CLAUDE GNOS AND LOUIS-PHILIPPE ROCHON

Money Creation and the State
A Critical Assessment of Chartalism

Post-Keynesian monetary theory has faced a few challenges recently, notably from the chartalist approach, which some post-Keynesian writers have adopted (Bell 2000; Bell and Wray 2002–3; Mosler 1997–98; 2002; Wray 1998). Sharing some key elements with the theory of endogenous money, it also contains some additional insights that, we believe, are inconsistent with the post-Keynesian monetary tradition in political economy. It therefore begs closer scrutiny.

At the core of the chartalist approach is the ability of the state to impose and enforce tax liabilities. Accordingly, it is argued, the state is in a unique position to choose the token (valuta) that will be accepted at public pay offices as money (Wray 1998, 36), and has the privilege of defining the unit of account in which the monies available in the economy, along with prices and monetary contracts, are denominated. The state is also supposed to be able to enforce the circulation of its money; that is, its own debt. Chartalists notably refer to Knapp (1973), Lerner (1947), Minsky (1986), and Smith (1937), but also quote Keynes, according to whom “the age of
chartalist or State money was reached when the State claimed the right to declare what thing should answer as money to the current money of account—when it claimed the right no only to enforce the dictionary but also to write the dictionary” (Keynes 1971, 4).

This approach, however, has recently come under critical scrutiny, especially by Mehrling (2000), Rochon and Vernengo (2003), and Rossi (1999), who, with reference to both history and current practice, take issue over the idea that the power to tax and to collect taxes play a crucial role in the creation and circulation of money. Evidently, in international markets, we cannot argue that state money is accepted because taxes have to be paid. Moreover, the chartalist approach, Rochon and Vernengo argue, is at variance with the theory of endogenous money by which money is created by banks in response to the demand for credit from economic agents: “[f]or chartalists, state money is exogenous, and credit money is a multiple of the former” (2003, 61). This is because, according to chartalists, state money is injected first into the economy via the state’s spending on goods and services, which then accrue to banks and generate an increase in the latter’s assets and liabilities. Rochon and Vernengo observe that Wray does not deny this feature of his approach, but contrary to him, chartalists claim that horizontalism and verticalism are irreconcilable with each other.

In line with Davidson (1972; 2002), Rochon and Vernengo argue that the state is, in fact, one among several institutions (e.g., banks) that provide bridges between the present and the future in the form of money. They refer to Davidson for whom in modern times the state has appropriated “the right to define what is the unit of account and what thing should answer that definition” (Davidson 1972, 147–148). Davidson is thus in close connection with Keynes. However, Rochon and Vernengo acknowledge that neither Keynes nor Davidson “pursue the role of the state in money creation further than that” (2003, 59). The objective of this paper is to build on Rochon and Vernengo’s arguments by precisely considering this issue more closely.

Actually, we do not deny that in modern times the state has appropriated the right to define the unit of account. Recently, for instance, member states of the European Union have substituted
the euro for their respective domestic currencies. This substitution was the result of a deliberate political act by sovereign states. But this is not in dispute, evidently. Neither is the role of the state in defining the thing that should answer the definition of the unit of account. This may have once consisted in defining the weight of metal to which the unit of account corresponded, although nowadays, it may be considered as the right to determine which monies (coins, notes, and bank monies) may be used to settle transactions in the economy. After all, the issuance of coins and notes, and also the right to create bank money are commonly subject to rules enforced by law. Historically, as chartalism grew up in opposition to metallism, we should all be chartalists now.

What is disputed, however, or what needs to be addressed are the following two claims: first, the chartalist assertion whereby this thing is necessarily state money, and synonymous with the debt of the state. Chartalist writers ground this assertion simply in the fact that every modern banking system is endowed with a central bank or “high-powered money.” Hence, they write, central bank money is de facto the creature of the state. Second, we wish to challenge the assumption that the central bank and the treasury are treated as if they were the same institution. Indeed, chartalists claim that it does not matter to distinguish between the Fed’s and the treasury’s balance sheet. We believe it does.

To examine these issues, we will refer to current central bank practices and bookkeeping, to which modern money is inextricably tied. This complements nicely Rochon and Vernengo’s paper, where they argued that money is “a creature of banks rather than a creature of the state” (2003, 61). We wish to take this a step further by looking more closely at the issue of central bank money and, in particular, at the chartalists’ confusion between central bank money and state money.

