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QUADERNI DEL DIPARTIMENTO
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Beyond the traditional monetary circuit: endogenous money, finance and the theory of long-period effective demand

n. 757 – Luglio 2017

Versione settembre 2017

Introduction[*]

In recent years, two uncoordinated streams of thought have dominated post-Keynesian economics: neo-Kaleckian (NK) growth models and monetary circuit theory. The paper is a step towards overcoming the shortcomings of both, in view of a well-organised analysis of economic growth in a monetary economy.

The paper takes for granted that as increasingly recognised, the Sraffian Supermultiplier (SM) is the most promising heterodox growth model, also in view of the shortcomings of NK models (Cesaratto 2015A). According to the most standard NK model, growth is led by animal spirits (certainly not the best Keynes legacy), and by unceasing attempts to recover a normal degree of capacity utilisation (and a normal profit rate) after the actual degree diverged by a change in income distribution. The SM is an extension of the Keynesian multiplier with an accelerator function, where the autonomous components of aggregate demand (AD) lead growth.

The paper moves from the necessity to complement the SM approach with endogenous money theory. More specifically, investment and the autonomous components of demand are often financed by newly created 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; exports generated by endogenous money creation either in the importing country or by vendor finance from the exporting country; State spending which takes place before taxation and saving. Taking stock of some late contributions by Joseph Steindl, the final part of the paper also tries to integrate "endogenous finance", asset bubbles and capital gains into the monetary theory of demand-led growth.

Endogenous money theory has so far been developed by post-Keynesian growth theory in two directions: according to the first (that the paper names "received view"), endogenous money directly finances autonomous demand and investment; according to the second, monetary circuit view, it finances production decisions. More specifically:

(a) the "received view" is implicit, for instance, in Sraffian authors (and more generally in the Keynesian literature). It does not, however, take into account that most production is based on expected demand or purchase orders, so that credit often finances production, not final demand.

[*] I thank Tony Aspromourgos, Anna Carabelli, Eladio Febrero, Brett Fiebiger and Riccardo Pariboni for valuable comments. **This version September 2017.**

(b) the second view is proper to monetary circuit theory (MCT) defined *monetary theory of production* by Fontana and Realfonzo (2017); this theory suffers, however, from many well-known problems and is not explicitly based on a demand-led theory of output determination. For instance, confirming an earlier position by Graziani (e.g. 1990, p. 9), Fontana and Realfonzo (2017, p. 202) recently recalled that the *Treatise on Money* (Keynes 1930), rather than the *General Theory* (Keynes 1936), was the original source of inspiration for MCT, breaking the continuity between Keynes's 1937-38 papers on finance and his opus magnum, although the two authors warn that this stance "should not be overstated". Be this as it may, the present paper firmly reaffirms that continuity.

The ultimate objective of this paper is to merge Keynes's distinction between initial and final finance as developed by Davidson, Dalziel, Graziani and others and a supermultiplier-based theory of demand-led growth.

1. From the neo-Kaleckian model to the Sraffian Supermultiplier

Marc Lavoie (2017, p. 194) recently 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 SM is considered a "variant of the neo-Kaleckian model" (ibid, p. 195) or a different model superseding the NK model. The fact is that by including the autonomous/non-capacity-creating components of aggregate demand (AD), the NK 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).[2]

From a substantial point of view, considering the autonomous components of AD 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 (Girardi and Pariboni 2015). This variety

[1] Freitas and Serrano (2015), among others, proved the stability of the SM, under acceptable hypotheses. Unfortunately, in his survey of recent post-Keynesian macroeconomics, Eckhard Hein (2016), who recently followed Allain (2015) and Lavoie (2016) in adoption of the SM, 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] Lavoie is replying to Peter Skott, himself a veteran critic of the NK model. The criticism levelled at the NK model was actually initiated more than 30 years ago by a Sraffian author, Committeri (1986).

includes, for instance, consumer-credit-led economies (Pariboni 2016) as well as export-led/neo-mercantilist experiences and symmetrical foreign-debt-led capitalism (Cesaratto and Stirati 2011).[3]

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).[4] This has two implications. From a theoretical point of view, it creates a natural field of convergence between the endogenous money literature and the SM 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 nations. 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 AD 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).[5] In this regard, it would be correct to call the SM approach "Post-Kaleckian", while the NK model would be better re-defined as "post-Harrodian".

The question we face in this paper is how to integrate endogenous money into the SM.

