Initial and final finance in the monetary circuit and the theory of Effective Demand

Initial and final finance in the monetary circuit and the theory of Effective Demand*

Sergio Cesaratto

Department of Political Economy and Statistics

University of Siena

Abstract

One remarkable aspect of modern heterodox theory is the detachment between demand-led growth models and endogenous money theories. This paper suggests a possible integration of the Keynesian theory of the multiplier (and supermultiplier) with endogenous money and Keynes's finance theories. Focusing upon Graziani's version of the Monetary Circuit Theory (MCT), the paper is a contribution towards reconciling the preoccupation of MCT with *initial* production financing, and the concern of demand-side oriented heterodox growth theories with *final* financing of autonomous demand. Following Davidson, Dalziel and others, the paper shows that endogenous money *finances* production decisions based, inter alia, on *expected* consumption and investment *orders*. In turn, the income (super)multiplier generates *actual* consumption and saving. The latter *funds* the *actual purchase* of investment goods. The (super)multiplier is the nexus between initial and final finance. Various complications of this basic idea not yet considered by the literature are examined.

* Dipartimento di economia politica e statistica, Piazza San Francesco 7 – 53100 Siena (Italy). E-mail: Cesaratto@unisi.it

Introduction*

One surprising feature of modern heterodox economics is the detachment between demand-led growth models and endogenous money theories. This paper endeavors to fill this gap. For the reasons advanced in Cesaratto (2015), among competing heterodox accumulation theories the paper backs the (Sraffian) Supermultiplier approach (Freitas and Serrano 2015),[1] which provides a promising framework, consistent with the legacy of major heterodox masters including the Classical economists, Marx, Sraffa, Keynes, Kalecki and Kaldor (hereafter broadly referred to as Classical-Keynesian approach). Money, credit and finance may play a major role in this approach. However, perhaps contrary to the tradition of *Monetary Circuit Theory* (MCT), this approach suggests the adoption of a robust *real* side of the theory as dominant over and preliminary to a consistent consideration of the *monetary* side. Focusing on Graziani's version of the MCT, the paper makes a contribution to reconciling the preoccupation of production-side oriented MCT with *initial* production financing, and the concern of demand-side oriented, heterodox growth theories with *final* financing of autonomous demand. Recognition that endogenous money is also consistent with marginalist theory reinforces the importance of a sound real counterpart. While this is furtherly discussed below, it must be conceded that whilst endogenous money plays an auxiliary role in neoclassical theory – useful perhaps to explain disequilibrium phenomena as in the famous Wicksellian cumulative processes of inflation or disinflation – this role is not ancillary in the alternative framework. There is no long-run dualism between real and monetary sectors in the Classical-Keynesian approach, which metaphorically represent the skeleton and circulation apparatus, respectively, while serving the muscles (viz. operation of the economy as a whole).[2]

Section 1 sketches the Classical-Keynesian approach to demand-led determination of output level and growth and introduce questions on how to fit endogenous money creation into it. In this approach, the autonomous components of aggregate demand (AD) - which in the short period also include investment - are regarded as the ultimate driving force of output level and growth (Cesaratto

---

* Albeit critical of the monetary circuit, this paper is dedicated to the memory of Professor Augusto Graziani. The author regrets that his ideas in this regard had not yet matured in the 1990s when he had the fortune to collaborate with him at La Sapienza. He would certainly have appreciated frank criticism. Thanks are due to Eladio Febrero, Fabio Petri, Massimo Pivetti, to various friends at Centro Sraffa, in particular to Roberto Ciccone, Sergio Levrero and Saverio Fratini, and to three referees for valuable observations and suggestions.

[1] Neo-Kaleckian authors are also paying increasing attention to this approach, e.g. Allain (2015) and Lavoie (2015a); among the circuitists, Eladio Febrero is also sympathetic (e.g. Febrero and Bermejo 2013).

