BULLETIN OF POLITICAL ECONOMY
14:1 (2020): 1-38

Endogenous money and the theory of long-period effective demand

SERGIO CESARATTO*, STEFANO DI BUCCHIANICO**

Abstract: The paper is a contribution to a monetary theory of demand-led growth with elements from Sraffian supermultiplier analysis, monetary circuit theory, Modern Monetary Theory and endogenous money theory. The Sraffian supermultiplier is indicated as the most promising heterodox approach to growth and instability in capitalism. This approach allows consideration of such non-capacity-creating autonomous components of aggregate demand as autonomous consumption, public spending and exports, as the ultimate sources of growth and instability in modern capitalism. Following Steindl, capital gains are included among these components. Autonomous demand and investment are typically fed by endogenous money creation. The paper articulates the relation between autonomous demand and investment on one hand, and endogenous finance on the other, in the light of Keynes's distinction between initial and final finance.

Keywords: Supermultiplier, endogenous money, monetary circuit theory, modern monetary theory, autonomous demand

JEL classification: B51, E11, E12, E42, E5

INTRODUCTION

It is increasingly recognised that the Sraffian supermultiplier is the most promising heterodox growth model, also in view of the shortcomings of neo-Kaleckian and Bhaduri and Marglin models (Cesaratto 2015a). The Sraffian supermultiplier is an extension of the Keynesian multiplier with an investment accelerator, where the autonomous components of aggregate demand drive growth.

The paper intends to complement the Sraffian supermultiplier approach with endogenous money theory. More specifically, investment and the autonomous components of demand are in general financed by newly created

* University of Siena, Department of Economics and Statistics, sergio.cesaratto@unisi.it
** University of Siena, Department of Economics and Statistics, stefanodibucchianico@gmail.com.

purchasing power, since by definition they do not depend on "earned income". For instance endogenous credit-money creation concerns: investment, which is only funded by saving ex post; autonomous consumption based on consumer credit; state spending which takes place before taxation and saving; exports generated by endogenous money creation either in the importing country or by vendor finance from the exporting country. Taking stock of some late contributions by Joseph Steindl, the final part of the paper also tries to integrate capital gains into the monetary theory of demand-led growth.

This theoretical enquiry can also offer useful insights into the recent strand of heterodox contributions reflecting on the role of bank money in financing production (Bertocco and Kalajzić 2020), the operative structure of modern monetary economies of production (Fumagalli and Lucarelli 2011), the monetary circuit in an age of financialisation (Passarella 2014; Sawyer and Passarella 2017), and the financial-real side relationships in the monetary circuit (Botta et al. 2015).

The paper will take advantage of Keynes's distinction between initial and final finance as developed by Davidson, Dalziel, Graziani and others - although we do not attempt any philological interpretation of Keynes's original concepts. Moreover, we shall consider two approaches in which endogenous money theory has so far been applied by post-Keynesian economists. According to the first, named "received view", endogenous money finances investment and autonomous demand (spending); according to the second it finances production decisions. The "received view" is implicit, for instance, in Sraffian authors and more generally in the post-Keynesian literature. This view does not take into account that most production is based on expected demand (production in advance) or purchase orders (production to order), so that credit often finances production, not final demand. The role of credit in production financing is instead underlined by the monetary circuit theory (e.g. Graziani 2003; Fontana and Realfonzo 2017).

The structure of the paper reflects the conceptual dimensions of our argument and in particular the distinctions between:

- autonomous versus induced components of aggregate demand;
- initial versus final finance: endogenous money finances investment and the autonomous components of aggregate demand (initial finance) which are later *funded* by savings (final finance);
- demand versus production financing: endogenous money may finance either investment and autonomous spending, or production decisions, the latter ultimately determined anyway by investment

and autonomous demand.

We begin by rapidly recalling the advantages of the Sraffian supermultiplier and the role of autonomous demand. We then discuss whether endogenous money finances autonomous demand spending or production decisions (or both). Next, we present an example of demand-led monetary circuit that reconciles insights from Keynes's distinction between initial and final finance, and Graziani's monetary circuit with demand-led growth. The final sections apply the demand-led monetary circuit to single autonomous components of aggregate demand, namely autonomous consumption, state spending, international trade and capital gains.

FROM THE NEO-KALECKIAN MODEL TO THE SRAFFIAN SUPERMULTIPLIER

Marc Lavoie (2017: p. 194) referred to the "so-called Sraffian Supermultiplier" as an approach "unfairly neglected by heterodox authors". It is of course a matter of personal taste whether the Sraffian supermultiplier is considered a "variant of the neo-Kaleckian model" (ibid., p. 195) or, as we believe, a different model superseding the neo-Kaleckian model. The fact is that by including the autonomous/non-capacity-creating components of aggregate demand, the model converges "towards a normal rate of capacity utilization, just as Serrano (1995) or other Sraffians such as Cesaratto (2015a) had hoped for"[1] and "provides a possible reply to those who have been complaining in the past that the Kaleckian model of growth and distribution is incomplete because it does not converge towards its normal rate of capacity utilization in the long run" (ibidem).

From a substantial point of view, considering the autonomous components of aggregate demand to be the ultimate drivers of growth enriches the flexibility of a heterodox demand-led growth analysis in dealing with the variety of capitalist models and crises (e.g. Girardi and Pariboni 2017). This variety includes, for instance, consumer-credit-led economies (e.g. Pariboni 2016) as well as export-led/neo-mercantilist growth models and the symmetrical peripheral foreign-debt-led capitalism (e.g. Cesaratto and Stirati 2011). See Serrano (2017) for autonomous spending in catching up countries.

One interesting aspect of autonomous spending is that, by definition, it must be financed by endogenous credit/money creation by banks (on endogenous money see Lavoie 2014, Chapter 4).[2] This has two implications. From a theoretical point of view, it creates a natural field of convergence between the endogenous money literature and the Sraffian supermultiplier

approach. From a substantial point of view, inclusion of the financial side leads us to regard autonomous demand-led growth as prone to financial crisis due to excess indebtedness, for instance, of households or peripheral countries (to be separately analysed). The vision of capitalism we derive from this approach is that of a debt-led economy. This is not surprising, since spending financed by the generation of purchasing power by banks has the role of filling the gap in aggregate demand caused by capitalist unequal distribution of income. Autonomous demand is what Kalecki (1967) named "external markets" after Rosa Luxemburg, and Garegnani (1962 [2015]) named "final demand" (see Cesaratto 2015a; 2017b).[3]

FINANCING DEMAND OR PRODUCTION DECISIONS?

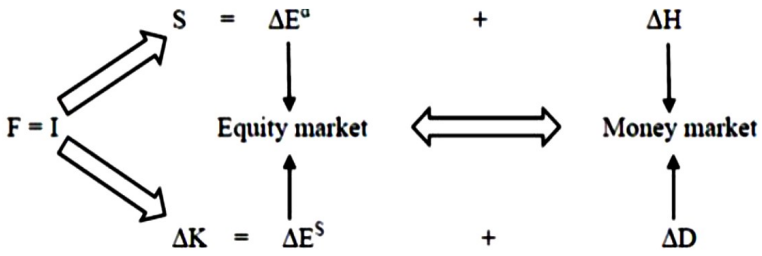
Our next question is how to integrate endogenous money into the Sraffian supermultiplier. One preliminary problem is whether endogenous purchasing power creation by banks is concerned with financing final autonomous-demand decisions to spend, or with production decisions - albeit based on expected demand.

Investment spending: the received view

Cesaratto (2017a) named "received view" that which regards the role of finance as mainly being meant to feed final demand. An inspiring presentation of this view (Dalziel, 1996a) focuses on investment and non-capacity creating autonomous spending (which in Dalziel's view include autonomous consumption, government spending and net-exports) in a Keynesian multiplier context. In this section we shall focus first upon investment spending.

Investment spending is generally taken as autonomous in the short-period, but in the light of the Sraffian supermultiplier is induced by expected demand in the longer run. In short, investment is autonomous from the point of view of financing, and induced from the economic point of view, respectively. According to Dalziel, one main consequence of Keynes's inversion of the marginalist view of the saving-investment nexus is that "the role of credit-money in financing deficit expenditure (including investment expenditure) should be included in the analysis from the start" (ibid., p. 228). The figure used by Dalziel (1996a: p. 229) is worthy of comment.

Figure 1: The Keynesian model with money flow



In Figure 1, *F* is what we call initial finance, that is credit/money creation that finances investment intended as the *purchase* of a new capital good. Conveniently, Dalziel here recalls the famous passage by Keynes (1937a: p. 222): "investment market can become congested through a shortage of cash. It can never become congested through shortage of saving. This is the most fundamental of my conclusions within this field." In the drawing, initial finance (*F*) evolves, on the one hand, into real investment (ΔK) and, on the other, into saving (through the income multiplier process). In turn, saving can be held by household either in the form of equities or long-term assets (ΔE^d) (thus sharing the property or funding of the new capital good) or hoarded (ΔH) in sight deposits.[4] Symmetrically firms will fund (or finally finance) investment either by issuing equities ΔE^s (that may be used to redeem part of the initial debt with banks, a *reflux* into the monetary circuit theory's terminology) or by taking out a long-term debt ΔD, transforming part of the initial short-term loan into a long-term credit. Notably, in the latter case banks intermediate savings, transforming sight deposits into long-term loans, but this is only an ex post role concerning maturity transformation; ex ante it is credit/money creation that finances investment, not saving as in the traditional loanable fund theory (see also Lindner 2014).

For the sake of clarity, let us provide a simple example. In a closed economy without public administration, suppose that capitalists invest 100 units of account (ua) financed by a bank. With a marginal propensity to save equal to 0.2, given an adequate productive capacity, the multiplier process generates income and saving respectively equal to 500 ua and 100 ua. The standard multiplier process is illustrated in Table 1 that also shows the distribution by household of saving between equities (90%) and hoarding (10%) in each period.