The State and Money Creation in the Chartalist Approach

The chartalist approach can be succinctly summarized with the following important passage:
In the chartalist approach, the public demands the government’s money because that is the form in which taxes are paid. It is not a coincidence that the modern state uses the same valuta money in its apocentric payments that it accepts in epicentric payments—it uses taxes as a means of inducing the population to supply goods and services to the state, supplying in return the money that will be used to retire the tax liability. In the modern economy, it appears that taxes are paid using bank money, but analysis of reserve accounting shows that tax payments always lead to a reserve drain (that is, reduce central bank liabilities), so that in reality only the government’s money is definitive (finally discharging the tax liability). (Wray 1998, 37)

This passage contains two key features of the chartalist approach. First, the state issues its own money when buying goods and services, which is accepted by the public because the latter has to pay taxes with it. Wray defines the money issued by the state as “fiat money,” that is, “state liabilities issued to purchase goods, services or assets, or to discharge government liabilities, with no promise to convert,” adding that this money “is nothing more than a debt” (Wray 1998, 12). In this sense, fiat money can exist because the public demands it to pay their taxes. Second, money issued by the state constitutes bank reserves in what usually is called “high-powered money,” in addition to coins and notes held by the public. Since this second condition is only implicit in the above quotation, let us develop it.

In the theory of endogenous money, banks create money in response to the demand for credit from the general public, generally but not exclusively from firms who wish to finance production. In this sense, it is demand-determined and credit-led, to use Moore’s (1988) now familiar expression. Money creation results in the recording of borrowers’ debts on the asset side of banks’ balance sheets and deposits on the liability side. Borrowers, and more generally all deposit holders, draw on their deposits in order to make payments to the benefit of their creditors who thus become, in turn, depositors with banks. Except in the unlikely case where there is only one bank in the economy, banks have to accept monies issued by other banks and to convert them into their own monies; that is, into deposits in their own books. To solve this convertibility problem, interbank clearing and settlement systems have been
set up (for an overview, see Rochon and Rossi 2004b). After having made good their reciprocal assets and liabilities, banks settle their net liabilities using a specific, interbank money: the central bank or high-powered money. As Rochon and Rossi explain, “transactions in the interbank market can only be settled using central bank money” as high-powered money is a third-party’s debt (2004b). This is analogous to Graziani’s argument: “The role of the Central Bank is in fact of acting as a third party between single banks so far as their reciprocal payments are concerned” (1990, 18).

To that end, commercial banks hold accounts with the central bank that are debited and credited accordingly. All transactions are settled and netted on central bank accounts. For (central bank) money to be debited from any bank’s account with the central bank, the former must be in a surplus position, which is achieved when the bank has benefited from net payments from other banks or the central bank. If banks find themselves in a net deficit situation, they must either borrow high-powered money from other banks (in overnight markets) or sell assets to the central bank. If banks cannot borrow from other banks or sell assets to the central bank, then it can borrow high-powered money from the central bank as lender of last resort. In this sense, the supply of high-powered money is always endogenous, a result of the demand for it (Lavoie 2005; Rochon and Rossi 2004b), as the central bank supplies it to banks as a matter of routine—what Eichner (1987) called the “defensive” role of the central bank—or as a lender of last resort—hence the “accommodative” component of central bank policy.

Of course, we need not present in any great detail this kind of domestic clearing and settlement systems, which are well known and now well established in post-Keynesian theory. But Wray’s account of the money-creation process is at odds with the post-Keynesian approach. What needs to be emphasized is the fact that Wray defines central bank money as money issued by the state. This is a critical assumption that needs to be carefully addressed.

According to Wray, fiat money is “the money into which bank liabilities are convertible (either on demand or after some specified waiting period), and which is used for clearing among banks
and between private banks and the central bank” (1998, 77). When spending its own money on goods and services, the state thus provides banks with central bank (high-powered) money, which allows them to convert their own money into coins issued by the treasury or central bank notes, or into other bank monies. Fiat money issued by the state is thus “the money used as the link between the public and the private pay communities. It is the money that sits at the top of the debt pyramid (or hierarchy), or the ‘definitive’ and ‘valuta money’” (Wray 1998, 77). The state recoups its money, which amounts to reducing banks’ reserves, when the public pays taxes from the bank accounts of taxpayers.