[2] Strangely enough, François Quesnay, a physician who derived his view of the economy as a circular flow of payments from blood circulation, is not considered a hero by the MCT.

and Mongiovi 2015). Although seldom discussed openly, received wisdom has it that endogenous credit/money creation finances *final payments* related to these components; that is, monetary demand precedes production. However, if production decisions are made on the basis of *expected demand* or *purchase orders*, the actual completion of production logically precedes actual purchase payments. To partially or fully cover production costs (net of profits that we assume are realized only through final sales), some *initial* finance provided by endogenous credit/money creation is therefore needed. 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). The *initial* role of endogenous credit/money in cranking up production is what Keynes (1937 a/b) referred to as "finance".

The role of initial finance in kicking off production is the realm of MCT examined in section 2, with a particular focus on the views of the late Augusto Graziani. The paper occasionally quotes authors from different MCT traditions (see e.g. Rochon and Rossi 2003, Arestis and Sawyers 2006), when they share similar views and problems, although deeper consideration of other versions of the MCT is left to future research.

Prof. Graziani (e.g. 1990, p. 9; 1994, p. 27) indicated the inspiration of the circuitists in Keynes's *Treatise on Money* (1930), rather than in the *General Theory* (1936). Consistently, Graziani does not assign a clear central role to the theory of effective demand (ED) in explaining production decisions, and downplays the role of income (super)multiplier analysis in providing a tidy account of the interaction between financial and real aspects, precisely constituting the nexus between initial and final finance. Moving from contributions by Davidson, Dalziel and others, section 3 indicates an alternative way to integrate Keynes's "finance" within the Classical-Keynesian demand-led approach. The basic story is that endogenous credit/money (*initial* finance) sustains production decisions based on *expected* demand or *orders*. Next, the income multiplier (or supermultiplier), generates the revenues out of which expected consumption demand and investment orders become *actual* spending (final payments). As will be shown, further *final* endogenous credit/money creation is presumably necessary to finance desired investment and autonomous spending. Once all this is completed, all subjects who have received *initial* finance can redeem their debts, possibly requesting renewal of credit lines for the next production period. Endogenous finance creation therefore resembles a Keynesian revolving fund, growing in a progressing economy.

This paper can be regarded as a reconciliation exercise between theories that lay emphasis on the role of endogenous credit/money in financing production decisions (initial finance), such as

MCT, and the role of autonomous spending as the ultimate determinant of those decisions, such as (super)multiplier analysis.

1. Real and monetary aspects of the Classical-Keynesian approach

1.1. Multipliers

According to the Classical-Keynesian approach, the autonomous components of aggregate demand (AD) – autonomous consumption, government spending, exports and in the short-run investment – are the determinants of the degree of capacity utilisation in the short-run, and of the growth rate of the economy in the long-run (Freitas and Serrano 2015; Cesaratto 2015). Specifically, let us refer to two equations:

a) the first is the traditional determination of output in the short-run through the Keynesian multiplier. The autonomous components (autonomous consumption, investment, public spending and exports) regulate AD (Y_D) given the marginal propensity to consume *c*, the average tax rate *t* and the marginal propensity to import *m*:

$$Y_D = \frac{1}{1-c(1-t)+m}(\overline{C_a} + \bar{I} + \overline{G} + \overline{E}) \qquad (1)$$

Keynes's belief was that in capitalist economies AD is not on average sufficient to fully utilise productive capacity, so that the level of output *X* and the degree of capacity utilisation adjust to the level of $Y_{D.}$

b) In the long period, however, capacity tends to adjust to expected ED.[3] In particular, capitalists will not invest blindly, but on the basis of expected ED. This is expressed through an investment function based on the old concept of the *accelerator:*

$$I = v_n g^e Y_D \qquad (2)$$

in which $g^e Y_D$ expresses the expected growth of ED, and v_n is the capital-output coefficient, that is, the desired quantity of capital per unit of output. We thus obtain an equation similar to equation [1] in which the fraction is named *supermultiplier* (after Hicks 1950):

$$Y = \frac{1}{1-c(1-t)-v_n g^z+m}(\overline{C_a} + \overline{G} + \overline{E}) = \frac{1}{1-c(1-t)-v_n g^z+m} Z \qquad (3)$$

where *Z* and g^z are the level and rate of growth of the autonomous/non capacity-creating components of AD, respectively, and investment is an induced and not an autonomous component of AD, as it must be in a long-run growth model. In writing the equation we assumed $g^z = g^e$. It can be shown that