Table 1

Investment multiplier (received view)							
Periods	I	ΔY	ΔC	ΔS	Δ deposits	ΔH	ΔE
1	100	100			100 (loan)		
2		80	80	20.0	82.0	2.0	18.0
3		64	64	16.0	67.6	1.6	14.4
4		51.2	51.2	12.8	56.1	1.3	11.5
5		40.9	40.9	10.2	46.9	1.0	9.2
...		...	...	...		...	...
Final		500	400	100	10	10	90

It follows that in any single period, saving and investment are always equal (Dalziel, 1996a: p. 223; 1996b: p. 117). Take, for instance, period 2: the income generated in this period (80 ua) is not spent until period 3 (it is "temporarily saved", so to speak); by summing it to proper saving of period 2 ($\Delta S = \Delta H + \Delta E = 20$ ua) we obtain 100 ua. Indeed, in period 2 the 80 ua of income is temporarily "parked" in the deposit account, which also contains the 2 ua that are hoarded. In the example we assume that investing firms progressively fund (or finally finance) investment by issuing equities (90 ua) that are used to redeem part of the initial debt with banks, a *reflux* in the monetary circuit's jargon. Eventually, the residual bank's loan is therefore only 10 ua, equal to the final deposit.

To sum up, according to the received view, *initial finance* pre-finances demand for a capital good (for instance) which is *finally funded* (final finance) after the new equipment has been produced. This is fine as far as it goes, but it needs some pointers.

Autonomous spending financed by financial and real wealth

Autonomous spending does not necessarily require credit creation, since subjects can draw on savings in the form of accumulated financial or real wealth (which includes retained profits). Keeping things simple, consider a firm that purchases a new capital good for X ua by drawing financial wealth, say, from a saving deposit. This spending generates X ua of new saving. From the point of view of the banking system nothing has changed (neither the amount of loans nor that of deposits). Let us refer to the example of table 1 above.

Suppose that capitalists are the only savers so that the final deposit (10 ua) belongs to them. Suppose next that they mobilise this deposit to finance a new investment in their own firms. They will receive bonds or equities (or some sort of ownership title) DE = 10 ua in exchange. Investment spending

generates *DS* = 10 ua of additional saving embedded, so to speak, in the deposit (that has of course changed many hands in the meanwhile). If this helps, it is as if the old savings back the new investment, while the new saving backs the old investment.[5] One should not be misled by the fact that the amount of deposits has remained constant: overall the amount of financial assets representing the savings stock has increased by *DE*.

We must also be watchful of an optical effect: in no sense has investment been generated or conditioned by accumulated savings; quite the opposite, an investment decision has generated a corresponding amount of novel saving, as in the Dalziel's example. In other words, although it is true that accumulated financial wealth (savings) has financed the investment, this does not infringe the Keynesian proposition that it is investment that determines current saving. Moreover, although in practice it is possible that some entrepreneurs prefer to self-finance future investment by accumulated profits – behaviour that will affect the social propensity to save – this behaviour does not violate Keynesian independence of investment from saving, as long as competition imposes that investment decisions are made promptly to chase market opportunities when they occur, irrespective of the availability of internal finance[6] (e.g. Cesaratto, 2015a: pp. 167-9).[7]

Production in advance of expected demand or orders

Neglected by the received view is the question that most production takes time and is often undertaken on the basis of expected demand or orders. Inspired by Keynes's papers on finance (1937a, 1937b, 1938), Graziani (1984: p. 32) is critical of what we have defined the "received view", in which finance "is most of the times considered as supporting investment, while Keynes says clearly that finance is needed for any kind of production; or it is considered as supporting demand, while Keynes clearly states that the use of finance is to make production possible before demand has appeared on the market".

Firms in homogeneous industries tend, for instance, to produce in advance (or "for stock") under the pressure, we may presume, of competition; while in more differentiated industries production to order is more typical (Casaburi and Minerva 2011). In production in advance, production costs are by definition covered only ex post by sales. Production in advance does therefore require forms of pre-financing (initial finance) to cover production costs over the production period before receipt of the final payment, as generally pointed out by the monetary circuit theory (Graziani 1984; Lavoie, 1986; 2014: p. 269; Borio and Disyatat, 2015: p. 8).

As Keynes put it in 1923: "During the lengthy process of production the business world is incurring outgoings in terms of money – paying out in *money* for wages and other expenses of production – in the expectation of recouping this outlay by disposing of the product for *money* at a later date" (quoted by Moore, 1983: p. 545).

Production costs in the case of production to order may partly be covered by anticipations by the buyer who share them. In this case, pre-financing can concern either the producer, or the buyer, or both (Graziani, 1984: p. 23). The fact that pre-financing by the buyer consists, in practice, of a participation in the production expenses, may explain why it is financed by banks on a short-term basis and not by equity capital. To sum up, many production decisions, particularly in manufacturing, are made on the basis of expected demand or orders, and since production takes time, initial finance concerns production decisions and not final demand (or both as in the case of production to order).

In what follows we suppose wages to be part of the anticipated costs together with other advances. For simplicity, all such expenses are anticipated by banks. Moreover, wages are supposed to be paid *ante factum*. Our hypotheses are close in spirit, on the one hand, to that of Borio and Disyatat (2015: p. 12) inasmuch as pre-financing is made available by banks. This does not closely track a reality in which, especially during the recent years characterised by financialization, non-financial enterprises tended to rely much less on banking intermediation (Lapavitsas 2013). However, financial enterprises other than banks can be introduced (Borio and Disyatat, 2015: p. 11).[8] In addition, as already seen in our framework markets for equities, bonds and debentures are not neglected, as they play a key role (in particular with respect to final finance, Dalziel 1996a). On the other hand, the inclusion of wages into anticipated production costs better links our framework with Graziani's (1984, 2003). This entails a less precise approximation of normal prices, which are in general better defined under the assumption of postponed wage payments (Lonzi et al. 2017). Given our focus on production financing and money endogeneity, we believe such an assumption to be of minor relevance.

Taking for simplicity the case in which initial finance pre-finances production, the income multiplier process is not kicked off by pre-financing the *purchase* of (say) a capital good, as in figure 1, but by pre-financing the *production* of the capital good (e.g. after an order of a plant). Saving emerges from the multiplier process and *funds* (long term) the purchase of the capital good, as in figure 1, allowing short-term pre-finance to be returned

to banks (Graziani, 1984: p. 6):

pre-financing →production → income multiplier process → funding → final payment

While developing this argument in the next pages, extending it to other autonomous components of aggregate demand , let us ask ourselves whether this line of thought (and its possible extensions) is peculiar to hard-line Keynesians, or whether marginalist economists may share it.

Initial and final finance in marginal theories

As Garegnani pointed out many years ago, Wicksell believed in the unlimited ability of commercial banks to generate credit.[9] Moving this argument a bit further, two Wicksellian economists, Borio and Disyatat, argue that if this is so, then banks do not intermediate saving in order to finance investment, but it is investment, financed by credit/money creation by banks, that generates saving. They are very clear about this:

> in a closed economy, or for the world as a whole, the only way to save in a given period is to *produce* something that is not consumed, i.e. to invest. Because saving and investment are the mirror image of each other, it is misleading to say that saving is needed to *finance* investment. In *ex post* terms, being simply the *outcome* of various forms of expenditure, saving does not represent the constraint on how much agents are able to spend *ex ante*. *The true constraint on expenditures is not saving, but financing.* … And it is only once expenditures take place that income, investment, and hence saving, are generated (Borio and Disyatat, 2011: p. 7, final italics are of ours)

The final italics remind us again of Keynes's (1937a: p. 222) famous dictum, quoted above, which is surprisingly not quoted by Borio and Disyatat.[10] Neither the endogenous money view of investment financing nor even the Keynesian multiplier are therefore peculiar to a purely Keynesian view of the economy. In a Wicksellian context, the Keynesian proposition that it is investment that generates saving can thus be re-proposed: monetary policy must target a monetary interest rate equal to the natural rate; at this rate, through endogenous money creation, banks will finance a full employment level of investment, that in turn generates a corresponding amount of full-employment saving. Endogenous money and the income multiplier operate at any level of economic activity and must be considered facts independent of theories (Jakab and Kumhof, 2015: p. 4).

It also shows that endogenous money and the Keynesian inversion of

the traditional saving-investment relationship are not enough to criticise marginal theory and its attempt to reduce the Keynesian revolution to a special case for periods of exceptionally depressed expectations (Pivetti, 2001: pp. 108-9; Lavoie, 2014: p. 190). To rescue the Keynesian results, we need the Sraffian criticism of capital theory and of the very existence of a natural interest rate that adjusts investment to full-employment saving (Garegnani, 1983: pp. 37-41; Moore, 1988: p. 236).

Be this as it may, once we acknowledge that initial finance may concern pre-financing of production, how to revisit Dalziel's figure 1? This is important not just for the sake of accuracy, but also to point out the differences between our approach and the monetary circuit theory, a theory that emphasises production financing as the *primum movens* of a monetary economy. Once the coordination of initial and final finance in the case of pre-financing of production is clarified, our next and final duty is to generalise these results from the case of investment so far considered to the cases of the autonomous, non-capacity-creating components of aggregate demand.

COORDINATION OF INITIAL AND FINAL FINANCE: A DEMAND-LED MONETARY CIRCUIT

To provide a monetary theory of effective demand in which endogenous money finances production decisions, we reformulate an example from Cesaratto (2017a), inspired by Davidson (1986), Dalziel (1996b) and, of course, by Keynes (1937a, 1937b, 1938).

Table 2, in which the example is summarised, shows that the order for the investment-good generates a corresponding production decision, so the first move is on the demand-side and not on the supply-side, as in the monetary circuit theory.

Investment multiplier (new view)					
Periods	ΔY	ΔC	ΔS	ΔH	ΔE
Round 1					
1	80	80			
2	80	64	16,0	1,6	14,4
3	64	51,2	12,8	1,3	11,5
4	51,2	40,9	10,2	1,0	9,2
...	...	...	...	...	...
Final	480	400	80	8	72
Round 2					
1	20		20	2	18
Final (R1+R2)	500	400	100	10	90

We suppose that an investing firm hires an investment bank – it can be the branch of a commercial bank transforming short-term deposits into long-term loans or an independent firm that collect savings by issuing long-term bonds - to *fund* (long-term or final finance) the purchase of a capital good that costs 100 ua. Because production takes time, the (direct and indirect) anticipated wage-costs necessary to produce the capital-good, say 80 ua, are pre-financed by endogenous-money creation by a commercial bank (initial finance). Let us assume that workers consume all wages and capitalists save all profits. Assuming a wage-share of 0.8 (in both the investment and consumption goods sectors), the average marginal propensity to consume will also be 0.8. With these hypotheses, initial spending out of wage-payment (80 ua) will be 80 ua. The newly generated income is 480 ua and saving 80 ua, equal to the initial spending (round 1).[11] These savings are progressively collected by the investment bank which issues long-term assets [E] or hoarded in commercial banks (that, in turn, convert sight deposits [H] into longer-term loans to the investment bank). The remaining 20 ua needed to fund the 100 ua capital good costs can be borrowed by the investment bank from the commercial bank (round 2). They are then lent to the investing firm so it can fully carry out payment for the capital good.[12] In this way the investment bank has funded, on a long-term basis, the 100 ua needed to finance the investment firm.

