, the Treasury gets goods and services in exchange for CB currency. Again the circuit approach improves our understanding of the logic at play. Figure 6 shows the circuit that includes all these institutional aspects.

Figure 6 Circuit with more Realistic Features for the US Institutional Framework



The circuit is complicated now but, again, before the Treasury can tax and issue bonds, an injection of CB currency must occur first. This is so even though taxes and bond offerings are implemented through bank currency because the Treasury only spends using funds on its TGA. Thus, ultimately taxes and bond offerings drain CB currency when funds are moved from the TT&Ls and the TGA. Either the central bank advances the currency to the domestic private sector or it buys financial assets from that sector. In either case, the CB currency is then passed along to the Treasury, so the central bank is still involved in funding the fiscal operations of the Treasury, but it does so indirectly. In addition, the Federal Reserve provides a stable refinancing source of the Treasury by buying treasuries in the primary market to replace those maturing. To put it simply, the Fed is the monopoly supplier of CB currency, Treasury spends by using CB currency, and since the Treasury obtained CB currency by taxing and issuing treasuries, CB currency must be injected before taxes and bond offerings can occur.

Lavoie is actually on the same page and recognizes that the fact that central bank cannot directly finance the Treasury does not change the logic at play. However, he prefers not to use the consolidated government:

> In a nutshell, as long as the other characteristics of a "sovereign currency" are fulfilled, it makes little difference, as the cases of Canada and the USA illustrate, whether the central bank makes direct advances and direct purchases of government securities or whether it buys treasuries on secondary markets, as long as the central bank shows determination in controlling interest rates. […] But then, if it makes no difference, why do neochartalists insist on presenting their counter-intuitive stories, based on an abstract consolidation and an abstract sequential logic, deprived of operational and legal realism. (Lavoie 2013)

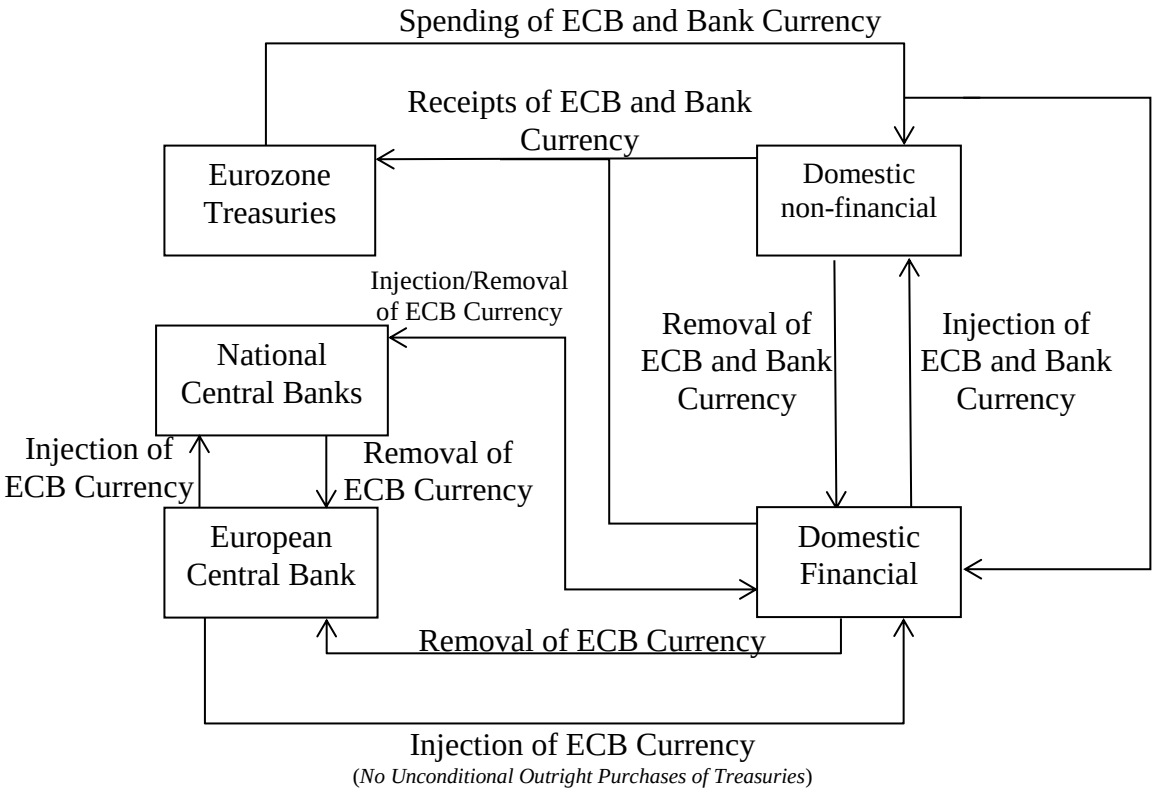
MMT argues that the added complexity is counter-productive because it leads to poor understanding among economists, poor modeling, and bad policy choices. Were economists and policy makers to understand that the MMT consolidated case explains the underlying nature of government debt operations, we suggest that all three could be markedly improved. Finally, MMT insists that there is nothing "natural" about the operating procedures (including restrictions) adopted—since in practice they make no difference they could be dropped to simplify procedures. So the difference with Lavoie is partly a strategic difference but also partly a way to look at—and possibly improve—policy making as shown in section 5.

In conclusion, Treasury spending always involves monetary creation as private bank accounts are credited, while taxation involves monetary destruction as bank accounts are debited. The question becomes how the Treasury acquired the deposits it has in its account at the central bank. In the current institutional framework, the apparent answer is through taxation and bond offerings. While usually economists stop here, MMT goes one step further and wonders where the receipts of taxation and bond purchases came from; the answer is from the central bank. This must be the case because taxes and bond offerings drain CB currency so the central bank had to provide the funds (as it is the only source). The logical conclusion is then that CB currency injection has to come before taxes and bond offerings. Close study of the operations involved reveals that the CB either advances them, or more commonly, provides them through open market purchases. More broadly, the theoretical insight that MMT draws is that government spending (by the Treasury or spending and lending by the central bank) must come first, i.e. it must come before taxes or bond offerings. Spending is done through monetary creation ex-nihilo in the same way a bank lends (buying financial assets) by crediting bank accounts; taxes and bond offerings lead to monetary destruction (L_1 goes down) in the same way that loan repayments destroy bank deposits.