[3] This is defined as the amount of AD forthcoming at normal or long-period prices.

within reasonable assumptions the actual and expected rates of growth tend to adjust to the growth rate of *Z* (Freitas and Serrano 2015).

Suppose we move from a situation in which productive capacity is adequate for AD. A rise in g^z, if perceived as persistent, will stimulate AD including investment. Normally, firms are endowed with spare margins of productive capacity (e.g. in so far as they do not want to leave some customer unsatisfied in case of sudden peaks of demand). In the short run this allows firms to increase production of both consumption and investment goods before new capital goods are installed. Once the latter become operational, in the long run productive capacity slowly adjusts to the new level and growth of AD.[4]

Notably, in this approach investment is not the independent variable in the determination of AD, as in most Post-Keynesian growth models; the autonomous components of AD play the role of independent variables, with investment induced by the accelerator mechanism.[5] The model does not therefore rely on "animal spirits" to explain investment, as in most Post-Keynesian models (see Cesaratto 2015, p. 170).

1.2. The (implicit) Classical-Keynesian received view: endogenous money finances final demand that precedes production

It is characteristic of autonomous expenditure not to be financed out of income revenues, contrary to the case of induced consumption; it must therefore be financed by credit creation.[6] Surprisingly, however, the modern Classical-Keynesian scholars have not fully explored the financial aspect of their theory of the output level and growth yet. Although not explicitly expounded, the received view presumably held by these scholars is based on two assumptions: (i) actual ED determines production and (ii) endogenous credit/money creation finances autonomous spending *qua* actual *final* payments. Through the income multiplier process, autonomous spending generates

[4] The model's "warranted" path that assures dynamic saving-investment equilibrium is written as: $g_w = (S / X_n)/v_n$. This equation suggests that endogenous variations of *average* propensity to save S/X_n accommodate g_w to variations in g_z: the normal rate adjusts to the actual rate (Freitas and Serrano 2015; Cesaratto, 2015, pp. 173-74).

[5] Some Sraffians prefer not to formalise the role of autonomous demand through the supermultiplier. On this matter, Garegnani (2015 [1962]) is a common antecedent of all sorts of Sraffian views (see Cesaratto and Mongiovi 2015).

[6] As Moore (1988, p. 291) put it:

> The rate at which it [credit money] is issued governs the growth rate of aggregate demand. This sounds like a monetarist conclusion. But the causal mechanism has nothing to do with an excess supply of money balances. Rather it stems simply from the recognition that new credit money finances most net deficit spending. In money economies if aggregate demand is to grow over time, economic units on balance must somehow deficit-spend.

induced spending and both generate output. This view reflects the idea that it is demand that generates supply.

In the case of *investment*, according to equations (1) and (3) it is saving that adjusts to investment, in the short run through variability of the degree of capacity utilisation and in the long run through changes in productive capacity. Although in the long run investment is an induced component of aggregate demand, unlike induced consumption that is financed out of household revenues, investment does not depend on and is not *financed* out of *current* income (although it is *induced* by *expected* income). The received view is that endogenous money finances *actual payments* for investment goods (e.g. Bertocco 2014, p. 210 and passim).