In turn, the producer of the capital good can return 80 ua of pre-financing to the bank (what circuitists call "reflux" or destruction of money created by the "influx" of initial finance). Moreover, in the hypothesis that the capital-good producer saves all her profits (20 ua), the investment bank collects them (18 in equities and 2 as long-term loan from the bank), returning the 20 ua short-term loan to the commercial bank. Moreover, given the assumption of nil propensity to spend out of profits, this latter step does not contribute to expand income further. Not surprisingly, final (R1+R2) income, consumption and saving are the same as in Table 1.

This neat formulation of a *demand-led monetary circuit* has two advantages over the traditional *production-led monetary circuit*:

(i) Production decisions are not made in a vacuum but induced by demand: the realm of the "demand-led monetary circuit" is the *General Theory* and not the *Treatise*, as in Graziani's "production-led monetary circuit" (Graziani 1990, p. 9; Fontana and Realfonzo, 2017: p. 202).

(ii) No question about the realisation of profits arises in the demand-led monetary circuit. In the specific examples, profits in the

consumption sector are realised in round 1, and in the investment sector in round 2. In line with Kalecki, capitalists get what they spend, and the well-known trouble with the monetary circuit of how capitalists realise their profits does not arise (Rochon 2005). Nonetheless, some insights of Graziani's monetary circuit are preserved, for instance the distinction between initial and final finance, and production financing.

With regard to production financing, let us finally note that in the preceding examples production anticipates spending only in the investment sector, where production to order is typical, while production in the consumption sector is later generated by the income multiplier process (like De Gaulle's intendance, "il suit"). However, production in advance is typical in the consumption good sector too (Keynes, 1937b: p. 208; Graziani, 1984: p. 22). We choose to leave this question to Cesaratto (2017A, Sect. 4.4)[13] and to extend here the demand-led monetary circuit to the autonomous, non-capacity-creating components of aggregate demand (autonomous consumption, public spending and exports).

INITIAL AND FINAL FINANCE AND AUTONOMOUS CONSUMPTION

In our view, autonomous consumption (Ca), financed by consumer credit, includes demand for new residential dwellings (since this is a non-capacity-creating private investment).[14] In the received view, commercial banks pre-finance (initial finance) autonomous consumption (see the nice example in Dalziel, 1996a: pp. 223-24). As before, however, we can presume that pre-financing concerns production decisions induced by autonomous consumption, whether expected or in the form of orders (e.g. for new houses). The analysis of this case will be similar to that of investment, with the proviso that private saving generated through the income multiplier by some households is compensated for by dissaving by other households (those financed by consumer credit).

Using the same numbers and hypotheses as the previous example (Table 2), suppose that an experienced producer of white goods (home-appliances) correctly expects to sell 100 ua of production in the next period by facilitating customers through consumer credit. To do so she designates an investment bank (it can be a branch of a commercial bank) to fund her consumers' purchases. In the meantime, she borrows 80 ua from a commercial bank to meet her (direct and indirect) wage costs. With a social marginal propensity to save of 0.2, workers' spending generates, through the income multiplier,

80 ua of saving, which is collected long-term by the investment bank and lent to aspiring customers. The investment bank, however, needs an extra short-term loan of 20 ua from a commercial bank to meet its commitment to lend 100 ua to customers. If the producer saves all her profits (20 ua), these are collected long-term by the investment bank that can thereby redeem its short-term loan with the commercial bank.[15]

Finally, note that as in the case of investment, endogenous-money initial financing of autonomous consumption – or of production undertaken in view of autonomous consumption – is a fact, so it can in principle also be accommodated by mainstream theory. According to the latter, in (a full employment) equilibrium there is a natural interest rate such that decisions by thrifty households to postpone consumption are precisely matched by impatient households that desire to anticipate their consumption. As long as commercial banks lend at this equilibrium interest rate, the idea that impatient households are pre-financed by banks and funded ex post by thrifty households is perfectly consistent with the mainstream view.

INITIAL AND FINAL FINANCE AND GOVERNMENT SPENDING

That the state must spend first, before taxing or collecting saving, is a fundamental yet little understood aspect of genuine Keynesianism. Modern Monetary Theory (MMT) authors have always been adamant on this point, arguing that in the end it is the central bank that initially finances state spending, later *funded* by tax collection, and if tax revenues are insufficient, by collecting saving (final finance). Needless to say, tax revenues and saving are the result of the income multiplier process prompted by state spending (Nersisyan and Wray, 2016: pp. 1304-1307). Expositions of this process are provided by Dalziel (1996a: p. 224) and by Cesaratto (2016a: pp. 53-54).

Let us assume that government spending is financed by issuing treasury bonds bought by the central bank or by commercial banks that create purchasing power (a deposit) for the Treasury (we will shortly expand this point). Table 3 shows the unfolding of the multiplier related to a public expenditure of 100 ua for an aircraft through the balance sheets of the government and the private non-financial sector, respectively. We suppose a closed economy with spare capacity, with a propensity to consume $c = 0.7$ and a tax rate $t = 0.3$.

Table 3

State spending and the multiplier				
	Government		(non financial) Private sector	
	Assets	*Liabilities*	*Assets*	*Liabilities*
t = 0	Deposit -100		*Aircraft producer:*	
	(Aircraft +100)		Deposit +100	
			(Aircraft -100)	
t = 1	Tax claims -30 Deposit + 30		*Aircraft producer:* Taxes -30 Consumption -49 (remaining deposit 21) *Cons.goods producers* Deposit +49	Tax liability -30
t = 2	Tax claims -14.7		*Cons.goods producers:*	
	Deposit +14.7		Taxes -14.7	Tax liability -14.7
			Consumption -24.01	
			(remaining deposit 10.29)	
			Cons.goods producers:	
			Deposit +24.01	
t = ...	...	...	...	...
Net	Tax claims -58.8		*All producers:*	
	Deposit +58.8		Taxes -58.8	Tax liability -58.8
			Remaining deposit 41.2	
			For memory:	
			Consumption 96	
	(Aircraft 100)		(Aircraft -100)	

In period 1 the aircraft producers (owners and employees) pays taxes (30) out of its income (100), consume (49) and save ("remaining deposit", 21); in period 2 the cons. goods producers pay taxes out of their income (49), consume and save, and so on.

The lower part of the table shows that initial government spending of 100 ua (the purchase of an aircraft) eventually generates an additional income of 196 ua, tax revenues of 58.8 ua and additional saving of 41.2 ua ("remaining deposit"). Thus 58.8 ua of the initial Treasury debt is not rolled over, while household saving "funds" the remaining 41.2 ua of government debt, for instance, by buying the treasury bonds from the central bank or commercial banks. The point we bring home from Table 3 is that government spending is *financed* by purchasing power creation (initial finance) and that this leads to ex-post *funding* (final finance) by taxes and household saving.

Let us now see how government is "initially financed" by commercial banks, in the hypothesis that direct central bank financing is prohibited.[16]

Table 4 adapted from Cesaratto (2016a) and inspired by Lavoie (2013) and Wray (2011a, 2011b), illustrates a possible sequence of events. These begin with the Treasury selling bonds (T-bonds) to private banks, which create a deposit for the Treasury (*stage A*). Then the deposit is moved to the Treasury's deposit at the central bank, from which it can spend (*stage B*). Next, the Central Bank buys T-bonds from commercial banks to replenish the reserves they lost when the Treasury moved the deposits (*stage C*). Incidentally, this demonstrates that government bonds are issued for monetary policy purposes and not to finance public spending. The central bank ends up with the T-bonds, and the Treasury ends up with deposits in its account at the central bank, "which is what it wanted all along, but is prohibited from doing directly" (Wray 2011a). The Treasury can now spend (*stage D*). Deposits are credited to the beneficiaries' accounts at commercial banks, which are simultaneously credited with reserves by the central bank. At this point, banks find themselves with more reserves than desired, so they offer them on the inter-bank loan market. This tends to drive the short-term policy rate below target. To avoid this, the central bank drains the excess reserves by open market sale of T-bonds (*stage E*).

In this example government spending is totally financed by the issue of T-bonds (i.e. pure deficit spending). As seen in Table 3, however, government spending generates both additional saving and tax revenues. Using the figures of Table 3, Table 5 extends Table 4. In *stage F* the (non-financial) private sector (PS) pays its tax (58.8 ua). This allows the Treasury to buy back a corresponding amount of T-bonds in *stage G* (or to issue fewer bonds in a coeval or subsequent operation of government spending, see below). The residual T-bonds amount to deficit spending. Finally, in *stage H*, the PS uses its residual deposit (saving) to buy T-bonds from the banks. This makes it evident that deficit spending is eventually funded by the (non-financial) PS.