One may note that most of these conclusions also apply to the Eurozone but there are specific institutional aspects that make the Eurozone Treasuries non-monetarily sovereign (Figure 7). First, there is no direct coordination of Eurozone Treasuries with the ECB for monetary and fiscal policy purposes (indeed this is prohibited). Second, Eurozone Treasuries are not allowed to issue any monetary instrument whereas the US Treasury issues coins to the Federal Reserve in exchange for TGA crediting at par value.[14] And the US Treasury can issue coins of any denomination. Third, the ECB does not perform unconditional outright purchases and sales of Eurozone Treasuries. At least, before the Securities Market Programme and Outright Market Transactions program, the ECB did not perform any outright transactions on Treasuries. Thus, if Eurozone Treasuries are in trouble, they have no means to bypass existing self-imposed constraints short of leaving the Eurozone. Finally, the ECB does not provide a refinancing source to the Eurozone Treasuries. This does not mean that the ECB is not involved indirectly, as the Target 2 clearing mechanism operates to provide euro reserve balances to member central banks. This has always provided something of a "relief valve" for member state fiscal operations because national central banks do purchases treasuries in secondary markets. While the ECB has been reluctant to buy treasuries, it deals with national central banks on demand so the ECB is again indirectly involved in the funding of national Treasuries, albeit in a more narrow and cumbersome way.

[14] Gnos and Rochon (2002, 49) incorrectly argue that coins are bought by the Federal Reserve at cost value. Only Federal Reserve notes are bought at cost value by the Federal Reserve banks from the Bureau of Engraving and Printing.

Figure 7 Circuit of the Eurozone



Beyond the relevance of the consolidation of the central bank and Treasury for theoretical purpose, one can draw additional conclusions from the interaction between the central bank and Treasury in monetarily sovereign governments. First, Treasury has issued securities for purposes other than funding itself. One reason is to provide a means of payment to the country, another is to help the central bank in its interest-rate stabilization operations, and a third is to help financial institutions meet their capital requirements and to provide a foundation upon which all other securities are valued by providing a proxy for the risk-free rate. MMT argues that these reasons for issuing treasuries are much more relevant in a monetarily sovereign government, because they do not result from a self-imposed constraint. They respond to a genuine need of the economic system. Palley notes that bonds provide an important foundation for the financial system but does not seem to recognize that MMT agrees (Palley 2013, 22). Bond offerings by the Treasury are central to the stability of the financial system as long as the central bank does not pay interest on reserves. Interest-paying government liabilities are so important that Treasury may continue to issues treasuries for that purpose even if there is a

fiscal surplus. Australia is a recent example of that case (Commonwealth of Australia 2003, 2011). China is an example of a case in which it is the central bank that issues interest-paying bonds when the Treasury runs a surplus.

Second, Palley notes that a permanent deficit funded monetarily without recourse to taxes and bond offering generates price and financial instability through a large "liquidity build up."

> Money-financed budget deficits increase the supply of high-powered sovereign money, which embodies latent purchasing power […]. Whereas general price inflation is unlikely in times of weak economic activity, asset price inflation can occur at any time. As with general price inflation, modeling the relation between liquidity build-ups and financial instability is extremely difficult. That relationship is not mechanical or fixed in form. Instead, liquidity is akin to latent financial energy that can accumulate, leading to greater danger of unanticipated combustion. However, because the danger cannot be deterministically modeled, that does not mean it should be ignored. Yet that appears to be the implicit recommendation in MMT's policy of exclusive reliance on money-financing of budget deficits. (Palley 2013, 19)

Again, this is based on a logic that sees monetary financing, taxes, and bond offerings as exclusive alternatives. We have already dealt with the point that taxes are central to price stability and are not an alternative to monetary creation. The same applies to bond offerings--they are not an alternative to monetary financing, rather they complement it by draining excess CB currency in order to maintain interest-rate stability. Thus, it is true that a deficit that is not accompanied by a bond offering to the non-federal sector will drive down interest rates if it creates excess reserves (because L_1 goes up), and that might lead to imprudent borrowing. However, the deficit-led decline in interest rates usually will not happen because the central bank will drain any excess CB currency created by a deficit in order to maintain the FFR on target. In other words, the deficit will affect interest rates only if the CB decides to lower its target as a result of deficits. That would appear to be quite unlikely—indeed, in the presence of inflationary deficit spending by Treasury, the central bank would be more likely to raise its target rate (so it would drain excess reserves). Still, bond offerings must occur after a net monetary injection by the government unless the private sector wishes to net save in the form of government currency.

Fiebiger notes that under the current institutional arrangements, Treasury operations do not lead to any net monetary creation. Taxes and bond offerings have to occur before the

Treasury can spend and spending is limited to the amount of funds collected by the two previous means, so the net creation of funds is zero.

> The Treasury cannot 'net credit' the accounts of the private sector through expenditures because the 'credits' to its own accounts are obtained by collecting fiscal receipts and, hence, by recording previous 'debits' against the accounts of the private sector (with a side note needed for the Fed's holdings of Treasury debt). Matters are straightforward: if the Treasury wants to spend in excess of the balance in its account at the central bank (normally around $5 billion) it must first collect and then draw on fiscal revenues or else its checks will bounce. (Fiebiger 2012a, 3)

MMT does not disagree with this. We just did a circuit that shows this when one removes the consolidation hypothesis. Spending creates an injection of currency that needs to be drained by taxes to promote price stability, and by bond offerings to promote interest-rate stability. So, unless the non-federal sectors are willing to hold government currency instead of bonds (this means that a bond offering would fail to find willing holders), there will not be any net injection of currency from a fiscal operation; that is, L_1 will stay the same via timing of spending and TT&Ls-TGA transfers obtained from taxes and bond offerings. What MMT claims is that deficit spending increases "net financial assets" for the nongovernment sector, normally in the form of treasuries offered in redemption of reserves. In addition, the injection of currency has to occur before taxing and bond offerings can be of use to the Treasury as the Treasury spends by using CB currency.