Yet we believe there is considerable room to debate the chartalist interpretation of money creation. There is actually no doubt that state expenses and receipts affect the amount of high-powered money at the disposal of commercial banks. After all, when the state buys goods or services, for instance, money is transferred from the accounts of the state to the accounts of the recipient (see below). Like any other transaction, these are settled in central bank money through interbank settlements.

What is questionable, as we shall discuss in the next section, is the identification of high-powered money with state money. As mentioned in the introduction to this paper, we shall proceed by referring to current central bank practices and bookkeeping. This approach has a long tradition in post-Keynesian theory (Gnos 2003; Lavoie 2003; Rochon and Rossi 2004b), and is useful in analyzing the flows of money through the economy. It will also help us in seeing the weaknesses of the chartalist approach.

Central Bank Money Is Distinct from State Debt

Let us examine more closely Wray’s argument. At the heart of the chartalist approach is the idea that to pay for the goods and services it buys, the State issues money in the form of its own convertible debt—that is, fiat money. Chartalists further claim that this fiat money is issued either through the central bank or the treasury, whichever does not matter. This position is best described in the following, albeit long, passage. According to Wray,
When a modern government spends, it issues a cheque drawn on the Treasury; its liabilities increase by the amount of the expenditure and its assets increase (in the case of a purchase) or some other liabilities are reduced (in the case of a social transfer, for example, social security payment liabilities are reduced by the amount of social security cheques issued). The recipient of the Treasury cheque will almost certainly “cash” the cheque at a bank; either the recipient will withdraw currency, or, more commonly, the recipient’s bank account will be credited. In the latter case, bank reserves are credited by the Fed in the amount of the increase of the deposit account. For our purpose, it is not important to distinguish between the Fed’s and the Treasury’s balance sheet. The bank reserves carried on books as the bank’s asset and as the Fed’s liability are nothing less than a claim on government fiat money—at any time, the bank can convert these to coins or paper notes, or use them in payments to the state. When the recipient “cashes” a Treasury cheque, a bank will convert reserves to currency—which is always supplied on demand by the Fed, which acts as the Treasury’s “bank,” converting one kind of Treasury liability (a cheque written to the public) to another kind (coins or an IOU to the Fed, offset by Fed issuance of paper notes). (Wray 1998, 77–78)

It is difficult to deny the logic of the sequence of events described by Wray. In effect, we agree that when a payment is made by the state, the recipient’s account is credited by the same amount and a transfer occurs between the state, the banks involved, and the household or firm. But at the same time, Wray appears also to lay the very foundation of a strong critique. Note that on the one hand, he maintains that the state’s fiat money is the ultimate money into which the Fed’s liability and henceforth every banks’ liabilities are convertible. On the other hand, with reference to actual practices, he concludes that the Fed acts as the treasury’s bank, irrespective of whether the recipient of a check drawn on the treasury deposits it with a bank or asks for currency. The Fed, Wray emphasizes, is “converting one kind of Treasury liability . . . to another kind” (1998, 78).

It is this last argument that we find difficult to comprehend. In particular, we take issue with the notion, as stated in the above quotation, that “it is not important to distinguish between the Fed’s and the Treasury’s balance sheet.” We believe that this distinction is crucial and hence lies the most important contradiction of the
chartalist approach. Failure to distinguish between the roles of the Fed and the treasury can lead to misleading statements. Clearly, if the Fed is the treasury’s bank, then the Fed becomes a central bank *vis-à-vis* the treasury as well as *vis-à-vis* private banks, the latter role consisting in converting monies into one another and thus allowing banks to meet their reciprocal liabilities. Then central bank money and state money are different, *not* the same. Therefore, confusing them only confuses the arguments. Hence, far from being the state’s debt, central bank money plays a role of its own. To argue that it is not important to distinguish between the Fed’s and the treasury’s balance sheets certainly is incorrect.

A possible source of confusion, we believe, may be that in Anglo-Saxon countries the central bank traditionally created money mainly by buying state’s debt (although note that it also created money by buying foreign currency). But practice has evolved and, particularly, the growth of the repo and reverse repo markets in recent years tells another story (see below). In any event, even in Anglo-Saxon countries, it is still not correct to make the statement that state money is the same as central bank money. The fact that state expenses and revenues each affect the amount of central bank money in the hands of commercial banks is not a sufficient reason to identify them with each other. Moreover, the fact that central bank money plays a role of its own with respect to both commercial banks and the treasury—that is, converting monies (including state money, if any) into one another—shows that, contrary to what chartalists claim, the public in no way has to worry about obtaining state money in order to pay taxes. They just have to pay with bank money and the central bank will then do its job.