Table 4

An MMT/post-Chartalist view I									
		Government		Central Bank (CB)		Commercial bank		Private sector (PS)	
		Assets	*Liabilities*	*Assets*	*Liabilities*	*Assets*	*Liabilities*	*Assets*	*Liabilities*
A *Gov. Sale of bonds to comm. banks*		Deposit (@comm.banks) +100	T-Bonds +100			T-Bonds +100	Gov.deposit +100		
B *The gov. moves its deposits to the CB*		Deposit (@comm.banks) -100			Reserves -100 Gov.deposit +100	Reserves -100	Gov.deposit -100		
		Deposit (@CB) +100							
C *The CB replenishes bank's reserves*				T-Bonds +100	Reserves +100	T-Bonds -100 Reserves +100			
D *Purchase of the aircraft*		Deposit (@CB) -100			Gov.deposit -100 Reserves +100	Reserves +100	Deposit (PS) +100	Deposit +100 (Aircraft -100)	
		(Aircraft +100)							
E *Drain of excess reserves*				T-Bonds -90	Reserves -90	Reserves -90 T-Bonds +90			
Net		(Aircraft 100)	T-Bonds 100	T-Bonds 10	Reserves 10	Reserves 10 T-Bonds 90	Deposit (PS) 100	Deposit 100 (Aircraft -100)	

Table 5

An MMT/post-Chartalist view II	Government		Central Bank		Commercial bank		Private sector	
	Assets	*Liabilities*	*Assets*	*Liabilities*	*Assets*	*Liabilities*	*Assets*	*Liabilities*
Net (from table 5)	(Aircraft 100)	T-Bonds 100	T-Bonds 10	Reserves 10	Reserves 10 T-Bonds 90	Deposit (PS) 100	Deposit 100 (Aircraft -100)	
F *The gov. collects taxes*	Deposit +58.8 Tax claim -58.8					Deposit (PS) -58.8 Gov.deposit +58.8	Deposit -58.8	Tax liability -58.8
G *Buys back of T-Bonds*	Deposit -58.8	T-Bonds -58.8	T-Bonds -5.9	Reserves -5.9	Reserves -5.9 T-Bonds +5.9 T-Bonds -58.8	Gov.deposit -58.8		
H *PS buys T-Bonds*			T-Bonds -4.1	Reserves -4.1	Reserves -4.1 T-Bonds +4.1 T-Bonds -41.2	Deposit (PS) -41.2	Deposit -41.2 T-Bonds +41.1	
Net	(Aircraft 100)	T-Bonds 41.2 (Net worth 58.8)					T-Bonds 41.2 (Aircraft -100)	(Net worth -58.8)

The proposed solution to the question of how the state can spend first without consolidating Treasury and central bank is therefore no different from that of endogenous credit/money creation in favour of the private sector, inasmuch as the Treasury initially borrows from ordinary banks like any other private subject, while the central bank backs the operation. Hence, the idea that the state spends first, initially financed by commercial banks, is equivalent to the received view that initial finance supports autonomous spending – a view we extended to the case in which initial finance supports production undertaken in view of autonomous demand. Indeed, also in the case of state spending we may presume that production decisions are undertaken in advance of expected demand and before final payments; this is very clear in the case of production to orders related to public procurement and investment. Similarly, production in advance anticipate consumption demand activated by state payments of salaries and pensions. In all these cases, production is pre-financed by commercial banks that sustain producers (or possibly, in the case of public orders, by advance payment by the state). As in the previous cases, workers' expenditure generates tax revenues and saving that fund state spending. Like for former cases, however, we observe a two-round process.

In the first round, financing of production decisions in anticipation of demand engendered by state spending generates funding and tax revenues for the state (so in this sense we can say that taxation and saving collection precede spending); in the second round, the state spends, covering the missing part of its expenditure by bank finance; this allows capitalists to realize profits and spend them, which generates a second-round multiplier that completes government funding and tax proceeds.

An important question that has been raised is whether the proposition "the state spends first" does only concern deficit spending or all government spending (Fiebiger, 2016: p. 594). In Cesaratto (2016a, fn. 14) one of us argued that it concerns all government spending, but we recognise in this paper that the first view is the correct one. Suppose that at time 0, government spending increases from zero to a positive value ΔG_0, financed by creation of purchasing power (ΔL_0) (see Table 6). In this case, initial finance concerns all government spending, not only deficit spending. Ex post, government spending is funded by tax revenues ΔT_0 and, in the case of a deficit, by issuing bonds (ΔB_0). The iteration of period 0 spending in period 1 (let us write: $\Delta G_0^1 = \Delta G_0$) is partly financed by taxes accrued in period 0 (ΔT_0) and partly by newly created purchasing power (ΔL_0^1). If in period 1 spending is

further increased by ΔG_1, this increase is initially financed by newly created purchasing power (ΔL_1).

Table 6

Initial finance and State spending (aggregate and deficit)				
Period	Spending	Initial finance	Funding	Public debt
t = 0	ΔG_0	ΔL_0	$\Delta T_0 + \Delta B_0$	ΔB_0
t = 1	$\Delta G_0^{\,1} + \Delta G_1$	$\Delta T_0 + \Delta L_0^{\,1} + \Delta L_1$	$\Delta T_1 + \Delta B_0^{\,1} + \Delta B_1$	$\Delta B_0 + \Delta B_0^{\,1} + \Delta B_1$
...	...	...	...	...

We may therefore conclude that while in a hypothetical initial period *all* government spending is financed by newly created purchasing power, in subsequent periods initial finance concerns only government spending (including expansion of government spending) that is *not* financed by tax revenues generated by spending in previous periods. In the example of Table 5, 58.8 ua of tax revenues can for instance be used to finance subsequent state spending (tax revenues are a sort of Keynes' revolving fund). In this sense we may say that newly generated purchasing power only concerns deficit spending (cf. Tymoigne and Wray, 2013: p. 25 and passim, to which we refer for further analysis).

Let us finally note, once again, that in principle these arguments are not prerogative of genuine Keynesianism alone, but can also be shared by open-minded mainstream economists independently of their policy opinions about government spending.[17]

INITIAL AND FINAL FINANCE IN THE OPEN ECONOMY

Let us consider now an open economy in which exports constitutes a further non-capacity creating autonomous components of aggregate demand.

At world level, imports for one country are exports for another country. Since imports are an induced component in national income determination – they depend on country-specific marginal propensity to import – the ultimate determinants of world aggregate demand and output level and growth are the *domestic* autonomous components of aggregate demand (i.e. excluding exports). Autonomous demand is not, however, distributed so that trade (and more generally current account [CA]) balances are in equilibrium: excess domestic autonomous-spending countries will exhibit CA deficits towards parsimonious autonomous-spending partners. As said, the Sraffian supermultiplier permits a more comprehensive, demand-side approach to

the variety of capitalist models (Girardi e Pariboni 2017).

The neoclassical view is that saving flowing from capital-rich countries finances CA deficits of capital-poor countries (or, put in another way, this saving finances excess spending in profligate countries). However, as in the cases of investment, autonomous consumption and state spending where savings follow and do not precede spending, also in this case the standard neoclassical view puts the cart before the horse**.** As pointed out by Borio and Disyatat (2011: p. 20), this view arises from the (ex post) national account identity: *CA balance* = $S - I$, the sign of which indicates CA surplus ($S > I$) and deficit ($S < I$), respectively. Surplus countries lend excess saving above domestic investment to deficit countries that invest above national saving. Moreover, saving flows are seen as a positive occurrence, since they reduce the rate of interest in capital-poor countries and raise it in capital-rich countries, equalising the international interest rate at its Wicksellian natural level, the one that equalises world saving supply and demand at full employment. In this respect, we may talk of international loanable fund theory. Infamously, Blanchard and Giavazzi (2002) regarded the mounting intra-eurozone balance of payments imbalances as an equilibrium phenomenon.

Two criticisms can be levelled against this view (see also Dalziel and Harcourt 1997). The first regards Wicksell's theory and will concern us later. The second is that although it is true that *ex post* CA surplus countries *fund* CA deficit countries (final finance) directly or through the intermediation of third countries, CA surplus countries are not necessarily the source of *financing* (initial finance) that supports autonomous spending in CA deficit countries. Borio and Disyatat (2015: p. 12, italics in the original) made this crystal clear:

> *The location of firms and consumers determines the direction of trade; that of the banks determines the direction of financing flows*. The more general corollary is that there need be *no relationship between the current account position and the origin of the financing for investment (and production).*

Contrary to conventional international loanable fund theory, it is not foreign saving but *initial finance* that supports excess domestic autonomous spending that in turn leads to foreign indebtedness. Financing may originate from banks located in the same deficit country or in the surplus country, as well as in third countries (correspondingly, although the CA surplus country is always the ultimate source of funding of CA deficit countries, even funding may be intermediated by third country banks). To paraphrase Borio and

Disyatat (2011: p. 10), autonomous spending in any country can be financed "in a myriad of ways" by domestic and foreign banks. The distinction between financing and saving (funding) is therefore critical in an open no less than in a closed economy (Borio and Disyatat, 2011: p. 20).[18]

To sum up, profligate autonomous-spending countries will have CA deficits, mirroring thrifty autonomous-spending countries with CA surpluses. The financial account of the Balance of Payments will therefore be positive in the former and negative in the latter countries. This does not imply, however, that the latter provided initial-finance to the former, and not even that they *directly* funded them – i.e. final-financed them. For instance, autonomous spending in deficit countries may be initially financed by commercial banks in "third countries" with balanced CA, third countries that ex post also intermediate final funding by collecting saving from surplus countries (Borio and Disyatat, 2015: pp. 12-17).

Let us give two examples to show some relevant aspects of financing and funding in international capital flows.

Initial and final finance and international capital flows (received view)

Assume that there are two countries, moderate and excessive autonomous-spenders, respectively. Excess spending in the second country can be financed (initial finance) in a "myriad of ways", either by domestic or foreign banks. To give this exposition the flavour of some current events, let us locate the example in the context of the European monetary union. As we know, in the period 1999-2007, currency unification led to a high degree of financial integration and convergence of interest rates among union partners. As is typical of fixed exchange rate regimes cum free capital flow, this created the perfect environment for indebtedness of peripheral countries (Bordo and James 2013; Cesaratto 2017c; Cesaratto 2020, Chaps. 6 and 7). To study an archetypal example of these events in the perspective of this paper, let us consider a payment (100 €) for a German commodity by a Greek citizen financed by credit/money creation by a representative Greek commercial bank (Alpha Bank). For the sake of the argument, in this first example we follow the received view that payment precedes production.

Following endogenous credit/money logic, Alpha Bank creates a deposit in favour of Athanasios:

Alpha Bank	
+100	+100 D
(Loan)	(Athanasios)

Athanasios instructs the bank to pay for the German good (say a Bosch fridge). According to the Eurosystem payment system Target 2 (Table 7) (on Target 2, see Cesaratto 2013), Alpha Bank deletes 100 € from Athanasios's deposit and the Bank of Greece cancels 100 € from the bank's reserves; at the same time the Bundesbank (BB) credits 100 € of reserves to a representative German bank, Deutsche Bank (DB) that in turn credits 100 € to Bosch. The BB matches its new liability with a Target 2 claim with the Eurosystem, while the BoG enters a corresponding new Target 2 liability.[19] The initial chain of events (the west-east arrow) confirms what Borio and Disyatat (2011, 2015) argue about decoupling of import financing in a CA deficit country from inflows of foreign saving (funding) from the surplus country (notice that initial finance in the deficit country may also regard autonomous consumption or government spending that will induce additional imports). Foreign saving appears in a second phase (the east-west arrow). The Greek bank is indeed short of reserves, so it must recover 99 € of reserves - while DB has a 99 € excess of reserves (since 1 € is held for the new deposit, given the actual 1% mandatory reserve coefficient in the euro area). If the interbank market is functional, DB normally lends the excess reserves to Alpha Bank, and this almost settles the Target 2 imbalances. If you look at Bosch's deposit as saving (suppose for the sake of the argument that it has not been spent), then we may say that DB is *funding* Alpha Bank lending of German saving (final finance).