Fiebiger also takes issue with the exclusion of TGA from the definition of the money supply and argues that looking at L_1 alone is not relevant. Net monetary creation would mean that the liability of the central bank goes up, when in fact when the Treasury spends L_2 goes down by the same amount as L_1 goes up.

> MMT description of the money supply process [involves] arbitrary accounting practices; in particular, [and leads] to the mislaid belief that the Treasury's account at the central bank can be "ignored" because the deposits are not 'counted' in any money stock measure and 'net out' when the public sector's books are consolidated. (Fiebiger 2012a, 2)

> When the Treasury spends the transaction only alters the composition of central bank liabilities and, therefore, is not money creation. (Ibid, 3)

There are several points here. First, taxes and bond offerings drain CB currency as funds collected from them are moved into the Treasury's account at the Fed. It does not matter that

banks are not the main participants in the primary market. The important step is when the funds obtained are moved into the TGA because this leads to a drain of CB currency from the non-federal sector, which normally leads to a higher FFR unless the central bank intervenes. Second, Treasury spending injects reserves and this is the important point; or put in Fiebiger's words, the change in the composition of the central bank liabilities is what matters, not the amount of liabilities of the Fed (except in the case of consolidation). The amount of central bank liabilities held by the domestic private sector increases, while the amount of central bank liabilities held by the Treasury goes down. Thus, contrary to what Fiebiger states, it is not that MMT relies on statistical definitions of money to argue that a change in L_2 is not the relevant variable to study. It is changes in L_1 that matters for economic analysis of a domestic economy because they reflect the interactions between the federal and non-federal sectors.

Fiebiger and others also tend to ignore the difference between the logic that uses the consolidation hypothesis and the argument that does not. For example Fiebiger comments:

> To understand what MMT is and why it is faulty one must grasp that its proponents suppose that the federal government's account at the Federal Reserve is the nexus of 'State money' creation and destruction. They transform a few billions (i.e. the normal balance in the Treasury's account) into 'theoretical' trillions of net/new 'money' for the private sector only then to claim that in 'practice' the Treasury uses taxes or bond sales to 'destroy' all of the 'newly-created money' by the end of the day for "reserve / interest rate maintenance" purposes (thereby leaving no additional 'money' in the economy). Modern money theorists declare that all of this is just a description of the 'real-world' accounting practices of the Federal Reserve System but it is based on the erroneous belief that Treasury operations affect the volume of central bank liabilities outstanding rather than the composition. (Fiebiger 2012a, 5)

> The fallacies here are many with the main one being that we are meant to believe that in 'theory' the Treasury could spend ad infinitum without transferring 'money' into its account at the central bank: as if its checks would not bounce once the deposit balance reached zero. The Treasury cannot create one type of central bank liabilities (↑ reserves) ad infinitum by means of drawing on another type of central bank liabilities (↓ Treasury deposits) when it pays for things. (ibid., 4)

Treasury operations do affect the volume of government currency when the consolidation hypothesis is used. If the Treasury really were to spend "trillions" then in the first instance that would create "trillions" of bank reserves, but these would be drained by "trillions" of sales of treasuries. As we have explained over and over, since the Fed normally targets an interest rate, it

will not usually leave excess reserves in the system—so the Fed and Treasury cooperate to ensure securities are sold (new issues by Treasury, open market purchases by Fed).

In the same vein of confusing the consolidation hypothesis with a descriptive approach, Fiebiger asks why the Treasury continued to emit bonds when the FFR was effectively zero after 2009:

> Why then has the US Treasury continued to issue bonds in the period 2009-2011Q2 (equal to $3,377bn) even though it had no reason to do so – according to MMT – because the fed funds rate was effectively zero and the Federal Reserve acquired the power to pay interest on reserves? If bond sales are a 'voluntary' part of fiscal policy and not needed since late 2008 for the 'designed' purpose of 'interest rate maintenance' operations, then, why did the US Treasury still issue bonds even though it bumped into the congressional 'debt ceiling' and nearly defaulted on its financial obligations in August 2011? (Fiebiger 2012, 6)

The first part of the answer is because the Treasury needs to fund itself according to existing procedures that we have discussed in detail—procedures that can be changed or eliminated, and indeed, are occasionally changed. However, the second part, is that during the period of time that the Fed was operating a phase of Quantitative Easing, the Federal Reserve asked the Treasury to issue bills for the purpose of draining reserves and maintaining the FFR on target (which was near zero but positive)—and it used the Supplementary Financing Program (SFP) for such purposes. It did so even after the FFR was close to zero and even after the Fed began to pay interest on reserves because these bills helped to drain a large amount of reserves and because not all institutions with an excess of Federal Reserve currency could get a reserve account at the Fed (Tymoigne 2013). In other words, SFP bills were issued for monetary policy purpose. As stated above, treasuries have been issued for purposes other than financing spending, and MMT argues that these other purposes are more relevant. While we will not go into details, it appears that the US Treasury issues longer maturity debt *because the private wealth managers want it in their portfolios.* That could be a legitimate purpose for issuing long term Treasury debt.[15]

While all these aspects relate to the fiscal and monetary policy impacts on reserves, it does not say anything about how private banks operate. Post Keynesians have worked extensively on that issue and so it is sufficient to say that the supply of bank currency is

[15] We are skeptical that a strong case can be developed for such practice, but this topic is not relevant for the purposes of this response.

endogenous and is not based on a multiplier. The private banking sector, however, does leverage CB currency. In the world of finance, "to leverage" signifies being able to take a position in an asset without having to provide all or any funds for the position. Banks necessarily leverage CB currency, because they acquire asset position by issuing financial instruments that promise to deliver CB currency on demand or on some contingency at a later date. They do not have to have any CB currency now to make this promise. Thus statements like: "For chartalists, state money is exogenous, and credit money is a multiple of the former" (Rochon and Vernengo 2003, 61) is not correct and simply reflects a misunderstanding of the way that terms like "leverage" are used by financial markets participants.[16] Fiscal operations result in exogenous fluctuations of CB currency, in the sense that they do not result from a demand from banks. In addition, all "state money" is also "credit money" so the difference is not relevant: all monetary instruments are financial instruments; they are all monetary claims that promise to do something. Government just promises to take back its currency on demand, while private currencies also promise to convert into government currency on demand or on some specified contingency.