It should also be noted that, depending on countries, the treasury may or may not actually issue money. In the latter case, for instance in the United States, this means that it necessarily pays its creditors from its account with the central bank, and thus uses central bank money. But in the former case, as in France for example, the treasury has its own network of banks (*Comptes Chèques Postaux*). Thus, it is able to create its own money. When paying creditors who are clients of the *Chèques Postaux*, the treasury does not have to draw on its central bank account. This remains true,
just as it is with regard to any bank, as long as the payees hold their deposits with the latter. When depositors draw on their deposits for the benefit of clients of other banks, the treasury becomes indebted to those banks, and it has to recourse to central bank money in order to settle its debt, as is the case with all interbank transactions. Moreover, as it is currently the case in the United States, paper money and coins are commonly not issued by the treasury but rather by the central bank. They may be produced by the treasury, but then sold to the central bank at their cost value, which put them into circulation along the lines of the theory of endogenous money. Therefore, when held by the public, notes and coins are central bank’s liabilities, not the treasury’s. Then, neither paper notes nor coins are state’s debt. The state intervenes only to bring legal tender to the notes and coins issued by the central bank; it may also, which has not always been the case, ensure the central bank’s monopoly in issuing notes and coins.

So, irrespective of the country, we believe that the treasury and the central bank are different institutions that perform very different functions. Therefore, their respective balance sheets are crucial in understanding the ways and means of the financing of state’s expenses, to which we now turn.

The Financing of State Expenses and the Regulation of the Market for Reserves

Two main implications of the chartalist view must be emphasized and discussed. On the one hand, chartalists question the conventional view according to which “tax revenue provides the income needed by the government to finance its spending” (Wray 1998, 74). In their view, government spending is necessarily financed through the creation of fiat money. They claim further that the public is willing to part with goods and services against fiat money because it has to pay for taxes in this same money. “Indeed, taxes are required not to finance spending, but rather to maintain demand for government fiat money” (Wray 1998, 75). On the other hand, however, since the payment of taxes reduces banks’ reserves, taxes are a means “to maintain stability in the market for reserves”
(Wray 1998, 78); they allow the state to remove excess reserves. This is precisely the role chartalists assign, for instance, to the sale of bonds issued by the government: “Bond sales (whether by the Treasury or by the central bank) function to drain excess reserves; they cannot finance or fund deficit spending” (Wray 1998, 85). While referring to functional finance as defined by Lerner (1943), Wray concludes that “bond sales are designed to substitute an interest-earning government liability for non-interest-earning government fiat money, and is properly thought of as a monetary policy operation” (Wray 1998, 86).

Let us first examine the question of the financing of the state, by considering banks’ balance sheets. We may assume that the state draws on the central bank to pay for goods and services it buys, thus creating a deficit in the process. As a result, it becomes indebted to the central bank while commercial banks’ reserves (or settlement balances) in central bank money increase. Simultaneously, the public’s deposits with banks, the recipients of state expenses, increase by the same amount. These increments in assets and liabilities are recorded in balance sheets as follows:

<table>
<thead>
<tr>
<th>Central bank</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>Liabilities</td>
<td></td>
</tr>
<tr>
<td>Treasury’s debt + $X</td>
<td>Bank reserves + $X</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commercial banking system</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>Liabilities</td>
</tr>
<tr>
<td>Reserves + $X</td>
<td>Public’s deposits + $X</td>
</tr>
</tbody>
</table>

The assets and liabilities of both the central bank and of commercial banks increase by the same amount, and the meaning of these records is well known. The central bank, like any other bank, is actually giving credit to its debtor (the state via the treasury). Therefore, far from paying for goods and services with its debt, which then the public would accept because it needs to pay taxes, the treasury thus borrows from the central bank and uses central bank money.
Conversely, when the public pays taxes it allows the state to settle its debt vis-à-vis the central bank. Just like in the theory of the monetary circuit, taxes are part of the reflux mechanism that allows the state to recoup part of the national income to extinguish its debt toward the central bank. As we stated above, the public uses bank money not state money to pay taxes, which the central bank then converts into high-powered money. Hence the state borrows in central bank money and extinguishes its borrowings with central bank money.