Similarly, the received view also regards *autonomous consumption* spending as typically financed by credit/money endogenously created by the banking system (e.g. idem, pp. 211-213).[7]

Foreign demand is financed by foreign sources, so it is autonomous from the point of view of the exporting country. Things are not, however, so simple. The importing country finances its purchases through income or by domestic endogenous credit/money creation, within the limits of its foreign reserves and access to foreign loans, unless it issues an international reserve currency. The exporting country may therefore be involved as a lending country (vendor financing). According to the received view, purchasing power creation in favour of buyers in the importing country is generated by endogenous money/credit creation in peripheral countries followed by international loans from core countries (Febrero and Uxo 2013, p. 3; Cesaratto 2013b, pp. 374-76), or directly from money/credit creation by core-country banks.[8]

---

[7] The recent literature has underlined the role of credit-financed consumption in sustaining AD in modern capitalism, for instance in the pre-financial crisis years in the U.S. when it compensated the fall of the middle-class income, but also prepared a financial crisis (e.g. Barba and Pivetti 2009). A critical consideration of the neo-Kaleckian treatment of credit-financed consumption (e.g. Hein 2012) is outside the scope of this paper and left to on-going research (e.g. Pariboni 2015). We just wish to point out that the alternative supermultiplier approach looks more promising for consistently dealing with the role of credit-financed consumption as an *autonomous* driver of accumulation.

[8] As authoritatively confirmed by an eminent international finance economist:

> At a deeper level, all this reflects the failure to make a sufficiently clear distinction between *saving* and *financing*. As a matter of identities, saving, a national-accounts concept, is simply income (output) not consumed; financing, a cash-flow concept, is access to purchasing power in the form of an accepted settlement medium (money), including through borrowing. Spending of any form, whether on pre-existing real or financial assets, or on goods and services for investment or consumption purposes, *requires financing, not saving*. In a closed economy, saving is not a pre-requisite for investment, but materialises only once investment takes place if the necessary financing is available. In an open economy, by construction, a current account deficit somewhere must be matched by a surplus elsewhere. But countries running current-account surpluses are *not* financing those running current-account deficits. The underlying consumption and investment expenditures that generate those positions may be financed in a myriad of ways, both domestically and externally. (Borio 2014, p. 13, my italics).

Finally, with regard to *government spending*, it is in the Keynesian or Kaleckian logic that the State spends first, then it collects fiscal revenues or issues Treasury bonds. Indeed, tax revenues or household savings (that buy government bonds) are a result of the income generated by public spending. The Chartalist approach (e.g. Wray 1998) is interesting in this respect since it tries to articulate fiscal and monetary policies in terms of Keynesian and Kaleckian logic. Lavoie (2013), among others (see in particular Gnos and Rochon 2004), is sceptical of certain simplifications adopted by Chartalists – namely the consolidation of Treasury and central bank (CB) – and propose an alternative "post-Chartalist" institutional mechanism more respectful of the ban, in most institutional set ups, of central banks directly funding the Treasury. With some reservations, Wray (2011) does not reject this view (the debate is explored in a parallel paper, Cesaratto 2016a).

1.3. Keynes's finance: endogenous-money finances production that precedes sales

To sum up, the (often implicit) received view is that banks support autonomous-spending, actual *final payments* (including government spending in the post-Chartalist view) and investment, and that production *follows* autonomous and induced spending. This is fine as far as it goes. However, in many practical cases, production is endeavoured in view of expected effective demand for standardised goods,[9] or is based on purchase orders – for instance of complex, customer-tailored industrial plants or luxury goods. This would assign banks an additional role – call it "initial finance" – in *production financing* during the gestation period of production, that is between the period in which expectations or orders take shape and that of delivery of the good and final payments.[10] An additional difficulty with the received view is that especially in some institutional contexts, such spending as investment is not financed by endogenous-money-creating banks but by non-endogenous-money-creating institutions like investment banks, stock markets or retained profits.

Keynes (1937a/b) famously referred to the role of "initial finance" with the shorter term "finance", defined as "the finance required during the interregnum between the intention to invest

[9] Competition between producers to be ready to serve customers may lead them to prepare production in advance, especially when it takes time (including delivery) and particularly in manufacturing. Conversely, many services, say haircuts, massages, medical examinations or technical assistance, are provided on-the-spot.