1. Financing demand or production decisions?

One preliminary question is whether endogenous purchasing power creation by banks concerns financing final autonomous demand (demand decisions) or production decisions (albeit based on expected demand).

2.1. Investment spending: the received view

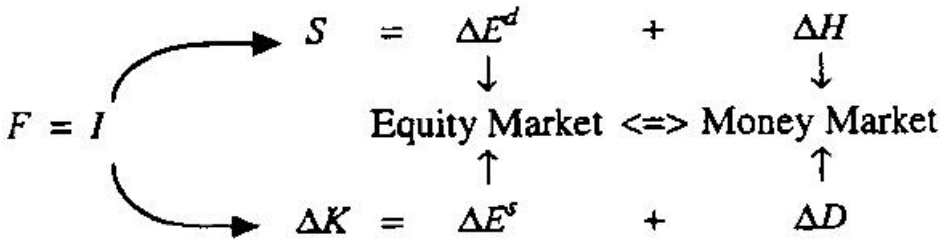
[3] Serrano (2017) explores the role of autonomous spending in catching-up economies. Cesaratto et al. (2003) critically examined "Schumpeterian capitalism".

[4] It can also be financed by drawing down on accumulated financial or real wealth. This case is dealt below in a box. I thank Tony Aspromourgos drawing my attention to this case (Riccardo Pariboni raised a similar question in relation to capital gains, see below # 7).

[5] Both Kalecki (1967) and Garegnani (2015 [1962]) erroneously limited autonomous foreign demand to *net*-exports, overlooking that exports may have an expansionary effect independent of 'leakages' due to imports (Serrano, 2008, pp. 13–14). They did not, however, commit the same oversight with regard to government spending that is fully included in their respective "external markets" and "final demand". The Balanced Budget Theorem shows that government spending is expansionary even with a balanced budget.

In Cesaratto (2017a) I named "received view" that which regards the role of finance as mainly being addressed to feed final demand. An inspiring presentation of this view (Dalziel, 1996a) focuses on investment and autonomous spending (which in Dalziel's view include autonomous consumption, government spending and net-exports) in a Keynesian multiplier context.[6] 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.

The Keynesian Model With Money Flows



- Figure 1 -

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*) converts, on the one hand, in real investment (a*K*) and, on the other, in saving (through the income multiplier process). In turn, saving can be held by household either in the form of equities or long-term assets (aE^d) (thus sharing the property or funding of the new capital good) or hoarded (a*H*) in sight deposits. Symmetrically firms will fund (or final finance) investment either by issuing equities

[6] Investment spending is generally taken as autonomous in the short-period, but in the light of SM analysis, it should be taken as induced by expected demand in the longer run. However, the word "induced" has a different meaning in the case of "induced consumption". In this case, "induced" refers to reliance of part of consumption on earned income, a dependence captured by the Keynesian marginal propensity to consume. In the case of investment, "induced" recalls its dependence on expected demand. Endogenous-money financing therefore concerns induced investment as well as the proper long-run autonomous components of demand.

aE^s (that may be used to redeem part of the initial debt with banks) or by taking out a long-term debt aD, transforming part of the initial short-term loan in a long-term credit. Notably, in the latter case banks intermediate savings, transforming sight deposits in long-term loans, but this is only an ex post result; 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 me 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 0.8, given an adequate productive capacity, income will be 500 ua and saving 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.

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

Table 1

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); summed 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 were hoarded.

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 does not necessarily require credit creation, since subjects can draw on savings in the form of financial or real wealth. Keeping things simple, consider a firm that purchases a new capital good for 200 ua by drawing financial wealth, say, from a saving deposit. This spending generates 200 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). From an analytical point

of view, we must 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 current saving, as in the Dalzelian 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 saving. Moreover, although in practice it is possible that some entrepreneurs prefer to self-finance their investment by accumulating 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. (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 # 7).

Two provisos:

(i) what we argue in this section applies not only to investment, but also to autonomous consumption (below # 4) financed out of accumulated wealth: in this case the provident family man first accumulates some financial wealth to finance autonomous spending later, rather than asking a bank loan; this behaviour will affect the social propensity to save.

(ii) most of the arguments that follow, concerning the relation between initial and final finance, also apply (*mutatis mutandis*) to the investment and autonomous spending financed by decumulated wealth discussed in this section.