4. ADDING THE FOREIGN SECTOR

Palley notes that government currency is demanded for reasons other than paying taxes and that foreigners who may want to hold the domestic (foreign to them) currency do not pay taxes to the domestic government. In addition, in some countries the domestic private sector does not want to use the domestic government currency in many, or even most, economic transactions even though the government is imposing a tax; thus taxes do not drive currency.

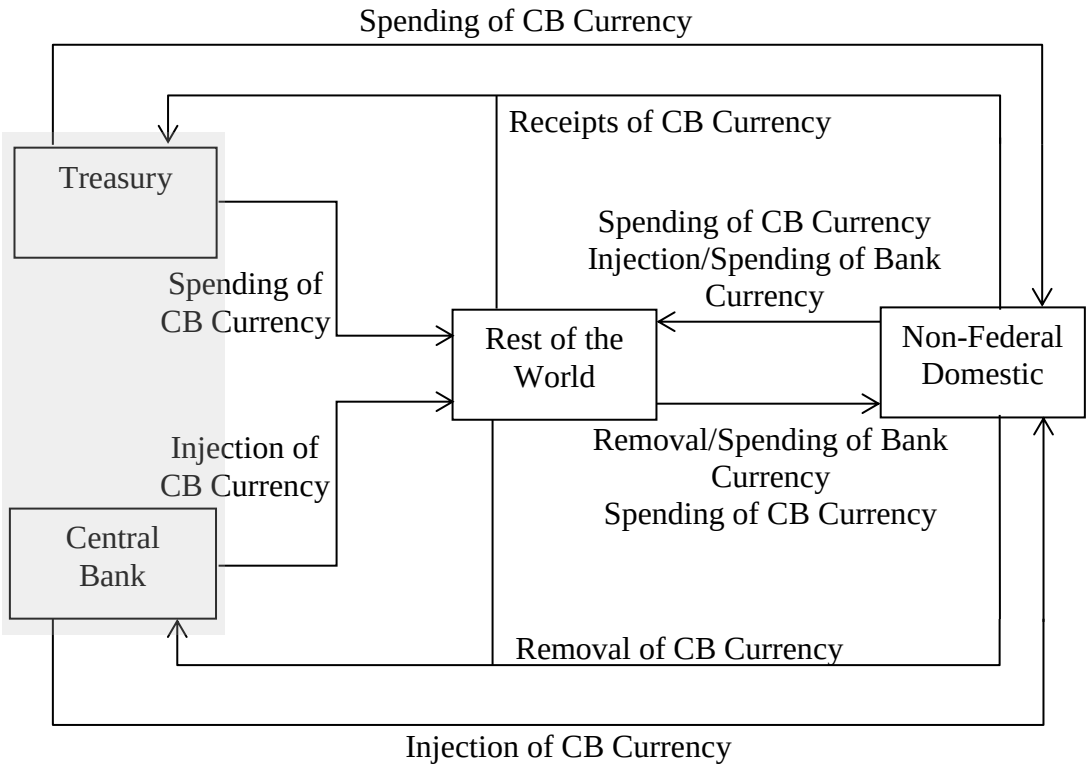
MMT has always made both of these points, indeed, they are critical to understanding MMT. Note that even within a sovereign nation there are individuals who do not owe taxes but still accept the national currency, and foreign currencies can be accepted domestically even though there are no domestic taxes in those currencies. And in some countries there are things

[16] Such mistakes are common among "ivory tower" economists who do not read the finance literature. Recall the hilarious scene in one of Michael Moore's movies when Ken Rogoff tried to answer a question about derivatives. One of us (Wray) actually had a paper rejected by a heterodox journal (ROPE) around 1990 because it used the term "securitization"—a practice completely unknown at the time to heterodox economists, but already well-understood by financial market participants. And to some extent it is understood by all economists today, after securitization played such a huge role in producing the Global Financial Crisis!

for sale only in foreign currencies. All of these situations have been discussed in length by MMT. (Wray 1998) None of this causes problems for MMT. The simple fact is that almost all monies of account are "state monies" and almost all government currencies do have taxes or other obligations standing behind them. Further, even if one can find a money of account and a currency that has no fee, fine, tax, tribute, or tithe backing it, that would not invalidate MMT. Perhaps Palley does not understand the difference between "necessary" and "sufficient" conditions: a tax (or other involuntary obligation) is sufficient to drive a currency; it might not be necessary. MMT theory relies on the sufficient condition, not the necessary condition. There is no part of MMT theory that relies on the necessary condition. Even if Palley could uncover dozens of currencies driven without fees, fines, tithes, tribute or taxes, it would in no way invalidate MMT. It is curious, however, that so far as we know, he has found none that is documented to the standard that a serious researcher would desire.

In this section operations with the foreign sector added are studied from the point of view of MMT. With the foreign sector added, we get the circuit in Figure 8. Some of the complexities presented in the previous section have been removed to get to the point.

Figure 8 Circuit with the Foreign Sector



Foreigners can create financial instruments denominated in the domestic unit of account that promise to deliver domestic (foreign to them) government currencies, but they cannot legally create that currency. All domestic currencies come from the domestic economy either from the federal government (government currency) or from the non-federal government (for example, bank deposits). It makes no sense to argue that foreigners supply US dollars to the US government. As foreigners cannot create US dollar currency, they must obtain it from the US. While it is true that a foreign bank can create US dollar deposits (which is done in the "Eurodollar" market), these must obtain "real US dollars" for cash withdrawals and clearing, which can only come from the US Fed or Treasury. Most of the time, when a foreigner provides US dollars to the US government (that is, by purchasing a treasury) the payment is made by debiting the foreigner's reserve account at the Fed. The foreigner's holding of the purchased treasury is really just a different electronic entry, also at the Fed. The "borrowing" of dollars is just a shift on the Fed's balance sheet.

Again the causality goes from spending by the domestic economy to saving by foreigners. Thus, a monetarily sovereign government does not need foreigners to fund itself.