[10] "In modern economies production costs are normally incurred and paid prior to the receipt of sales proceeds. Such costs represent a working capital investment by the firm, for which it must necessarily obtain finance" (Moore 1983, pp. 545-546). In principle production could be undertaken with wages and other costs paid after sales. However, depending on the length of the production process, in many cases wages and other costs have to be paid, partially or in full, before actual sales. This does not imply that wages are fully anticipated at the beginning of the production process, as generally assumed by the exponents of MCT. Be that as it may, in this paper we assume that profits are realized through actual sales.

and its achievement" and "mainly supplied by specialists, in particular by banks", which anticipate cash (1937b, p. 219). Keynes specifies that "[i]nvestment finance is …of course, only a special case of the finance required by any productive process" (1937a, p. 208) including the production of consumption goods in advance of consumption demand (although most of the debate has focused on investment-financing).[11] Taking the case of investment finance, if investment is constant, finance will be a roughly constant "revolving fund", "one entrepreneur having his finance replenished for the purpose of a projected investment as another exhausts his on paying for his completed investment" (1937a, p. 209). If investment is increasing, additional cash might, for instance, be drawn from unused overdraft facilities (1937b, p. 223) or of course by the provision of "extra finance" (1937a, p. 209). Notably, not only does initial finance concern banks' endogenous credit/money lines to producers, but it may also consist of down-payments by buyers, for instance as surety towards orders.

Does the role of endogenous credit/money creation in financing supply on the basis of expectations or orders contradict the principle of ED? That is, do we not risk implicitly restoring Say's Law that supply creates demand? Not at all, as a reference to a standard *Keynesian cross* diagram suggests. Conventionally, we draw aggregate supply (AS) (production decisions) on the vertical axis and AD on the horizontal axis. The points of macroeconomic equilibrium between AD and AS are along the bisector. For each production decision and related distributed income, the Keynesian ED function indicates the corresponding level of AD. Production decisions adjust to AD up to the point where AS generates an equivalent amount of AD.

Our problem is now to integrate *initial* finance concerning production with the received view explained above – which focuses on *final* finance concerning spending – in a more encompassing synthesis of real and monetary factors in the theory of output and growth. It will then be natural to turn our attention to MCT which emphasises the role of endogenous credit/money in financing production rather than final demand. First, however, let us briefly compare the endogenous money view – be it concerned with financing production or final payments (or both, as we shall see) – with the mainstream view.

1.4. Endogenous money and marginalist theory

According to the endogenous money view (e.g. Lavoie 2005 for an introduction), banks can create deposits – e.g. in the form of overdraft facilities – in favour of trustworthy investors while the

[11] In his polemic with Ohlin who supported the spurious notion of "ex ante saving", Keynes (1937b, p. 221) argues with a touch of irony that the production of consumption goods does not need to be financed by "ex ante consumption" as much as investment do not require "ex ante saving" to be realised (in fact they are both financed by endogenous cash creation).

CB accommodates the supply of reserves, at least as long as it wants to stabilise the target interest rate policy. In this view "loans create deposits, deposits create reserves."

In its most rigid version, the conventional view held by both Marginalists and Keynesians states that the money stock (the supply of reserves) is exogenously determined by the monetary authority (Terzi 2012, p. 9). By controlling the high-powered money stock (reserves), the monetary authority determines the interest rate that should be set at its (Wicksellian) natural level, in order to obtain full-employment equilibrium. A traditional mainstream view of banking would thus hold that it is "loanable funds" that finance investment, where "loanable funds" are full-employment savings collected by banks (e.g. Febrero 2001, pp. 4-5). The monetary authorities must therefore fine-tune the monetary interest rate so that loanable funds match investment at the natural interest rate, the one that equalises full employment capacity-saving and investment.