2.2. Production in advance of expected demand or orders

Hidden in the received view is the question that production takes time and is often undertaken on the basis of orders or expected demand, in advance of delivery. We may presume that the competitive pressure to meet demand on time forces producers in this direction. Pre-financing may therefore also (or especially) be needed to cover production costs over the production period

before the final payment (Graziani 1984; Lavoie 1986, 2014, p. 269; Borio and Dysiatat, 2015, p. 8).[7]

In this respect, pre-financing can concern either the producer, as generally pointed out by MCT, or the investing (buyer) firm (when part of the final payment for an order is advanced to the producer to share production costs), or both (Graziani 1984, p. 23).[8] To sum up, many production decisions, particularly in manufacturing, are made on the basis expected demand or orders, and since production takes time, production costs must be pre-financed by banks.

In this view, 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 (typically after an order). 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 AD, let us ask ourselves whether this line of thought (and its possible extensions) is peculiar to hard-liner Keynesians, or whether marginalist economists may share it.

2.4. Initial and final finance in marginal theories

[7] 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). Inspired by Keynes's papers on finance (1937A/B, 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". On Keynes's concept of finance as a "revolving fund" in both stationary and growing economies, see *ibid*, pp. 15-21.

[8] The fact that pre-financing by the buyer consists of, in practice, to a participation to the production expenses, may explain why it is financed by banks on a short-term basis and not by equities. Borio and Dysiatat (2015, p. 8), two distinguished authors we shall shortly consider, point out that production "need to prefinance output to pay for wages". In case wages are posticipated, the pre-financers are workers themselves: "Obviously, credit may also be granted by non-banks. For instance, this would occur in our simple model if workers received their wages only after production took place. They 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).

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 Dysiatat,[10] 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:[11]

> 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 (B&D 2011 p. 7, last italics are mine)

The last italics remind us again of Keynes's (1937A, p. 222) famous dictum, quoted above, although curiously B&D do not refer to Keynes in this regard.[12] Neither the endogenous money

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[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] Claudio Borio is Head of the Monetary and Economic Department at the Bank for International Settlements (BIS); Piti Dysiatat is Director of Research, Bank of Thailand.

[11] In this respect, B&D (2011, 2015) are very critical of Bernanke's (2009) extravagant saving glut hypothesis. They rigorously argue that the idea of an "excess of saving" does not make sense in economics since saving has no life independent of investment. Many decades ago, when still "heterodox", Dennis Robertson (1931: 410) pointed out to Keynes "the essential paradox that Saving is the one thing that cannot be saved", unless, of course, it is embodied in real investment (see Cesaratto 2016B). As B&D (2015, p. 11) put it: "investment is already in itself an act of saving". The fact that outstanding economists like Bernanke are confused about this reveals how much marginalist capital theory has corrupted correct economic thinking by inducing the belief that saving is an ectoplasm with an independent life. Notoriously, the idea of a capital stock, a fund of foregone consumption, known in value before prices and distribution are determined, is at the basis of marginalism (Garegnani, 1983, pp. 32-37). Wicksell was openly sceptical about the possibility of a rigorous measurement of "capital" independently of distribution (Garegnani 1990). Why is this neglected by modern Wicksellians?

[12] 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" (B&D 2011, p. 8; see also B&D, 2015, p. 11). A humorous presentation of

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. This reminds us that endogenous money and the Keynesian multiplier are *facts*, not concepts of a specific theory (Jakab and Kumhof, 2015, p. 4).[13]

Indeed, endogenous money and the income multiplier operate at any level of economic activity, irrespective of the marginalist belief that the economy gravitates to a full employment level and of the genuine Keynesian's denial of this result (even with full competitive markets).

It also shows that endogenous money (and the Keynesian income-multiplier) 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 (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 capacity-saving (Garegnani 1983, pp. 37-41).

Be this as it may, once we acknowledge that initial finance to the producer of the investment good or to the investor regards 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 MCT, 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 investment is clarified, our next and final duty is to generalise these results to the case of the autonomous, non-capacity-creating components of AD.

2. Coordination of initial and final finance: a demand-led monetary circuit

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the conventional view of the saving/investment relationship (the loanable fund theory) as proper to a barter economy is by (neo-Keynesian) mainstream economists Jakab and Kumhof (2015, p. 11).

[13] A methodologist might perhaps object that these facts are not independent of theories. I am not able to enter this dispute. I ask the reader to read my distinction between facts and theories as meaning that facts are real events that are acknowledged by students of otherwise different theoretical persuasions.