While the Treasury sells bonds to obtain CB currency, the central bank is the entity that ultimately issues the currency, not foreigners. "China" does not finance the "US." It is the "US" that provides the dollars that "China" wants. Because China has accumulated so many dollar reserves (reserve accounts at the Fed plus holdings of US treasuries), it is true that she can buy new issues of US Treasuries using accumulated dollar reserve holdings. But that cannot be a net source of US government finance, rather, it represents a portfolio change—perhaps an exchange of reserve deposits at the Fed for US treasuries. US indebtedness does not change by this portfolio adjustment, although since the term structure of interest rates is usually positive, this transaction would increases payment commitments. However, those interest payments will be made—in the future—in the same way that all other government spending is made, through credits to the foreigner's account at the Fed. There is nothing "special" about payments to foreigners, because the US government makes commitments in its own currency.

For a monetarily sovereign government, a debt crisis is a choice to default not an inability to make a promised payment. A debt crisis for economic reasons can occur if a government promises to deliver a foreign currency or if a government has to defend a currency peg. For a sovereign nation that does not promise to peg, there is no process that can lead to involuntary default, although as the US Congress is proving, default by choice remains a possibility. Now, none of this applies if a national government issues financial instruments denominated in a foreign currency—a point we have always made (indeed, it was the main reason why we criticized the formation of the EMU from inception (Wray 2003b)). Fiebiger does not seem to understand that this is a point made by MMT:

> Those crises strongly support an alternative view that the critical issue when it comes to macro policy autonomy is not adoption of a "flexible exchange rate" but the currency denomination of external liabilities; and, the extent to which a nation's currency is utilized by other nations as international money. (Fiebiger 2013, 72)

This is exactly what MMT says. MMT goes further by noting that some governments, like Hungary, can issue their own currency and have control over the interest rate but may choose to issue foreign-denominated debt, which creates problems (Mitchell 2012). Indeed, some who advocate MMT—including Wray—have argued that no sovereign government should be allowed (by its citizenry) to issue IOUs denominated in foreign currency. The position should be clear: MMT argues that sovereign currency increases policy space, so issuing debts in foreign

currencies should be avoided. Fiebiger has apparently misunderstood the MMT position. However, the Palley-Fiebiger critique certainly could be applied to others—even if it cannot be applied to MMT. The exchange rate regime also plays a role in a debt crisis, because countries that only issue financial instruments denominated in the domestic unit of account may default if they feel their currency peg is threatened: Russia did so in the early 2000s.

Credit rating agencies provide a rating for the national government of all countries regardless of the monetary system in place. In its 2007 Sovereign Debt Primer, Standard and Poor's explains how the rating is determined.

> A sovereign rating is a forward-looking estimate of default probability. […] The key determinants of credit risk [are economic risk and political risk]. Economic risk addresses the government's ability to repay its obligations on time and is a function of both quantitative and qualitative factors. Political risk addresses the sovereign's willingness to repay debt. Willingness to pay is a qualitative issue that distinguishes sovereigns from most other types of issuers. Partly because creditors have only limited legal redress, a government can (and sometimes does) default selectively on its obligations, even when it possesses the financial capacity for timely debt service. (Standard and Poor's 2007, 1, 3-4)

MMT agrees that a monetarily sovereign government can willingly default on its currency for both economic and political reasons. Cantor and Parker (1995) provide examples of governments that defaulted on debts denominated in their own unit of account, and note that "Domestic currency defaults have usually been the result of an overthrow of an old political order—as in Russia and Vietnam—or the byproduct of dramatic economic adjustment programs aimed at curbing hyperinflation—as in Argentina and Brazil" (Cantor and Parker 1995, 3). However, Cantor and Parker also note that this type of default is rare. If one had to estimate a default probability on monetarily sovereign governments, it would be much lower than the historical 0.02 percent five-year median default probability used for AAA corporate bonds. One could argue that it would be so low as to make it irrelevant, which is what MMT argues.[17]

The problem with S&P is that it has a shifting definition of economic risk. S&P is aware of the absence of economic risk for monetarily sovereign governments but it proceeds to argue

[17] Defaults for technical reasons may also have occurred but these are irrelevant because they are resolved quickly. Venezuela is counted by Moody's as having defaulted because "the person who was supposed to sign the checks was unavailable at the time" (Moody's 2003; 22). The U.S. also defaulted in 1979 due to "unanticipated failure of word processing equipment used to prepare check schedules" (Zivney and Marcus 1989). We would not count that as evidence that MMT is wrong.

that there is one by changing the definition of default risk to include the risk of inflation. These are two completely different risks. If one considers taxes a form of revenue that helps to pay debts, then tax revenues rise with inflation and so lower the risk of default. By conflating inflation risk and default risk in their rating, S&P creates confusions. They also assume that the government is responsible for the inflation, when governments might have little control over what inflation exists even if they can try to contain it. Inflation is a real constraint, not a financial constraint—in the sense that at full employment, increasing spending can only raise prices.

Beyond the insights one can get from the circuit approach, one can get additional insights from national income identities:

$$\Delta(FA_{DP} - FL_{DP}) + \Delta(FA_G - FL_G) + \Delta(FA_F - FL_F) \equiv 0$$

Knowing that saving represents the change in net worth ($S = \Delta NW$) and investment is the change in real assets ($I = \Delta RA$), it is also true that:

$$(S_{DP} - I_{DP}) + (S_G - I_G) + (S_F - I_F) \equiv 0$$

Following the same logic as above, this means that now the equilibrium fiscal position of the government sector will be determined by the desired net financial accumulation of both the domestic private and the foreign sectors.

Not all sectors can be in surplus at the same time--at least one must be in deficit if one has a surplus. While a policy focused on achieving simultaneously three surpluses—fiscal surplus, domestic private surplus, and external surplus—is usually seen as highly desirable, it cannot be delivered unless the foreign sector is willing to have an external deficit. If all countries aim at reaching an external surplus simultaneously then at best external balances are zero, which means that either the government sector or the domestic private sector is in deficit while the other is in surplus.