A flexibly-minded mainstream economist, however, would not agree with this view. In fact, following Wicksell (1935, p. 194), he/she would support the idea that loans create deposits (Pivetti 2001, pp. 104-5). That is, he may concede that "loanable funds" are not the result of the collection of "ex ante" savings by banks, but of creation of purchasing power by banks. Similarly, in recent mainstream macroeconomics the money stock is endogenous in the sense that the CB sets the interest rate first (trying to approximate the natural level), and given money demand, lets the (endogenous) money supply adjust to obtain the target rate (Jakab and Kumhof [2015] for instance explore endogenous money in DSGE models). The substance is not, however, different from the exogenous money approach: the focus is on the natural interest rate, the rate at which investment is equal to full-employment capacity saving (e.g. Bougrine and Seccareccia 2004).[12]

Indeed, the real difference between genuine Keynesian economists and mainstream economists is that according to the latter the level of investment tends to be adequate to full-employment capacity savings, at least as long as the interest rate at which banks lend - which depends on the target rate set by monetary policy – is the Wicksellian natural interest rate. Thus mainstream economists are ready to admit that it is endogenous money that finances investment that in turn generates savings; in their view this can be done at an interest rate at which investment generates full-employment capacity savings.[13] The substance is therefore no different from the exogenous-money

[12] Of course, central banks do not know the natural interest rate. It is therefore assumed that they approximate it when unemployment is at its "natural" level, i.e. such as to keep wage claims at bay and consequently inflation close to zero or constant.

[13] As Graziani (1994, p. 45 my translation) put it: "a monetary economy, as long as it is endowed with a banking system capable of operating correctly, can ensure an equilibrium substantially identical to a [neoclassical] barter economy and characterised by stable monetary prices".

approach: the focus is on the natural interest rate, the rate at which investments are equal to full-employment capacity savings. This is important to note, since it shows that the endogeneity of money – which is a fact recognised outside traditional heterodox economics (typically by central bankers, e.g. by the ECB economists Bindsell and König [2013] or, famously, by the Bank of England (McLeay et al. 2014) – is neither a sufficient criticism of neoclassical theory nor, consequently, a adequate premise for a heterodox monetary theory of production and accumulation.[14] This is not to deny that endogenous money plays a more essential role in a heterodox context, but only to argue that the skeleton matters, not only the blood circulation. Mainstream and heterodox economists may share the endogenous money view, but they do not share the real description of the economy, which is therefore a priority in the analysis.

A flexible picture of the mainstream view can also be adopted in the case of autonomous consumption, exports, and even of government spending (see Cesaratto 2016a). Autonomous consumption can be rationalised, for instance, as an equilibrium phenomenon in which there are rational heterogeneous households at different stages of their life-cycles, so that presently thrifty households lend resources to temporarily profligate households at some equilibrium interest rate. We may well think that it is endogenously created credit/money that finances the profligate units, with savings of parsimonious units being generated by the income multiplier process.

Similarly, although the rigid version of neoclassical theory interprets international capital flows as saving flows from capital-rich countries towards catching-up capital-poor countries – an extension of the loanable funds theory to the open economy – more flexible interpretations are possible. It could be argued that for neoclassical economists capital flows are also, in the first instance, the result of endogenous credit creation (Cesaratto 2013b, pp. 374-76). This expenditure generates a current account deficit which now corresponds to saving-backed loans from richer/exporting

[14] As adequate, for instance, as the capital theory critique which actually concerns the real part of neoclassical theory (see Lazzarini 2011 for a rigorous reconstruction of the capital theory controversy). John Smithin (2009) argues that "even without the intervention of the highly technical capital theory debates" (ibid, p. 80), the Wicksellian approach is a spurious "hybrid of the classical [Marginalist] theory and the horizontalist theory" (ibid, p. 86) - in spite of its apparent greater realism and of the "Wicksellian roots" of modern mainstream monetary theory (ibid, p. 85). In particular, he properly denounces the estimation of the natural interest rate based on a "particular theory of inflation" (ibid, p. 86), as reported above in fn. 12. In the opinion of the present writer, this stance usefully sides the capital theory critique to the natural interest rate. Indeed, the "particular theory of inflation" Smithin refers to, is based on the Marginalist theory of distribution, which is the object of the capital critique.