According to MCT, initial finance concerns wage payments (in a similar vein B&D 2015). Notably, wage payments concern workers directly engaged in final production and indirect labour involved in the reproduction of means of production consumed by the final sector. Once production is completed, workers spend their wages, entirely or partially. Even if wages are spent in full, the well-known question of how capitalists realise their profits arises. Putting it in the terms of the surplus approach (Garegnani 1984): who buys the social surplus?[14] Besides the unsolved problem of the realisation of profits, Cesaratto (2017A) underlines a basic shortcoming of MCT, its neglect – or at least lack of a robust connection to – the theory of effective demand (this deficiency is also relevant to the question of the origin of profits).

Inspired by Davidson (1986) and Dalziel (1996b) and, of course, by Keynes (1937A/B, 1938), Cesaratto (2017A) provides an example that I reformulate here.

An investing firm engages an investment bank to *fund* (long-term or final finance) the purchase of a capital good that costs 100 ua.[15] 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 MCT.[16] Production takes time, and (direct and indirect) 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 (see Table 2), 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.[17] These savings are collected by the investment

[14] If wages are only incompletely spent, MCT contends that workers' savings are lent to firms to fix their losses (corresponding to non-spent wages), permitting them to return the initial loan to banks. This is a curious idea that I discussed elsewhere (Cesaratto 2017A and 2016B).

[15] An investment bank does not create deposits, but intermediates savings; it can be a 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.

[16] In a fully-fledged SM, investment decisions are in turn explained by autonomous/non-capacity-creating demand.

[17] 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).

bank: referring to Table 2, the collection may take the form of an issue of long-term assets [E] or collection of loans from banks that convert sight deposits [H] into longer-term loans. [18]

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

Table 2

The question is that at this stage (round 1), funding (80 ua) falls short of the cost of the capital good (100 ua). This demand-led monetary circuit may be closed by the investment bank borrowing the missing 20 ua from the commercial bank (round 2), to be lent to the investing firm that can then fully regulate payment for the capital good. 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, returning the 20 ua loan

[18] 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* becomes 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.

to the commercial bank.[19] Not surprisingly, final (R1+R2) income, consumption and saving are the same as in Table 1.

If workers save and capitalists consume, assuming a social marginal propensity to save equal to 0.2, round 1 will appear as in Table 3. At the close of round 1, the investment bank is short of 20 ua in its saving collection (it can collect only 80 ua, 72 ua in long-term bonds and 8 ua as long-term loans). It will therefore borrow 20 ua short-term (newly created endogenous credit/money). The investing firm can then pay for the capital good and the producer can return the initial finance (80 ua) to the bank. The producer will also spend its profits (20 ua) generating a round 2 multiplier process, additional income of 100 ua and additional saving of 20 ua. The investment bank collects this new saving and returns the short-term loan to the commercial bank.

Investment multiplier (new view)					
Periods	ΔY	ΔC	ΔS	ΔH	ΔE
round 1					
1	80	64	16.0	1.6	14.4
2	64	51.2	12.8	1.3	11.5
3	51.2	40.9	10.2	1.0	9.2
…	…	…	…	…	…
Final (R1)	400	320	80	8	72
round 2					
1	20	16	4	0.4	3.6
2	16	12.8	3.2	0.32	2.88
3	12.8				
…	…	…	…	…	…
Final (R2)	100	80	20	2	18
Final (R1+R2)	500	400	100	10	90

Table 3

Note that final (R1+R2) income, consumption and saving are again 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*:

[19] In our simple hypothesis, the investing firm is de facto funding investment out of its own profits. However, this is an *ex post* result. To regard profits as initial finance, as some post-Keynesians sometimes do, is not Keynesian. To be sure, as seen in an earlier box, past/retained profits may *fund* investment, but this does not entail that retained profits determine or condition investment (e.g. Garegnani 2015 [1962], p. 121, fn. 22). Current investment will still determine current saving.

(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 for the "production-led monetary circuit" (Graziani 1990, p. 9).

(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.

Actually, some elements of MCT are preserved, for instance the role of production financing and the distinction between initial and final finance; after all, the ultimate origin of these concepts is Keynes (1937A/B, 1938), see Graziani (1984). An additional advantage of our approach is that by exploiting the SM, the demand-led monetary circuit can be straightforwardly extended to the autonomous, non-capacity-creating components of AD (autonomous consumption, public spending and exports).