In the worst case, some countries have limited real and external financial resources so their policy space is highly constrained as unskilled labor and unproductive land are the only resources they may have, and their government currency might not be accepted externally. In that case, foreign aid is crucial but some improvements can be made by using the labor force for specific public purposes that require limited external physical and financial resources. Payments in kind may also be necessary (to make sure to create a demand for the domestic production and

to avoid imports of foreign products that are similar). In the most favorable case, a country provides the international currency and the rest of the world desires to save the international reserve currency. In that case, desired net saving by foreigners is positive because they want to accumulate net worth beyond physical accumulation, and so a current account deficit by the country supplying the reserve currency is needed.

Open economies are more sensitive to fluctuations in exchange rates and may desire to curb exchange-rate fluctuations by pegging a currency. MMT notes that there are different degrees in this type of policy that influence the policy space available to a government. A crawling peg provides some policy space that varies according to the exchange rate band. A currency board, the last step before completely giving up monetary sovereignty ("dollarization"), provides almost no policy space and so makes it difficult for a government to set its own policy agenda. Palley argues that dollarization contradicts MMT.

> Small open economies with histories of high inflation have also shown themselves prone to the phenomenon of currency substitution or "dollarization" whereby domestic economic agents abandon the national money in favor of a more stable store of value. Dollarization shows that the store of value property is an important property of money, contrary to MMT denials of the significance of this property. (Palley 2013, 21)

This is a very strange claim by Palley; we know of no place where MMT denies the importance of stores of value, although like Keynes we wonder who would be sufficiently "insane" to hold cash balances if there are better alternatives. In addition, MMT does recognize that some small open economies may benefit from dollarization given that almost none of their economic activity is driven by the domestic private sector and government spending. MMT just states that the demand for the government currency is determined at minimum by the tax levy and the capacity to enforce it. In a highly open economy, residents may not use the government currency for purposes other than making legal payments to the government ("taxes"). If the government has limited means to enforce legal payments, the demand for the currency will be even smaller and so the capacity to spend without generating inflationary pressures will be even more limited.

Assuming that tax enforcement is perfect and that government currency is only demanded for tax purposes, then the equilibrium for the government will be a balanced budget. In that case, the equilibrium external balance will be determined by the desired net saving of

foreign currency by the domestic private sector. Achieving that desire, however, is much harder than in the case of a monetarily sovereign government, because domestic private economic units have to rely on the desires of foreigners, and domestic economic units have limited capacity to influence this. The desired net saving of the domestic private sector and the foreign sector may not be compatible, which could lead to a painful adjustment process.

5. POLICY ASPECTS OF MMT

MMT draws specific policy conclusions about fiscal, monetary and financial policy. In line with Keynes and Minsky, MMT recognizes that unemployment, arbitrary distribution of income, price instability and financial instability are central problems of market economies that require some government involvement for resolution. The nature of this involvement is, however, very different from the Bastard/IS-LM Keynesian approach that focuses on fine-tuning. That fine tuning takes the form of discretionary, temporary, and limited fiscal and monetary policies to deal with slumps and booms through proactive change in government spending, tax rate, and interest rate. This approach of government intervention aims at avoiding direct intervention to achieve the goal (e.g. hiring to achieve full employment, or price controls to achieve low inflation), but rather using indirect "tools" while letting market participants push the economy toward desired goals by tweaking their incentives.

MMT does not agree with this approach. The government should be directly involved continuously over the cycle, by putting in place structural macroeconomic programs that directly manage the labor force, pricing mechanisms, and investment projects, and constantly monitoring financial developments. Because those programs would be permanent and structural, rather than discretionary and specific to one Administration, they would be isolated from the political cycle and political deliberations. All this eliminates problems of lags, credibility, and time inconsistency that Friedman and others have complained about.

However, this does not mean that the government should apply a rule blindly when implementing its policy; discretion is still possible within each program to make sure that it works. For example, Social Security is a structural program but government employees still have large discretion to determine if someone qualifies for benefits. Human discretion is still possible within the set of rules and structures. The Job Guarantee program is another example of

this type of policy. But MMT goes beyond full employment policy as it also promotes capital controls for open economies, credit controls, and socialization of investment. Wage rates and interest rate management are also important.

It is not correct to associate MMT with textbook Keynesianism of the 1960s as Palley does.

> MMT discards the interest rate as an instrument of policy and relies on fine tuning of government spending to maintain full employment and taxes to maintain budget balance [...] Yet long ago, Milton Friedman (1961) raised the problem of inside and outside policy lags. The former represent lags regarding time taken to decide and enact policy change (Palley 2013, 27)

MMT does not promote fine tuning, but rather recognizes the role of a "rightly distributed" demand in addition to the right level of aggregate demand (Keynes 1937), and aims at combating the inherent instability of market mechanisms. More importantly, MMT does not rely on increasing aggregate demand in order to reach full employment; it disconnects full employment from economic growth. The following discussion focuses on two specific aspects of policy advocated by most proponents of MMT, the Job Guarantee program and the central bank policy of a permanently zero or near-zero overnight interest rate.

MMT's JG/ELR[18] proposal is *not* the Bastard Keynesian fine-tuning policy to which Palley refers. We are surprised that Palley still promotes a rather orthodox version of the Phillips Curve trade-off. Yet, his belief that full employment must generate rising inflation cannot apply to the JG program. Let us first look at the "labor market" effects of putting in place a JG program. We then turn to the "aggregate demand" effects.

According to Palley, MMT believes

> MMT proponents can be labeled "fiscal policy optimists". The same holds for neo-Keynesians. Both believe that expansionary fiscal can shift the economy to full employment and keep it there, regardless of such outside factors as the distribution of income. This fiscal policy optimism is open to question. […] In the short-term, as in the Keynesian model, expansionary fiscal policy can increase demand and remedy the problem because government spending is a perfect substitute for private spending. However, higher government spending implies higher taxes to balance the full employment budget and that may have adverse supply-side tax effects that are not

[18] JG is Job Guarantee and ELR is employer of last resort; for the purposes of this essay they refer to the same proposal. The program provides a guarantee of a job to anyone ready and willing to work, and stands ready to be the employer of last resort in the sense that it will provide a job to anyone who has not found a higher paying job in the private or government sector.