It should be noted that in Europe and the United States as well, the central bank is prohibited by law from directly financing state deficits. The treasury has to issue bonds it sells to commercial banks. The latter may in their turn sell them to the central bank to obtain high-powered money. These circumstances do not alter our argument. On the contrary, they strengthen it because they definitely prevents us to merge the central bank and the treasury.

Let us now turn to the regulation of the market for reserves. There is no doubt, in our opinion, that the payment of taxes removes reserves from the banking system, while government expenditures necessarily inject reserves into it, as the balance sheets below show. In this sense, we agree with Lavoie, who writes that “government expenditures financed by cheques drawn on the central bank automatically lead to the creation of excess reserves. Reciprocally, taxes collected from private agents and deposited as government deposits in the accounts of the central bank withdraw reserves from the banking system” (2003, 530–531).

But this is not the entire story. The central bank may decide at this point to neutralize the effects of these transactions. Indeed, central banks can manipulate the “market for reserves”—or rather interbank settlements—to prevent undesirable effects on interest rates and otherwise. For instance, the central bank can decide to shift funds from government deposits in and out of the banking system, as is done frequently in Canada, for instance. In this sense, the initial government purchase of goods and services would be neutralized by the transfer of government deposits from the banking system to the accounts of the state at the central bank, thereby
leaving the “market for reserves” intact. The balance sheets of the central bank and of commercial banks look like this:

<table>
<thead>
<tr>
<th>Central bank</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td></td>
</tr>
<tr>
<td>Treasury’s debt + $X</td>
<td>Bank reserves + $X</td>
</tr>
<tr>
<td></td>
<td>Bank reserves – $X</td>
</tr>
<tr>
<td></td>
<td>Government deposits + $X</td>
</tr>
<tr>
<td>Liabilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commercial banking system</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td></td>
</tr>
<tr>
<td>Reserves + $X</td>
<td>Public’s deposits + $X</td>
</tr>
<tr>
<td>Reserves – $X</td>
<td>Government deposits – $X</td>
</tr>
</tbody>
</table>

Similarly, when taxes are paid, thereby draining reserves, the central bank can also neutralize these effects by moving government deposits from the central bank to the banking system. As Lavoie says, “The Bank effects such neutralization late in the afternoon, after all settlement transactions with the government are completed. When the Bank makes its final cash management decisions, it knows with perfect certainty the amounts that need to be transferred between government accounts at the Bank and government accounts at commercial banks to achieve complete neutralization of the public sector flows” (2005, 4). Hence, this would suggest therefore that taxes are not a tool to maintain stability in the “market for reserves.” Rather, they can have destabilizing effects, a fact that central banks recognize. “To maintain the level of settlement balances at zero, the Bank must neutralize the net impact of any public sector flows between the Bank of Canada’s balance sheet and that of the financial system” (Howard 1998, 59; see also Lavoie 2005; Rochon and Rossi 2004a).

The growth of the repo and reverse repo markets in recent years is also indicative of the manipulative power of central banks. So in addition to government deposits, central banks will use these overnight tools to quickly neutralize “transitory and undesired” movements in markets (Clinton and Fettig 1989, 51). In Lavoie’s words:
“Early in the morning, when most of the clearing transactions occur, the Bank offers open-market operations (in the form of overnight repos or reverse repos) at the target rate, to keep the market overnight rate on target. This often has the effect of promptly neutralizing government flows. For instance, on a day when tax receipts are high (a drain on the system liquidity), the Bank will be providing central bank credit from the outset” (2005, 4). Hence, what gives stability to the “market for reserves” is not the payment of taxes, but rather the central bank’s ability to manipulate interbank settlements to prevent any unwanted pressures on interest rates or otherwise. As Clinton and Fettig explain: “The decision to intervene with a repurchase or resale operation is usually prompted by a movement in overnight rates that appears at odds with the monetary conditions sought by the Bank” (1989, 52). In this sense, during the tax season, central banks are constantly neutralizing the depletion of bank reserves. The opposite holds true when governments purchase goods and services. Hence the state need not use taxes to drain excess reserves. The central bank can, through its interbank settlement activities, remove them.