The demand-led monetary circuit is based on the idea that production must anticipate actual sales, particularly where physical commodities are produced. In the preceding examples, however, this happens only in the investment sector, while production in the consumption sector is later generated by the income multiplier process (like De Gaulle's intendance, "il suit"). By extension, however, this "induced production" will also be prepared in advance and sustained by initial finance. See Graziani's (1984, p. 22) discussion and references to Keynes's insistence that initial finance concerns all production; the question is examined in Cesaratto 2017A, # 4.4.

3. Initial and final finance and autonomous consumption

In our view, autonomous consumption (C_a), financed by consumer credit, includes demand for new residential dwellings (since this is a non-capacity-creating private investment).[20] In the received view, commercial banks pre-finance (initial finance) autonomous consumption (see the nice example in Dalziel 1996a, p.223-24). As before, however, we can presume that pre-financing concerns production decisions induced by autonomous consumption, whether expected or in the

[20] Steindl (1982 pp. 80-81, 1990, p. 170) warns about the pro-cyclicity of autonomous consumption, that 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, at least as long as the government retains monetary sovereignty.

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 by dissaving by other households.

Using the same numbers and hypothesis 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. In addition, in this case the investment bank 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.[21]

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

[21] 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. For the sake of communication with circuitists, let us note that Botta et al. (2015, p. 220) consider autonomous consumption as "one of the possible sources through which firms can obtain the final finance they need to close the traditional circuit, namely, the proceeds deriving from the sale of the goods produced". The authors also observe that autonomous consumption "allows overcoming … difficulties in the identification of the source of profit or interest repayment characterizing the original circuit" (…). Two observations:

(i) it sounds obvious to say that firms' proceeds derive from sales (regarding the alternative "closure of the circuit" by collecting workers' saving, see above fn. 13).

(ii) That autonomous consumption allows the realisation of profits is certainly true. Take a simple Kaleckian model in which workers consume all their wages ($W = C$) and capitalists save all their profits ($S = P$), and with zero net investment. If banks finance workers' autonomous consumption (Ca), we get: $W + P = C + Ca$, therefore $P = Ca$. This closure, however, has little to do with the problem of profits in MCT.

that impatient households are pre-financed by banks and funded ex post by thrifty households is perfectly consistent with the mainstream view.

4. 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 (final finance) by tax collection, and if tax revenues are insufficient, by collecting saving. Needless to say, tax revenues and saving are the result of the income multiplier process prompted by State spending. Expositions of this process are provided by Dalziel (1996a, p. 224) and by Cesaratto (2016A, pp. 53-54).

In the example of Table 3 (adapted from Cesaratto 2016A, Table 3), let us assume that government spending is financed by issuing treasury bonds bought by the central bank (CB) or by commercial banks that will create purchasing power (a deposit) for the Treasury (we will shortly expand this point). In a closed economy with spare capacity, given a propensity to consume $c = 0.7$ and a tax rate $t = 0.3$, government spending of 100 ua (the purchase of an aircraft) generates an additional income of 196 ua, fiscal 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 CB 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 can have access to purchasing power creation.

State spending and the multplier				
	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 producer (including owner and employees) pays taxes out of its income (100 ua), consumes and saves ("remaining deposit"); in period 2 the cons. goods producers pay taxes out of their income (49 ua), consume and save, and so on.				

Table 3

The way MMT scholars present the proposition that the State spends first has indeed been controversial. In short, the question is that MMT consolidates Treasury and CB so that the latter automatically creates purchasing power (initial finance) in favour of government spending. Critics object, however, that in most institutional arrangements CBs 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 - a subject that spends independently of current revenues, letting side the decumulation of financial or **real** wealth- and later funded by tax revenues or saving. Table 4 adapted from Cesaratto (2016A) and inspired by Lavoie (2013) and Wray (2011A/B), 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 CB, from which it can spend (*stage B*). Next, the Central Bank (CB) 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 CB ends up with the T-bonds, and the Treasury ends up with deposits in its account at the CB, "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 CB. 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 CB drains the excess reserves by open market sale of T-bonds (*stage E*).

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 Deposit (@CB) +100			Reserves -100 Gov.deposit +100	Reserves -100	Gov.deposit -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 (Aircraft +100)			Gov.deposit -100 Reserves +100	Reserves +100	Deposit (PS) +100	Deposit +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 4

In this example government spending is totally financed by the issue of T-bonds (i.e. totally 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.