Table 7

International financing and funding (the case of TARGET2)

Alpha Bank		Bank of Greece		BCE +100 T2 (BoG)	BCE +100 T2 (Buba)	Bundesbank		Deutsche Bank	
			-100 R	-99 T2	-99 T2	+100 T2	+100 R		
-100 R	-100 D (Athanasios)		+100 T2 -99 T2 +99 R	(1 T2 residual)	(1 T2 residual)	-99 T2	-99 R	+100 R	+100 D (Bosch)
+99 R	+99 (loan from DB)		(1 T2 residual)			(1 T2 residual)		+99 (loan to Alpha B.)	-99 R

The reader should not consider the fact that the capital flow (funding) from Germany to Greece (the eastward pointing arrow) is backed by German saving as confirmation of conventional theory. In our example, a Greek bank generated initial finance. It could have been generated by a

French or German bank (vendor finance). In this case, this initial financial flow from France or Germany would not be backed by saving (it would be pure credit creation by a foreign bank in favour of a Greek subject; the story would then continue as in Table 7: Athanasios buys the German fridge etc.). This is perhaps one explanation as to why gross capital flows are much larger than accommodating capital flows (those that finance current account deficits, see Ramanan 2016), a leitmotif of Borio and Disyatat (2011, 2015).

A refinement

We have just assumed that Bosch saves the funds received from Greece. Things are of course slightly more complicated. We may presume that, once Bosch receives the payment, it distributes the proceeds that are then spent. Assume a marginal propensity to consume of 0.8, a tax rate of 0.2 and a marginal propensity to import of 0.1. Simple arithmetic suggests that German income will increase by $\Delta Y = 217.4$ €, tax revenues by $\Delta T = 43.5$ €, imports by $\Delta M = 21.7$ € and saving by $\Delta S = 34.8$ €. Recall the national account identity (written in terms of variations): $\Delta S = \Delta I + (\Delta G - \Delta T) + (\Delta E - \Delta M)$. In our specific case, where $\Delta I = \Delta G = 0$, our numerical results fully satisfy the identity: $\Delta S + \Delta T = \Delta E - \Delta M$, where the left side is additional German *national saving* and the right side is additional CA surplus.

In economic terms, an additional German export ΔE (100 €) has generated: additional German imports ΔM (21.7 €), so that Greece can rely on this revenue to *fund* part of her import; additional German tax revenues ΔT (43.5 €) that *ceteris paribus* improve government saving; additional private saving ΔS (34.8 €). Lending of the additional national saving ($\Delta S + \Delta T$) by Germany, funds the Greek residual CA gap ($\Delta E - \Delta M$).[20]

Table 7 should therefore be amended to account for the fact that Greek additional exports ($\Delta M = 21.7$ €) cancel a corresponding amount of Greek T2 liabilities. Correspondingly, Alpha Bank refinancing needs fall to 78.3 € (lent by ΔB), which is precisely equal to German additional national saving ($\Delta S + \Delta T = 43.5$ € + 34.8 €).

Initial and final finance and international capital flows (production anticipates demand)

So far we have followed the received view that a Greek payment somehow precedes actual production of the German good. Let us now consider the

case in which production is undertaken in the expectation of a forthcoming Greek demand for a German good or after receiving an order from Greece. To complicate matters, let us assume that a German bank pre-finances (initial finance) the Greek order or, equivalently, finances production costs, while a French investment bank funds (final finance) the final purchase. Again we have two-round generation of German national saving (and of imports, since we are now in an open economy). Using previous hypothetical numbers, if (direct and indirect) wage costs are 80 € (in a full price of 100 €), actual production of the commodity will generate an additional German income ΔY = 173.9 €, tax revenues ΔT = 34.8 €, imports ΔM = 17.4 € and saving ΔS = 27.8 €. As we have seen, additional Greek exports to Germany (equal to $\Delta E_{Gr} = \Delta M$ = 17.4 €) allow Greece to fund part of the purchase,[21] along with additional German national saving ($\Delta S + \Delta T$ = 27.8 € + 34.8 € = 62.6€). However, these sources of funding collected by the French investment bank are short of the full purchase cost (100 €), since $\Delta S + \Delta T + \Delta M$ (27.8 € + 34.8 € + 17.4 € = 80 €) < ΔE (100 €). The French investment bank therefore collects the residual 20 € through a short-term loan from a commercial bank (it can be French, German or even Greek). Once the full payment of the German good has been made, the German producer can return the initial short term loan to the bank (or the Greek buyer can return the pre-financing to the bank); the additional 20 € profit is spent, generating further German income, tax revenues, imports and saving ($\Delta Y'$ = 43.5 €, $\Delta T'$ = 8.7 €, $\Delta M'$ = 4.3 € and saving $\Delta S'$ = 7.0 €, respectively). After the second round, German and Greek additional saving is sufficient to fund the purchase of the German good since $\Delta S + \Delta S' + \Delta T + \Delta T' + \Delta M + \Delta M' = \Delta E$. The French investment firm can therefore eventually return the final short-term loan to the commercial bank.

Initial and final finance in an open economy Wicksellian context

Borio and Disyatat's (2011, 2015) Wicksellian endorsement of the distinction between initial and final finance in closed and open economies suggests that these notions *per se* do not differentiate much between marginal and heterodox theories. Once again, the key distinction is in the notion of a global natural interest rate as against the monetary interest rates actually regulated by national monetary authorities. Borio and Disyatat (e.g. 2011: pp. 24-25) attribute global financial and real instabilities precisely to the discrepancy between the two rates:

> it is the relationship between market interest rates and the unobservable natural rate that underpins credit creation and the availability of external financing in general. … This has implications for policy at the domestic and the international level. …. Credit booms, when occurring alongside asset price booms, are the most telling sign of the build-up of financial imbalances and the possibility that prevailing market rates differ from the natural rate.

Consistently, Borio and Disyatat (ibid., p. 24) are critical of Bernanke's "saving glut hypothesis", where they ascribe global financial instabilities to excess credit elasticity rather than to "excess saving", suggesting that "to reduce the likelihood and severity of financial crises, the main policy issue is how to address the 'excess elasticity' of the overall system, not 'excess saving' in some jurisdictions". While this view is fine as far as it goes, Borio and Disyatat still retain the idea of an international economic equilibrium, achievable by the international monetary authorities as long as they successfully guide monetary interest rates towards their natural level. As said above, the Sraffian criticism of capital theory lead us to reject the notion of natural interest rate and with it the idea of a global, full-employment general equilibrium.

Rejection of the idea of a benchmark natural interest rate that (ideally) balances world demand for investment and supply of full-employment saving also helps to explain why international capital flows are more often than not "dissipated" in financing construction bubbles or unsustainable government spending. Empirical evidence also suggests that the interest rate sustains other autonomous components of aggregate demand, namely autonomous spending (including constructions) and government expenditure.[22] Not surprisingly, therefore, Borio and Disyatat's excess finance does not lead to overinvestment, as in the original Wicksellian story, but to unsustainable autonomous private or government spending.

CAPITAL GAINS AND AGGREGATE DEMAND

We have so far been concerned with the real economy, studying the complex relation between initial and final finance, aggregate demand and production decisions. However, as Jakab and Kumhof (2015: p. 12) point out, in "many modern banking systems, loans to finance investment in the real economy have become a fairly small part of overall bank lending, with another part financing consumption, and a third and much larger part financing the exchange of existing real or financial assets between different agents." Bank creation of new purchasing power in support of the purchase of real

or financial assets is at the basis of speculative bubbles in the price of these assets. This may in turn have two real effects in the economy: a direct effect when sellers of inflated assets realise their capital gains, as far as they consume or invest them sustaining aggregate demand; and an indirect outcome since the increase in financial and real estate wealth may lower the marginal propensity to save. While this is the traditional "wealth effect" (Steindl, 1990: p. 168), let us focus here on the former, direct channel.

Steindl (1998) likens capital gains to consumer credit. Notably, in the case of autonomous consumption financed by consumer credit (see above), dissaving by some households (those who spend more than current income) is eventually compensated for by saving by others. Something similar should therefore happen in the case of capital gains.

In this respect, the Austrian economist provides a clear example concerning a plot of land (but it could well be another real estate or financial asset), the value of which has been rising (and is expected to do so). This expectation motivates purchase of this land by a buyer financed by bank credit, which in line with the above exposition, we may classify as initial finance. The seller "will use the proceeds of his sale in order to pay back the credit he had taken when he in turn bought the land", being left with "a surplus, his realised capital gain" (ibid., p. 437). The banking system is left with an expansion of credit: the difference between the loan to the buyer of the land (efflux), and the reimbursement by the seller (reflux).

Steindl argues that capital gains may remain unspent. If, however, they lead to *additional* spending (consumption or investment), there is a positive effect on demand and saving:

> This [spending] will create a multiplier effect leading to the creation of an equal amount of saving. This is analogous to the effect of consumer credit. In both cases the consumption does not arise from the circulation of income but rather like an exogenous influence comes from outside (analogous to investment) (ibidem).
>
> The capital gains do not arise in the circular flow of production and incomes, they occupy a special position in the accounts. They are not income as far as their origin is concerned, and yet they are able to fulfil the functions of income: they can be used for consumption or for real investment or, failing that for investment in financial instruments. In this ambiguous position they resemble consumer credit which also comes from outside the circulation and can also fulfil all the functions of income (ibid.: p. 439).