Wray is thus not entirely correct when he writes that “while the central bank can offset such actions if they create excess or insufficient reserves, the central bank’s interventions are necessarily limited. Continuous open-market sales to drain excess reserves created by deficit spending are most problematic because the central bank will eventually run out of treasury debt to sell” (2003, 94). But central banks do much more than open-market operations (which account for only a very small percentage of central bank operations). In systems of interbank settlements guaranteeing payment finality, central banks are continuously adjusting banks’ reserve positions by either transferring funds from and to government accounts, or by using repos and reverse repos, a practice that has exploded in recent years.

Conclusion

Chartalists believe that attempts at separating the central bank’s and the treasury’s functions is merely “confused discussion” (Wray 2003, 87). Indeed, as Wray clearly states in response to previous
critiques (Mehrling 2000; Rossi 1999), “It should be obvious, but it usually does not appear to be so . . . that central bank liabilities do not differ in any significant degree from treasury liabilities—in other words, we can treat both as essentially ‘high powered money’ or liabilities of the state” (2003, 87). In this sense, Wray proposes to “simply consolidate the central bank and the treasury, calling the conglomerate ‘the State,’ and combine treasury and central bank liabilities into a ‘high powered money’ or ‘fiat money,’” suggesting that we treat such transactions like “husband and wife within the household” and thus “the internal accounting machinations between the Fed and the U.S. Treasury are not important for our analysis” (2003, 91–92).

This is precisely the crucial point that we have chosen to question here with reference to bookkeeping and central bank practices. If we assume, as is the case in France, that the treasury itself acts as a bank and issues money, then this state money needs to be converted into other bank monies, which is achieved through the intermediation of the central bank and its money. Then, we cannot but conclude that the central bank is autonomous vis-à-vis the treasury—as it is vis-à-vis any other bank: it plays a role on its own in converting monies into one another. Even if the treasury has to draw on its account with the central bank to finance its expenses, as in the United States, then the conclusion is the same. This is because, as confirmed by double-entry bookkeeping, the central bank cannot credit the treasury’s account without becoming the treasury’s creditor (at least in the case of net expenses), which means that it grants credit to the latter, just as any bank does when granting credit to its private clients. In this latter case, the treasury does not issue its money, it simply borrows from the central bank.

As we know, in many countries the central bank has been prohibited by law from directly financing state deficits. Treasuries have to sell bonds to commercial banks, which in their turn may sell them to the central bank to obtain high-powered money. This is a clear confirmation that, in issuing bonds, the treasury does not ipso facto issue state money that it could impose to the public because the latter has to pay taxes, but on the contrary borrows money from banks, including the central bank. Recent develop-
ments, to which we have referred, in the way and means the central bank provides liquidity in the market of reserves (interbank settlements) and manipulate it in order to neutralize the net impact of the treasury’s expenses, also confirms the autonomy of central banks. All these elements definitely show the weaknesses of the story by which the state could enforce the circulation of its own debt because the public needs it to pay taxes, and by which taxes would essentially be a means to regulate the market for reserves.

We would go even further. Taxes play perhaps a more important, although different, role than chartalists lead us to believe. Rather than existing to enforce a unit of account or as a way of controlling the market for reserves, taxes gives the state the power to issue debt. Taxes are revenues, and this gives the state an enormous advantage and are the source of fiscal activism.5

Notes

1. “In some sense, the verticalists and horizontalists have each captured some elements of the money supply process. One can conceive of a vertical component of the money supply process that consists of the government supply a fiat money; money drops vertically to the private sector from government through government purchases of goods and services” (Wray 1998, 111).

2. So-called by Moore (1988), verticalism (or orthodox theory) is the theory by which the supply of money is controlled by the central bank, essentially through its direct control over the supply of high-powered money (reserves). The central bank first supplies these reserves to the banking system, which then can lend out a multiple of these reserves as bank loans, which then creates deposits. By contrast, horizontalism is a theory that suggests the central bank cannot control the supply of reserves, but rather the rate of interest. This is because the supply of money responds to the demand for it. In essence, banks first supply loans, which then creates deposits and then reserves later. The central bank cannot refuse to supply these reserves in order to guarantee the stability of the financial system.

3. For an overview of the post-Keynesian theory of money creation, see Lavoie (1992, ch. 4) and Rochon (1999, ch. 1).

4. In the case of real-time gross settlement systems, banks do not have to make good their reciprocal debts before making payments in high-powered money.

5. The authors thank Perry Mehrling for bringing this to our attention.

References