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 *Buy 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)

Table 5

The proposed solution to the question of how the State can spend first without consolidating Treasury and CB 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 CB 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 demand – 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 State orders related to public procurement and investment. Similarly, production decisions 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 (see # 3), we observe a double 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).

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 repetition 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).

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	$\Delta G_0^1 + \Delta G_1$	$\Delta_0^1 + \Delta L_0^1 + \Delta L_1$	$\Delta T_1 + \Delta B_0^1 + \Delta B_1$	$\Delta B_0 + \Delta B_0^1 + \Delta B_1$
…	…	…	…	…

Table 6

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. In this sense we may say that newly generated purchasing power only concerns deficit spending.

Let us finally note, once again, that in principle these arguments are not prerogative of genuine Keynesianism alone.[22]

[22] For instance, likening investment and public debt financing, B&D (2015, p. 11) allude to the idea that government spending is initially financed by endogenous credit/money and ex-post funded by saving: "in contrast to popular images, saving is not a 'wall' that needs to be channelled into financial assets. Rather, it is the 'hole' in aggregate demand (output/income not spent/purchased/consumed) that makes room for investment expenditure. It is part of the resource constraint and entirely unrelated to the financing constraint. Saving entails capital accumulation, not financing. Thus, typical statements such as 'country X can sustain more public

5. Initial and final finance in the open economy

At world level, imports from 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 AD and output level and growth are the *domestic* autonomous components of AD (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.

The conventional 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, this is putting the cart before the horse**.** As pointed out by B&D (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 over domestic investment to deficit countries that invest over 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.

Two criticisms can be levelled against this view.[23] 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

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debt because its high saving rate boosts the demand for assets' are, strictly speaking, meaningless. They conflate saving and financing as well as the national account identity – a rendition of the resource constraint – with the cash flow identity – the financing constraint". In other words, as in the case of investment, it is not saving that permits investment, so in the case of public debt, it is not a "high saving rate" that generates "more public debt", but it is "finance" that supports it (with saving generated ex post). B&D do not develop this point well – compared to their advanced views about the saving/investment nexus and, as we shall see, foreign trade financing. None the less, their embryonic break within conventional thinking is worth-noting.

[23] See also Dalziel and Harcourt (1997)

autonomous spending in CA countries. B&D (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 B&D (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 (B&D 2011, p. 20).[24]

To sum up, profligate autonomous-spender countries will have CA deficits, mirroring thrifty autonomous-spender countries with CA surpluses. The financial account of the BoP 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 later also intermediate final funding by collecting saving from surplus countries (B&D 2015, pp. 12-17). Think of the financial rise and fall of finance-intermediating hubs such as Ireland, Iceland or Cyprus, and also of the intermediating role of French banks that acted as "third partner" in the German-Greek ménage.

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[24] 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 (B&D 2011, 2015). B&D correctly point out that CA imbalances cannot explain gross capital flows that are many times larger than those related to CA disequilibria. The detachment of gross capital flows and CA imbalances can also be seen this way: endogenous finance sustains autonomous spending in single countries, generating foreign trade. Even if all CAs were balanced, endogenous finance is generated domestically "in a myriad of ways", as well as by trading and third partners, spawning international financial flows.

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

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

Assume that there are two countries, moderate and excess 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 capital flow liberalisation, this created the perfect environment for indebtedness of peripheral countries (Bordo and James 2013; Cesaratto 2017C). 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.[25] The initial chain of events (the west-east arrow) confirms what B&D (2011,

[25] 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 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*" (ibid, p. 23 (Cour-Thimann 2013, p. 17, 23, my italics). See also Durand e Villemot 2016,

2015) argue about uncoupling of import financing in a CA deficit country from inflows of foreign saving (funding) from the surplus country.[26] Foreign saving appears in a second phase (the east-west arrow). The Greek bank is indeed short of reserves - the actual obligatory reserve coefficient in the euro area is 1%, so it must recover 99 € of reserves - while DB has a 99 € excess of reserves (since 1 € is held for the new deposit). If the interbank market is functional, DB normally lends the excess reserves to Alpha Bank, and this almost regulates 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).[27]

International financing and funding (the case of TARGET2)

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

Table 7

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

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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.").

[26] Of course, initial finance in the deficit country does not have to directly concern imports; it may regard autonomous consumption or government spending that will induce additional imports.