> present in either Keynesian or Kaleckian models. […] The argument is full employment requires not just Keynesian demand management, but also structural policies that address labor market bargaining power concerns. (Palley 2013, 23-24)

As we will show, the JG program does not focus on stimulating aggregate demand to move the economy to full employment. Nor does it see government spending as a "perfect substitute" for private spending. Rather, the JG is targeted spending that is designed to improve the structure of the labor market by developing a *pool of employable labor* while at the same time ensuring continuous employment of those ready and willing to work. While it might be a policy *option* to increase taxes in step with government spending on wages in the JG program, this should be done only if inflation pressures arise. Inflationary pressures will already be dampened by the rise in taxes that occurs through the automatic stabilizers so a further increase of taxes (i.e. raising tax rates and/or imposing new taxes) may not be necessary.

Since most readers will by now be familiar with the structure of the JG program, we will be brief. The national government agrees to provide wages (and some non-wage funding) to employ anyone who is ready and willing to work at the program wage (plus non-wage benefits). We leave to the side a full discussion of the setting of the compensation, but wherever that is set, it will become the de facto minimum compensation level since private employers would have to at least match it to retain employees. To minimize (temporary) disruption to the structure of private wages, government can set the JG at the current legal minimum wage. We will also leave to the side a full discussion of the administration of the program, which could be run by the national government, or decentralized to state and local governments or to NGOs such as not-for-profit community service organizations. What is important is to embrace principles of democratic governance, transparency, and accountability—so the level of decentralization will depend on how best those principles can be put into place.

The JG program is explicitly a "rightly distributed" spending program in which government spending is directed precisely to those who want to work. This places no direct pressure on wages and prices because the workers in the program were part of the "surplus" or "redundant" labor force and are still available for private employers (at a small mark-up over the JG program wage—the minimum wage). For that reason, employing workers in the JG program is no more inflationary than leaving them unemployed. Indeed, the JG should lower recruiting

and hiring costs as employers would have an employed pool of workers demonstrating readiness and willingness to work, which should reduce inflation pressures.

Turning to effects on aggregate demand, many critics worry that if, say, 10 million people obtain jobs and thereby increase their incomes above their pre-employment levels, consumption would increase and drive up inflation. This seems to be a major concern of our critics. By logical extension, they would also worry about a private-sector led expansion that created minimum wage jobs in the fast food sector. We find such a position to be overly defeatist—a "let the poor eat cake" response to unemployment and poverty. This criticism is also often combined with the claim that workers in the JG would just "dig holes", adding nothing to national output. Again, we see that as overly pessimistic—since a jobs program can be designed to produce desirable output, as the New Deal's jobs programs did. However, let us imagine that the JG program is extremely successful at creating jobs and income, so much so that the economy moves from slack to full employment of all productive capacity, resulting in rising prices. The presumed problem is that while JG workers get wages (and thus consume) they do not contribute any production that is sold (hence, does not absorb wages). The "excess" wages from newly employed workers induces spending to rise.

What could government do? It would have at its disposal the usual macroeconomic policy tools: raise taxes, lower government spending on programs other than the JG, and tighten monetary policy. Indeed, this is what it would do in the absence of the JG if the private sector achieved full employment through creation of 10 million new minimum wage jobs in the private sector. The only difference is that government would not be able to fight inflation by increasing unemployment—because the macro policies used to fight inflation would dampen demand but any worker losing a job could turn to the JG program for work. What this means is that with a JG in place, the inflation-fighting adjustments to spending will occur among the employed rather than by causing unemployment and poverty. In other words, the costs of fighting inflation can be made to be borne at higher income levels. We are surprised that our critics appear to prefer to use unemployment and poverty to fight inflation, which forces the least able to bear more of the costs.[19]

[19] However, Palley has been caught on video complaining that if a JG provides jobs to everyone, the poor will be able to eat; see here: http://www.youtube.com/watch?NR=1&feature=endscreen&v=wH-lnn1mICA

Our position is similar to Keynes's: "No one has a legitimate vested interest in being able to buy at prices which are only low because output is low." (Keynes 1964 p. 318) So while Palley argues against creating jobs on the argument that those with jobs would have more income, and this could cause what Keynes called "semi-inflation" (increased demand drives up prices in those sectors with an elasticity of output below one), that is not a defensible position. Normally, as Keynes said, a rise of effective demand "spends itself, partly in affecting output and partly in affecting price" and only if the elasticity of output approaches zero does a rise of effective demand cause "true inflation". (Ibid p. 285) Below that point, there is no "legitimate vested interest" in keeping labor unemployed. Instead, inflation must be fought by alternative means. It must be recognized that increasing the number of private sector workers in the fast food industry will cause the same sort of "semi-inflation", raising prices in the same sectors that consumption by new workers in the JG program would affect. It does no good to argue that hamburger flippers are "productive" (they flip burgers) while JG workers are not (they provide, for example, public services to the aged), because the "semi-inflation" will occur in all sectors where increased spending faces anything less than perfect output elasticity. Hence, if Palley were consistent, he would *always* fight against job creation if *any* sectors that would experience increased sales to workers had less than perfect output elasticity. His argument against the JG is a red herring.

Note also that with a JG, the government's budget would be made more strongly countercyclical, as government spending increases in the slump when workers move from higher-paid employment to the JG; the process is reversed in a robust expansion, where when the private sector hires out of the JG pool. These stabilizers might be enough to stabilize aggregate demand. After all, most unemployment in developed countries is cyclical in nature so unemployment is due to a lack of aggregate demand. The JG pool raises this demand and will encourage hiring. If not, government can use discretionary policy interventions.