Capital gains can therefore lead to a form of autonomous spending

"above earned income", initially financed by endogenous credit/money, with saving emerging from the multiplier process. This saving represents the final finance that funds the net credit expansion by the financial system (that, because of the surplus yielded by the realised capital gain, permitted expansion of consumption by the seller of the land). The difference between autonomous consumption out of consumer credit and autonomous consumption out of capital gains is that in the former case, the spender has a debt with a bank, whereas in the latter the capital gainer has not, but the buyer of the land has it instead. So, in the end, autonomous consumption is financed out of some household's debt in both cases. Moreover, in both cases autonomous consumption represents a dissaving (consumption "above earned income") by some households, "funded" ex post by the generation of additional saving by other households.

On the role of capital gains as an independent source of autonomous demand, Steindl puts forward two warnings. First, capital ownership tends to be rather concentrated, "so that only a fairly small proportion of the gains" are consumed (1990: p. 168). Secondly, capital gains are quite a volatile source of aggregate demand.

It goes without saying that once asset bubbles expectedly burst, the process works perversely:

> We have only talked about a rise so far but the case of fall might be thought to be symmetrical. We assume again finance by bank credit. The vendor receives less than he needs to pay back the debt he incurred when he purchased the land. The remaining debt – his capital loss – represents dissaving. If he repays it from his own funds the total bank credit outstanding will be reduced, which involves a credit restriction. If he is not able to repay when he is pressed (which may happen in view of expectations produced by the decline in values) then he will become insolvent. This implies an asymmetry of the effects of boom and bust (Steindl, 1998: pp. 437-8).

Some conclusions by Steindl (1990: p. 174) are very much in line with the present paper:

> It may have become clear in the course of the discussion that the question raised is really not so much, or not only, one of extension of the National Accounts, but rather of the Keynesian macroeconomic paradigm. The role of investment, or of the budget deficit, as a more or less spontaneous force creating demand and setting in motion a multiplier can also be taken by consumer credit

> and by realised capital gains which are created by a rise of land and share values based on anticipations and aided by bank credit. Even though only a part of the capital gains are likely to be spent, at least in the short run, this is a net effect on demand because the rise in capital values has been built on bank credit and on spending from accumulated wealth, not from current income.[23]

Consistently with the previous sections, we may regard the inclusion of "spent" capital gains within autonomous demand as based on the received view. In actual fact, given a sufficient persistence of periods of financial or real estate euphoria (or depression) affecting aggregate demand, competition among producers will lead them to production decisions in advance of actual demand. The role of this autonomous form of spending, although in a different theoretical context, is also recognised by mainstream scholars such as Krugman (2013) and Summers (2014) when dealing with the issue of Secular Stagnation (Di Bucchianico 2020a, 2020b). Indeed, the two American economists contend that the post-Great Recession period witnessed the emergence of prolonged stagnation due to, among other things, the necessity for households to deleverage. In their view, perilous as it may be, forthcoming spending from the private sector guided by household debt accumulation, but also by continuous revaluations of house prices' values, allowed to postpone stagnation tendencies that were already at work in the US economy.

FINAL REMARKS

The paper is a contribution to a monetary theory of demand-led growth based on the Sraffian supermultiplier and with elements from the monetary circuit theory, Modern Monetary Theory and endogenous money analysis. We believe open-minded marginal economists may share some aspects of this view, although the fundamental disagreement on the existence of a 'natural' rate of interest would remain.

The Sraffian supermultiplier allows full consideration of the autonomous components of aggregate demand as the ultimate sources of growth, but also of the instability of debt-led capitalism. Following Steindl, we included "spent" capital gains among those components. Autonomous demand, investment and capital gains are sustained by endogenous finance. The paper also explored these mechanisms in view of Keynes's distinction between initial and final finance, vigorously backed by Graziani as well as by more orthodox authors such as Borio and Disyatat. More specifically, the paper proposed an integration of the traditional Keynesian role of initial finance as supporting final demand (the 'received view') and the monetary

circuit theory's emphasis on the role of initial finance as sustaining production decisions. In this respect we advanced a "demand-led monetary circuit theory" in place of the traditional "production-led monetary circuit theory".

ACKNOWLEDGEMENT

We express our gratitude to two anonymous referees for useful comments and suggestions. The usual disclaimer applies.

NOTES

1. Freitas and Serrano (2015), among others, proved the stability of the supermultiplier, under acceptable hypotheses. Hein (2016), who recently followed Allain (2015) and Lavoie (2016) in adopting the supermultiplier, does not duly acknowledge the path-breaking work done by Heinrich Bortis (1997), Serrano (1995), Cesaratto et al. (2003), De Juan (2005) and other Sraffian authors.
2. It can also be financed by drawing down on accumulated financial or real wealth, as shown below.
3. Dalziel, as well as Kalecki (1967) and Garegnani (2015 [1962]), erroneously limits autonomous foreign demand to *net*-exports, overlooking that exports have an expansionary effect independently of 'leakages' due to imports (Serrano, 2008: pp. 13 14). These authors do not, however, commit the same oversight with regard to government spending that is fully included in the "external markets" (Kalecki) and "final demand" (Garegnani). The Balanced Budget Theorem shows that government spending is expansionary even with a balanced budget. Similarly, exports have an expansionary effect even with a balanced (and even negative) trade balance.
4. Many post-Keynesian economists find in this choice a role for Keynes' liquidity preference theory. There has been some controversy on this that cannot be examined here (see, e.g., Arestis and Howells 1996; Lavoie 1999; Bertocco 2005).
5. Kalecki alluded to this sequence, at least partially, in his writings in the 1930s: "we may say that these outlays are 'financing themselves'. Image, for instance , that *some capitalists withdraw during a year a certain amount from their savings deposits*, or borrow the amount at the central bank, in order to invest it in the construction of some additional equipment. In the course of the same year *that amount will be received by other capitalists in the form of profits* (since according to our assumptions, workers do not save), *and again put into a bank as a savings deposits* or used to pay off a debt to the central bank. So the circle will close itself" (quoted by Sawyer, 2001: pp. 490-1, our emphasis).
6. This does not mean that the availability of internal cash flows does not matter at all for investment decisions, but that it does not act as a strict limiting factor (Keynesian authors such as Fazzari have long been studying their role in business investment, e.g. Fazzari and Petersen 1993).

7. For completeness, if the entrepreneur finances investment by selling real estate, somebody else will either access credit creation or decumulate financial wealth to purchase it. What is again important is that investment generates new saving that, according to the case, either "backs" the new credit or enables deposits to remain unchanged. A similar case, *mutatis mutandis*, is recalled below in the last section.
8. The two authors point out that, for instance, in case wages are posticipated, workers would "be extending 'trade credit' to firms. In effect, firms would be issuing IOUs to them, or claims on money" (ibid., p. 11, fn. 9). However, even though in this instance workers *de facto* pre-finance at least part of production, their posticipated wages are not capitalised as it would happen with other forms of initial financing. Yet, by placing them in bank deposits, they receive interests from banks.
9. "[W]hen there is a developed banking system… the volume of bank loans is independent of the flow of money savings: 'By the concentration in their hands of private cash holdings… [the banks] possess a fund for loans which is elastic and, on certain assumptions, inexhaustible' (Wicksell, 1935: p. 194). Hence the banks can accommodate any variation in the demand for loans without changing their rates of interest and can thus severe the link between the market rate of interest and the 'natural' rate" (Garegnani, 1983: pp.44-45).
10. Also very close to the spirit of Keynes's passage is the following: according to the conventional view "[p]re-existing savings (or "endowments") are necessary to carry out production and investment… financial intermediaries … allocate, and do not create, purchasing power... But in a monetary economy…banks actually create additional power in the form of deposits through the act of extending credit" (Borio and Disyatat, 2011: p. 8; see also Borio and Disyatat, 2015: p. 11).
11. Final income is equal to the wages anticipated in the investment sector (80 ua) in period 1, plus the income (wages and profits) generated in the consumption sector in subsequent periods (400 ua); at this stage savings are only generated in the consumption sector (recall that workers do not save).
12. Graziani (1984: p. 25) hinted at a process like that illustrated above when he wrote: "when it is said that investment demand should be considered independent, this does not mean that capital goods produced are not to be bought by income, but that the very fact of producing investment generates the income required for purchasing the capital good produced. In order for this to happen, investment goods have to be actually produced (it is in fact production that creates income) and for production to take place, corresponding prior finance is needed. In the absence of such finance, production cannot take place, income is not created and the necessary demand will be lacking". In a footnote, Graziani (ibid., fn. 21) is adamant in pointing out that "this result has nothing to do with Say's Law. Keynes's point is that through a corresponding increase in income, any investment generates an equivalent amount of saving, whereas according to the law of outlets, any

level of production should generate an equal amount of demand." Graziani (1984) is more sensitive to the overlap between Keynes's finance and the theory of effective demand than in later work, when the *Treatise* rather than the *General Theory* became the reference book, although already in this paper (e.g. ibid., p. 6) the idea of the "autonomy" of production decisions emerges, without any clear connection to expected AD and its determinants.

13. The argument presented in Cesaratto (2017a) is anticipated by Davidson (1986, fn. 7): "If the income flow has risen more than the additional flow (the multiplier effect), then some of the increased real output is the result of increased production of consumption goods by producers anticipating the additional induced consumption expenditures of the newly hired workers. Since the production of consumption goods takes time, this must also be financed via working capital loans from the banking system. Consequently the total increase in the supply of money provided by bankers for working capital loans to both investment and consumption goods producers equals the increase in aggregate working capital (equals the increase in real income flows)".
14. Steindl (1982: pp. 80-81; 1990: p. 170) warns about the pro-cyclicality of autonomous consumption which should therefore be partially seen as induced by expected income (like business investment). In a recession households tend to preserve their standard of living, reducing their marginal propensity to save, whereas uncertainty about future income may reduce autonomous consumption. This volatility augments that of business investment. As suggested by Barba and Pivetti (2009: pp. 129-131), government-spending-led growth is more stabilizing and reliable (see also Di Bucchianico 2019).
15. More straightforwardly, if the investment bank pre-finances customers' orders in full by borrowing 100 ua from a commercial bank, customers will anticipate the full payment. Saving is then generated by wage spending (80 ua) and by saved-profits (20 ua). This saving is collected long-term by the investment bank, that can thus redeem the short-term initial financing to the commercial bank.
16. The way MMT scholars present the proposition that the state spends first has indeed been controversial. In short, the question is that MMTers often consolidate Treasury and central bank so that the latter automatically creates purchasing power (initial finance) in favour of government spending. Critics object, however, that in most institutional arrangements central banks are not allowed to finance the Treasury directly. Consensus later emerged around the post-Chartalist view advanced by Lavoie (2013) that the state is initially financed by commercial banks like any other autonomous spender, and is later funded by tax revenues or saving.
17. For instance, likening investment and public debt financing, Borio and Disyatat (2015: p. 11) allude to the idea that government spending is initially financed by endogenous credit/money and ex-post funded by saving.
18. Commercial banks in deficit and surplus countries alike, engage in financing both domestic and foreign autonomous spending and as we shall see, in

financing speculative bubbles. All this financing gives rise to huge international *gross* capital flows, detached from CA imbalances (Borio and Disyatat 2011, 2015). Borio and Disyatat correctly point out that CA imbalances cannot explain in full gross capital flows, which are many times larger than those related to CA disequilibria.