[27] If the interbank market is broken, Alpha Bank has to recover the lost reserves through a refinancing operation at the Bank of Greece (as long as it has adequate collateral). In this sense, T2 imbalances associated with the refinancing operation have been seen as a surrogate of foreign loans of reserves (Erler e Hohberger 2014 pp. 6-7; Cesaratto 2013, 2015B).

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 B&D (2011, 2015).

We have just assumed that Bosch saves the payment 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 ($\Delta E - \Delta M$).[28]

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

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

So far we have remained with 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 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

[28] ($\Delta E - \Delta M$) 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).

(final finance) the final purchase.[29] The reader may work this case out by herself referring to # 3 or 4. Again we have double-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,[30] 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 enough 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.

6.3. Initial and final finance in an open economy Wicksellian context

B&D'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 monetary authorities. B&D (e.g. 2011, pp. 24-25) attribute global financial and real instabilities precisely to this discrepancy:

> 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

[29] If only German banks are involved, we have a clear example of "vendor finance".

[30] *Ceteris paribus*, Greek exports equal to $\Delta E_{Gr} = \Delta M$ = 17.4 € are an addition to Greek national saving.

> 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, B&D (ibid, p. 24) are critical of Bernanke's in/famous "saving glut hypothesis", attributing 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, B&D still retain the idea of a benchmark equilibrium world-economy, obtained by the international monetary authorities as long as they successfully guide monetary interest rates towards their natural level.[31] Theoretical reasons evoked above 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 rather than invested in new capacity. After the capital theory critique, it is not acceptable to draw an investment demand function negatively elastic to the rate of interest. The empirical evidence also suggests that the interest rate sustains other autonomous components of AD, namely autonomous spending (including constructions) and government expenditure. Not surprisingly, therefore, B&D's excess finance does not lead to overinvestment, as in the original Wicksellian story, but to unsustainable autonomous private or government spending.[32]

Heterodox economists have often defined what B&D define as 'excess elasticity' of finance as 'financialisation'. For instance, Tokunaga and Epstein (2014, p. 7) call endogenous credit/money creation in support of household and whole nation indebtedness, or fuelling real estate and stock market bubbles, 'endogenously elastic finance'. While previous sections have elucidated the role

[31] According to their thinking, the global natural interest rate is unknown, but financial instabilities (rather than inflation) should guide monetary authorities in steering monetary rates.

[32] Summing up the debate, Stephen Roach (2017) recently 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) shamelessly 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." The important thing is to hide this in textbooks, of course.

of endogenous finance with regard to autonomous and foreign consumption, in the final part of the paper, taking stock of some perhaps little-known contributions by Joseph Steindl, we clarify some basic relationships between endogenous finance, asset bubbles and AD.

6. Capital gains and aggregate demand

We have so far been concerned with the real economy, studying the complex relation between initial and final finance, AD 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, that can then be consumed (or invested) sustaining AD; and an indirect outcome since the increase in financial and real estate wealth may raise the marginal propensity to consume. 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 # 4), dissaving by some households (those who spend more than current income) must be compensated 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 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 that is "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 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 autonomous 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 AD.[33]

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

[33] 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).

> 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. [34]

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 AD, competition among producers will lead them to production decisions in advance of actual demand.

Final remarks

The paper is a contribution to the long-run theory of effective demand with elements from MCT, MMT and endogenous finance analysis. Some shortcomings of the neo-Kaleckian growth model and of MCT have been recalled, and the SM indicated as the most promising approach to growth and instability in capitalism. Setting aside some more theoretical controversies (such those concerning the degree of capacity utilisation in the long run), from a substantial point of view the SM allows full consideration of the autonomous components of AD as the ultimate sources of growth and instability of debt-led capitalism. Following Steindl, we included "spent" capital gains among these 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 Dysiatat. More specifically, the paper proposed an integration of the traditional Keynesian role of initial finance as supporting final demand (the 'received view') and MCT'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

[34] In the quotation, Staindl 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 # 2.2).

monetary circuit theory". Open-minded marginal economists may share aspects of this view; the difference is that they believe that as long as interest rates are at their natural level, debt-spending is not destabilising. Those who reject the notion of natural interest rate may think of other debt-stabilisation rules (e.g. based on the relationship between nominal interest rates and nominal output growth).

Further research should check the soundness of the approach of this paper, refining it if confirmed.

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