In terms of the central bank policy, MMT does see a role for a central bank, not in terms of fine tuning the economy but rather in terms of promoting financial stability. Using interest-rate manipulations to influence economic activity is problematic for at least three reasons. First, the sensitivity of economic activity to interest rates is low overall, and declines as an economic boom emerges. This sensitivity is even lower now that gradualism and transparency have made

it much easier for economic units to anticipate adverse changes in interest rates and to protect themselves against them. Second, as Minsky notes, using the central bank for fine tuning and for financial stability are two incompatible purposes. Increasing interest rates during an expansion promotes financial fragility, and moving interest rates widely up and down to fine tune the economy creates instability in the refinancing operations of banks. The ultimate example of this is the Volcker experiment that killed the thrifts and promoted the growth of securitization and the originate-to-distribute model. Third, changes in the policy rate affect the cost of borrowing, which affects costs of production and so prices. As such rising interest rates may lead to inflation if their growth is too rapid. Thus, MMT does not believe in the stability of financial market as Palley asserts:

> Analytically, MMT's "park it" approach to interest rates implicitly lets finance call the tune. In financial booms fiscal policy must turn contractionary, and the reverse holds in busts. This interest rate policy passivity is tantamount to believing that financial markets are stable and set interest rates and asset prices appropriately. The same belief is reflected in MMT's confidence about freely floating exchange rates. This view is inconsistent with the assessments of both Keynes' (1936) and Minsky's (1992, [1993]) regarding financial markets, although MMT claims to represent a Keynes-Minsky perspective. (Palley 2013, 29)

Rather MMT argues that to promote financial stability via interest-rate manipulations is of limited effectiveness and can actually be destabilizing. Instead, government has a role to play through the promotion of safe underwriting (promote what Minsky called hedge financing), the establishment of a banking structure that promotes long-term recurring relationships, and the regulation of financial innovations toward safe financial products. Loans made by private banks should be limited to creditworthy[20] borrowers who are scarce (but banks should be encouraged to look for them wherever they are and to avoid redlining). We do, however, believe that direct credit controls can be useful to control lending for speculative behaviors, or to more generally fight inflation pressures. This is far more effective than trying to use rate hikes to reduce lending to speculators.

In terms of development policy, the Treasury and the central bank of a country should avoid issuing financial claims that promise the delivery of a foreign currency. That would

[20] Creditworthiness is defined here differently from the way bankers use it: We advocate that banks should analyze the means used to service debts (*how* will you repay on time?) in addition to willingness to pay on time (will you repay on time?). (Tymoigne and Wray 2014).

include prohibition of "bailing-out" domestic financial institutions that have issued liabilities in foreign currency. Let private sector firms go through the bankruptcy process if needed. Governments have the means to use their financial power for internal development and to promote activities that employ local resources. As stated in the previous section, the limited availability of physical resources may limit what can be done by government policies.

Fiebiger and Lavoie are worried that using MMT leads to ill-suited policy advice given that the use of the consolidation hypothesis does not fit current institutional framework.

> It must be accepted that most federal spending is financed by taking money from people within society (non-voluntarily for taxes) creating winners and losers. That is not an "illusion" and to insist otherwise is counterproductive. (Fiebiger 2013, 77)
> If sales of Treasury securities do not "finance" spending but are issued "voluntarily" after spending to "stabilise interest rates", then, the "fiscal cliff" should be a non-issue as according to MMT the Treasury deficit-spends first and then "voluntarily" issues bonds later as a part of monetary policy (to set the overnight federal funds rate target). (Fiebiger 2013, 71)

> The counterpoint to this new MMT position is that one cannot start from the general case, based on consolidation, because it is antinomic to the real world and to existing institutions, and it would lead to mistaken advice and confusion […] For instance, as recalled by Fiebiger (2012A, 6), based on the consolidation assumption, one could argue that public-debt limits pose no threat to economic stability. (Lavoie 2013, 23)

We would argue instead that MMT reframes the nature of important economic debates. For example, most of the debates surrounding Social Security and Medicare are framed in terms of insolvency. Once one accepts that solvency is not an economic issue—government can always pay—one can reframe the debate in another way (Eisner 1998; Wray 2006). There is a potential problem with Social Security but it is a demographic problem not a financial problem. Payments can be made at the time they are due just by crediting bank accounts, but the needed goods and services may not be available. The financial side and real side of the Social-Security problem are solved very differently, and putting funds in a locked box or a trust fund is not necessary, confuses the issue, and actually can make the real production problem worse.

As long as Congress upholds that social security payments are an obligation of the United States government, it will budget the necessary funds for Social Security and it will find the means to obtain the funds. With MMT, one can then advocate for more profound reform of the system that would abolish the trust fund, remove the payroll tax, promote immigration of

young workers, and policies that increase the productivity of workers. Taxes may be advocated but not with a view of funding Social Security, but rather to reduce the purchasing power of those of working age in order to leave enough for retirees to consume. As Fiebiger noted, taxes are part of fiscal activism and create winner and losers. But discussing taxes in terms of means to pay for something confuses matters and leaves one open to conservative critiques that taxes are a burden instead of a means to fight inflation. The language and logic used is important to frame debates and possibilities surrounding government programs.

Another example is the debt ceiling debate. It is not that it is a non-issue, as it can lead to instability in the current institutional framework. But the point is that it is not an economic problem, it is a political problem. The mechanics of the monetary system have been subverted by self-imposed constraints on government; presumably on the fear that monetary financing is inflationary because taxes are unnecessary once monetary financing occurs.

With the MMT framework one can reframe the debate away from the need to reduce our national debt, toward the need to abolish the debt ceiling because it is a relic of the gold-standard that contradicts other budgetary procedures of Congress. MMT explains why one should not be afraid of removing the debt ceiling nor afraid of allowing the central bank to directly fund the Treasury; this would not directly promote price and financial instability and such changes do not necessarily promote careless spending. Taxes and bond offerings are still needed and budgetary procedures and political accountability are still necessary to make sure that government is involved in the economy according to the wishes of its people.

More broadly, one can understand that budgetary procedures are of a political nature, and the point is to promote procedures that make the political process run well by promoting accountability and transparency, while eliminating procedures that are put in place on the basis of fear of unaffordability and bankruptcy. The fact that government can spend an unlimited amount of money does not mean it should, and ultimately the choice of how much a government should spend is a political question. MMT aims at bringing that forward and at promoting political processes that allow the will of the people to be expressed, free of unnecessary financial constraints. Similarly, it does not make sense to argue that a government program cannot be implemented because the government ran out of money. A government can always afford to buy anything for sale denominated in its currency so discussing the pros and cons of a

government program should not be framed around financial constraints. Instead the focus should be considerations of equity, full employment, financial stability, and price stability.

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