19. In a traditional fixed exchange rate system, the payment implies transfer of foreign reserves from the BoG to the BB. The difference between the two systems is that T2 imbalances can (theoretically) grow without limit, while in a traditional fixed exchange rate regime a country can run out of foreign reserves, unless it receives foreign loans of international currency (Cesaratto 2013c). Not surprisingly, the T2 system has been associated with "quasi-unlimited foreign exchange reserves" although "in no way was there any aim to provide funds to finance current account imbalances – *these are all indirect effects*" (Cour-Thimann, 2013: pp. 17, 23, our italics). See also Durand e Villemot (2016: pp. 32-3): "To put it simply, TARGET2 balances play the same role within the EMU as foreign exchange reserves play in a fixed exchange rate regime (…). They move every time a current account operation is not matched by a capital operation."
20. ($\triangle$E– $\triangle$M) is the net funding need of Greece. We have not taken the further trade repercussion of the increased Greek export fully into account (see Gandolfo, 1986, Ch. 13).
21. *Ceteris paribus*, Greek exports equal to $\triangle$EGr = $\triangle$M = 17.4 € are an addition to Greek national saving.
22. See, e.g., Stephen Roach (2017) who wrote: "Economists long ago settled the debate over what drives business capital spending: factors affecting the cost of capital (interest rates, taxes, and regulations) or those that influence future demand. The demand-driven models (operating through so-called "accelerator" effects) won hands down". Paul Krugman (2014) argued that: "one of the dirty little secrets of monetary policy is that it normally works through housing, with little direct impact on business investment."
23. In the quotation, Steindl argues that "the rise in capital values has been built on bank credit and *on spending from accumulated wealth*" (my italics). For instance, a subject wishing to realise a capital gain sells an asset to a second subject who draws on a saving deposit of 100 thousands ua. If the first subject spends this money for consumption, it generates a corresponding amount of saving, so that nothing has changed from the point of view of the banking sector (but not for the economy that sees a rise in income). If the second subject finances acquisition of the financial asset by selling a real estate property, a third subject will buy it by obtaining a new loan, or by drawing on her financial wealth (see also above).

REFERENCES

Allain, O. (2015) "Tackling the Instability of Growth: A Kaleckian-Harrodian Model with an Autonomous Expenditure Component", *Cambridge Journal of*

Economics, 39 (5), pp. 1351–71.

Arestis, P., Howells, P. (1996) "Theoretical Reflections on Endogenous Money: The Problem with 'Convenience Lending'", *Cambridge Journal of Economics*, 20 (5), pp. 539–551. doi: 10.1093/oxfordjournals.cje.a013633

Barba, A., Pivetti, M. (2009) "Rising Household Debt: Its Causes and Macroeconomic Implications - A Long-period Analysis", *Cambridge Journal of Economics*, 33 (1), pp. 113-137.

Bernanke, B. (2009) "Financial Reform to Address Systemic Risk", Speech at the Council on Foreign Relations, Washington DC, 10 March.

Bertocco, G. (2005) "The Role of Credit in a Keynesian Monetary Economy", *Review of Political Economy*, 17 (4), pp. 489-512.

Bertocco, G., and Kalajziæ A. (2020) "On the Monetary Nature of the Principle of Effective Demand", *International Journal of Political Economy*, 49 (1), pp. 1-22.

Blanchard, O. J. and Giavazzi, F. (2002) "Current Account Deficits in the Euro Area. The End of the Feldstein Horioka Puzzle?" *MIT Department of Economics Working Paper* No. 03-05, doi: 10.2139/ssrn.372880.

Bordo, M. D. and James, H. (2013) "The European Crisis in the Context of the History of Previous Financial Crises", *NBER Working Paper* No. 19112.

Borio, C. and Disyatat, P. (2011) "Global Imbalances and the Financial Crisis: Link or no Link?", *BIS Working Papers* No. 346.

Borio, C. and Disyatat, P. (2015) "Capital Flows and the Current Account: Taking Financing (more) Seriously", *BIS Working Papers* No 525.

Bortis, H. (1997) *Institutions, Behaviour and Economic Theory - A Contribution to Classical-Keynesian Political Economy*, Cambridge: Cambridge University Press.

Botta, A., Caverzasi, E. and Tori, D. (2015) "Financial–Real Side Interactions in an Extended Monetary Circuit with Shadow Banking: Loving or Dangerous Hugs?", *International Journal of Political Economy*, 44 (3), pp. 196-227.

Casaburi L., Minerva G. A. (2011) "Production in Advance versus Production to Order: The Role of Downstream Spatial Clustering and Product Differentiation", *Journal of Urban Economics*, 70 (1), pp. 32-46.

Cesaratto, S. (2013) "The Implications of TARGET2 in the European Balance of Payment Crisis and Beyond", *European Journal of Economics and Economic Policies: Intervention*, 10 (3), pp. 359-382.

Cesaratto, S. (2015a) "Neo-Kaleckian and Sraffian Controversies on the Theory of Accumulation", *Review of Political Economy*, 27 (2), pp. 154–82.

Cesaratto, S. (2015b) "Balance of Payments or Monetary Sovereignty? In Search of the EMU's Original Sin – Comments on Marc Lavoie's The Eurozone: Similarities to and Differences from Keynes's Plan", *International Journal of Political Economy*, 44 (2), pp. 142-156.

Cesaratto, S. (2016a) "The State Spends First: Logic, Facts, Fictions, Open Questions", *Journal of Post Keynesian Economics*, 39 (1), pp. 44-71.

Cesaratto, S. (2016b) "When Robertson was Keynesian and Keynes Robertsonian: a discussion between D.H.R. and J.M.K. in the early 1930s and the problems with the Monetary Circuit Theory. A note", *Quaderni DEPS* No. 732.

Cesaratto, S. (2017a) "Initial and Final Finance in the Monetary Circuit and the Theory of Effective Demand", *Metroeconomica*, 68 (2), pp. 228–258.

Cesaratto, S. (2017b) "Garegnani, Ackley and the Years of High Theory at Svimez", in Bougrine, H. and Rochon, L. P. (eds.), *Money and Crises in Post-Keynesian Economics: Essays in honour of Marc Lavoie and Mario Seccareccia*, Edward Elgar.

Cesaratto, S. (2017c) "The Nature of the Eurocrisis. A reply to Febrero, Uxò and Bermejo", *Review of Keynesian Economics*, 6 (2), pp. 240-251.

Cesaratto, S. (2017d) "Beyond the Traditional Monetary Circuit: Endogenous Money, Finance and the Theory of long-period Effective Demand", *Quaderni DEPS* No. 757.

Cesaratto, S. (2020) *Heterodox Challenges in Economics – Theoretical Issues and the Crisis of the Eurozone*, Cham: Springer International Publishing.

Cesaratto, S. and Mongiovi, G. (2015) "Pierangelo Garegnani, the Classical Surplus Approach and Demand-led Growth. A Symposium", *Review of Political Economy*, 27 (2), pp. 103-110.

Cesaratto, S. and Stirati, A. (2011) "Germany in the European and Global Crises", *International Journal of Political Economy*, 39 (4), pp. 56–87.

Cesaratto, S., Stirati, A., and Serrano, F. (2003) "Technical Change, Effective Demand and Employment", *Review of Political Economy*, 15 (1), pp. 33–52.

Cour-Thimann, P. (2013), "Target Balances and the Crisis in the Euro Area", *CESifo Forum*, Vol. 14.

Dalziel P. C. (1996a) "The Relevance of the Keynesian Multiplier Process After Sixty Years", *History of Economics Review*, 25 (1), pp. 221-231.

Dalziel P. C. (1996b) "The Keynesian Multiplier, Liquidity Preference, and Endogenous Money", *Journal of Post Keynesian Economics*, 18 (3), pp. 311-331.

Dalziel P. C., Harcourt G. C. (1997) "A Note on "Mr Meade's Relation" and International Capital Movements", *Cambridge Journal of Economics*, 21 (5), pp. 621–31.

Davidson P. (1986) "Finance, Funding, Saving, and Investment", *Journal of Post Keynesian Economics*, 9 (1), pp. 101-110.

De-Juan, Ó. (2005) "Paths of Accumulation and Growth: Towards a Keynesian Long-period Theory of Output", *Review of Political Economy*, 17 (2), pp. 231–52.

Di Bucchianico, S. (2019) "A bit of Keynesian Debt-to-GDP Arithmetic for Deficit-

capped Countries", *Bulletin of Political Economy*, 13 (1), pp. 55-83.

Di Bucchianico, S. (2020a) "A note on Krugman's Liquidity Trap and monetary policy at the Zero Lower Bound", *Review of Political Economy*, pp. 1-22, doi: 10.1080/09538259.2020.1731119.

Di Bucchianico, S. (2020b) "Discussing Secular Stagnation: A Case for Freeing Good Ideas from Theoretical Constraints?", *Structural Change and Economic Dynamics*, 55, pp. 288-297, doi: 10.1016/j.strueco.2020.06.002.

Durand, C. and Villemot, S. (2016) "Balance Sheets After the EMU: An Assessment of the Redenomination Risk", *Documents de Travail de l'OFCE* No. 31.

Erler, A. and Hohberger, S. (2014) "The Real Costs and Profits of TARGET 2 Balances", *Discussion Paper* No. 02-14, Universität Bayreuth, Rechts.

Fiebiger, B. (2016) "Fiscal Policy, Monetary Policy and the Mechanics of Modern Clearing and Settlement Systems", *Review of Political Economy*, 28 (4), pp. 590-608.

Fazzari, S. M., and Petersen, B. C. (1993) "Working Capital and Fixed Investment: New Evidence on Financing Constraints", *The RAND Journal of Economics*, 24 (3), pp. 328-342.

Fontana, G. and Realfonzo, R. (2017) "Augusto Graziani and Recent Advances in the Monetary Theory of Production", *Metroeconomica*, 68 (2), pp. 202-204.

Freitas, F. and Serrano, F. (2015) "Growth Rate and Level Effects, the Stability of the Adjustment of Capacity to Demand and the Sraffian Supermultiplier", *Review of Political Economy*, 27 (3), pp. 258–381.

Fumagalli, A., and Lucarelli, S. (2011) "A Financialized Monetary Economy of Production", *International Journal of Political Economy*, 40 (1), pp. 48-68.

Gandolfo, G. (1986) *International Economics*, Berlin: Springer.

Garegnani, P. (1983) "Notes on Consumption, Investment and Effective Demand", in *Milgate*, M. and *Eatwell*, J. (eds.), *Keynes's Economics and the Theory of Value and Distribution*, London: Duckworth.

Garegnani, P. (1984) "Value and Distribution in the Classical Economists and Marx", *Oxford Economic Papers*, 36 (2), pp. 291–325.

Garegnani, P. (1990) "Quantity of Capital", in Eatwell, J., Milgate, M., and Newman, P. (eds.), *Capital Theory*, *The New Palgrave Series*, 1-78, London: Palgrave-Macmillan.

Garegnani, P. (2015) [1962] "The Problem of Effective Demand in Italian Economic Development: On the Factors that Determine the Volume of Investment", *Review of Political Economy*, 27 (2), pp. 111-133, (translation of the second part of *Il Problema della Domanda Effettiva nello Sviluppo Economico Italiano*, Svimez, Rome, 1962).

Girardi, D. and Pariboni, R. (2017) "Effective Demand and Long-run Growth: Evidence from Five Major Capitalist Economies", in Cooney et al. (eds.), *Imperiled Economies 2018: An URPE Reader*, pp. 31-42, Boston: Dollars &

Sense.

Graziani A. (1984) "*The Debate on Keynes's Finance* Motive", *Economic Notes*, 1 (1), pp. 5-32.

Graziani A. (1990) "The Theory of the Monetary Circuit", *Économies et Sociétés*, 24 (6), pp. 7-36.

Graziani, A. (2003) *The Monetary Theory of Production*, Cambridge: Cambridge University Press.

Hein, E. (2016) "Post-Keynesian Macroeconomics since the mid-1990s: Main Developments", *European Journal of Economics and Economic Policies: Intervention*, 14 (2), pp. 131–172**.**

Jakab, Z. and Kumhof, M. (2015) "Banks are not Intermediaries of Loanable Funds - And why this matters", *Bank of England, Working Paper* No. 529.

Kalecki, M. (1967) "The Problem of Effective Demand with Tugan-Baranowski and Rosa Luxemburg", in *Selected Essays on the Dynamics of the Capitalist Economy 1933 – 1970*, Cambridge: Cambridge University Press.

Keynes J. M. (1930) "*A Treatise on Money, vol. I. The Pure Theory of Money*", reprinted in *The Collected Writings of John Maynard Keynes*, D. Moggridge (ed.), 1971, vol. V, part I, London: Macmillan.

Keynes J. M. (1936) *The General Theory of Employment, Interest and Money*, London: Macmillan.

Keynes, J. M. (1937a) "The 'Ex Ante' Theory of the Rate of Interest", *Economic Journal*, 47(188), pp. 663–9, reprinted in *The Collected Writings of J. M. Keynes*, D. Moggridge (ed.), 1973, vol. XIV, part II, 215-223, London: Macmillan.

Keynes J. M. (1937b) "Alternative Theories of the Rate of Interest", *Economic Journal*, 47 (186), pp. 241–52, reprinted in *The Collected Writings of J. M. Keynes*, D. Moggridge (ed.), 1973 vol. XIV, part II, 201-15, London: Macmillan.

Krugman, P. (2013) "A Permanent Slump?", *New York Times*, url: https://www.nytimes.com/2013/11/18/opinion/krugman-a-permanent-slump.html.

Krugman, P. (2014) "Notes on Easy Money and Inequality", *New York Times*, url: https://krugman.blogs.nytimes.com/2014/10/25/notes-on-easy-money-and-inequality/.

Lapavitsas, C. (2013) *Profiting Without Producing: How Finance Exploits Us All*, London: Verso.

Lavoie, M. (1986) "L'Endogénéité de la Monnaie chez Keynes", *Recherches Economique de Louvain*, 52 (1), pp. 67-84.

Lavoie, M. (1999) "The Credit-Led Supply of Deposits and the Demand for Money: Kaldor's *Reflux Mechanism* as Previously Endorsed by Joan Robinson", *Cambridge Journal of Economics*, 23 (1), pp. 103-13.

Lavoie M. (2013) "The Monetary and Fiscal Nexus of neo-Chartalism: A Friendly Critical Look", *Journal of Economic Issues*, 47 (1), pp. 1-32.

Lavoie, M. (2014) *Post-Keynesian Economics, New Foundations*, Cheltenham:

Edward Elgar.

Lavoie, M. (2016) "Convergence Towards the Normal Rate of Capacity Utilization in neo-Kaleckian Models: The Role of non-Capacity Creating Autonomous Expenditures", *Metroeconomica*, 67 (1), pp. 172–201.

Lavoie, M. (2017) "Prototypes, Reality and the Growth Rate of Autonomous Consumption Expenditures: A Rejoinder", *Metroeconomica*, 68 (1), pp. 194–199.

Lindner, F. (2014) "Does Saving Increase the Supply of Credit? A Critique of Loanable Funds Theory", *World Economic Review*, 1 (4), pp. 1-26.

Lonzi, M., Riccarelli, S., and Screpanti, E. (2017) "Advanced or Postponed Wage Payments: Sraffa Validates Marx", *DEPS Working Paper* No. 756.

Moore B. J. (1983) "Unpacking the Post Keynesian Black Box: Bank Lending and the Money Supply", *Journal of Post Keynesian Economics*, 5 (4), pp. 537-556.

Nersisyan, Y., and Wray, L.R. (2016) "Modern Money Theory and the facts of experience", *Cambridge Journal of Economics*, 40 (5), pp. 1297–1316.

Pariboni, R. (2016) "Household Consumer Debt, Endogenous Money and Growth: A Supermultiplier-based Analysis", *PSL Quarterly Review*, 69 (278), pp. 211-234.

Passarella, M. V. (2014) "Financialization and the Monetary Circuit: A Macro-accounting Approach", *Review of Political Economy*, 26 (1), pp. 128-148.

Pivetti, M. (2001) "Money Endogeneity and Monetary Non-neutrality: A Sraffian Perspective". In Rochon, L. P., and Vernengo, M. (eds.), *Credit, Interest Rates and the Open Economy: Essays on Horizontalism*, 104-119, Cheltenham: Edward Elgar Publishing.

Ramanan, V. (2016) "Euro Area NCBs' TARGET2 Balance As Cumulative *Accommodating Item* in the Balance of Payments", url: http://www.concertedaction.com/2016/12/03/euro-area-ncbs-target2-balance-as-cumulative-accommodating-item-in-the-balance-of-payments/.

Roach, S. (2017) "Don't Cry for Corporate America", *Project Syndicate*, url: https://www.project-syndicate.org/commentary/trump-ineffective-corporate-tax-cuts-by-stephen-s—roach-2017-02.

Robertson, D. H. (1938) "Mr Keynes and 'Finance'", *Economic Journal*, 48 (180), pp. 318-22, reprinted in *The Collected Writings of J. M. Keynes*, D. Moggridge (ed.), 1973, vol. XIV, part II, 229-33, London: Macmillan.

Rochon, L. P. (2005) "The Existence of Monetary Profits within the Monetary Circuit", in Fontana G., Realfonzo R. (eds), *The Monetary Theory of Production*, London: Palgrave Macmillan.

Sawyer, M., and Passarella, M. V. (2017) "The Monetary Circuit in the Age of Financialisation: A Stock flow Consistent Model with a Twofold Banking Sector", *Metroeconomica*, 68 (2), pp. 321-353.

Serrano, F. *(*1995*) "The Sraffian Multiplier", PhD dissertation, Faculty of Economics and Politics, University of Cambridge.*

Serrano, F. (2008) "Kalecki y la economia americana en los anos 2000", *Circus*, 1, pp. 7-24.

Serrano, F. (2017) "Development Economics and the Role of Government Spending in Long Run Growth", in *Il Ruolo della Domanda nello Sviluppo,* Quaderno Svimez n. 54.

Steindl, J. (1982) "The Role of Household Saving in the Modern Economy", *Banca Nazionale del Lavoro Quarterly Review*, 35 (140), pp. 69-88.

Steindl, J. (1990) "Capital Gains, Pension Funds and the Low Saving Ratio in the United States", *Banca Nazionale del Lavoro Quarterly Review*, 43 (173), pp. 165-177.

Steindl, J. (*1998*) "*Capital Gains* in Economic Theory and National Accounting", *Banca Nazionale del Lavoro Quarterly Review*, 51 (207), pp. 435-449.

Summers, L. H. (2014) "US Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound", *Business economics*, 49 (2), pp. 65-73.

Tokunaga, J. and Epstein, G. (2014) "The *Endogenous Finance* of Global Dollar-Based *Financial* in the 2000s: A Minskian Approach", *Working paper Peri – Univ. of Mass. Amherst* No. 340.

Tymoigne, E. and Wray, L.R. (2013) "Modern Money Theory *101*: A Reply to Critics", *Levy Economics Institute, Working Paper Series*, No. 778.

Wray, L. R. (2011a) "A Modest Proposal for Ending Debt Limit Gridlock: Feed the Children, Don't Eat Them", url: https://creditwritedowns.com/2011/03/a-modest-proposal-for-ending-debt-limit-gridlock.html.

Wray, L. R. (2011b) "The S&P Downgrade: Much Ado About Nothing Because a Sovereign Government Cannot Go Bankrupt", url: https://creditwritedowns.com/2011/04/sovereign-government-cannot-go-bankrupt.html.