countries. This is viewed as an equilibrium process through which the per-capita capital intensity of techniques, and therefore per-capita incomes, are equalised worldwide. [15]

2. **"Finance" and the monetary circuit**

2.1. The circuit and its troubles

The MCT emphasizes the role of the financial sector in ignition of the economic circuit. The emphasis is on the production side, that is, on the role of endogenous credit/money creation in financing production costs (mainly wage costs). The summary of the phases in the circuit drawn from Realfonzo (2006, pp. 106-7) is sufficiently representative (see also e.g. Graziani 2003, pp. 26-31; Lavoie 1992, pp. 152-157):

> 1) Banks grant (…) the financing requested by firms, creating money (opening of the circuit);
>
> 2) Once financing has been obtained, firms buy inputs. Considering firms in the aggregate, their only expenditure coincides with the total wage bill; at this point money passes from firms to workers;
>
> 3) Once labour services have been purchased, firms carry out production (…)
>
> 4) At the end of the production process, firms put the goods on the market. It can be envisaged that firms set the sale price following a *mark-up* principle. Supposing workers have a propensity to consume equal to one, firms recover the entire wage bill and maintain ownership of a proportion (corresponding to the mark-up) of the goods produced. If the propensity to consume is less than one, … [workers] must make a further choice about how to use their savings, either hoarding (increase in cash reserves) or investing (purchase of shares). If all money savings are invested in shares on the financial market, firms manage to recover the whole wage bill;
>
> 5) Once goods and shares have been sold, firms repay the banks (closure of the circuit).

Let us now examine the most evident questions solicited by the circuit.

2.2. Troubles with the MCT

(i) Realization of profits in the circuit. The most widely discussed issue concerns the realization of profits: if banks finance wage costs only, so that AD originates exclusively from wages (phase 2), how can production be sold (phase 4) at a price that also includes firms' profits and interest payments to the banks? Referring to the generality of MCT traditions, Febrero aptly summarised the trouble:

> This approach provides a coherent description of how money puts the wheels of production in motion. However, some problems remain within this strand. One of them (its 'main difficulty' …) is how

[15] The marginalist open-market causal relationship between saving and investment behind this view is also the subject of criticism of capital theory (Cesaratto 2013a, p. 254). A Keynesian criticism of the conventional view of international capital flows can be found in Dalziel and Harcourt (1997).

> profits are realized in money. This problem can be described as follows: banks create money to finance firms' production costs, in order to start new production processes. Such liquidity is assumed to remain inside the economy until production processes finish and indebted firms recoup it through the sale of their output or, alternatively, by the issue of assets in financial markets. If the maximum amount of money that firms can get is limited to production costs, how can profits (and interest on debts) be monetized? (Febrero 2008, p. 111).

A shared, straightforward and therefore credible answer does not yet seem to have emerged. A prominent circuitist concluded that "perhaps no satisfactory conclusions can be reached" (Rochon 1999, p. 17).[16]

(ii) Savings and capitalists' losses. As seen, in phase 4 of the circuit, if workers' savings "are invested in shares on the financial market, firms manage to recover the whole wage bill" and "repay the banks". In this regard Graziani (1994, p. 79 my translation) argues that: "there is only one event that may cause losses to firms, and this is the decision of savers not to spend part of their incomes but to hoard it instead as liquid balances". However, as long as savings are allocated in financial markets, firms may issue bonds and "recapture the liquidity in this way" (ibid.) and repay their debts. This view is also present in other MCT traditions. Rochon (1999, p. 15), for instance, puts it this way:

> The decision of households to hoard part of their savings will certainly represent a drain on firm's profits. After all, this represents money that firms were unable to recapture either through consumption or through the financial market. This amount represents the outstanding debt of firms. At this point, banks become financial intermediaries, pooling household savings and relending it to firms, thus allowing them to refinance their deficit positions (…). …This position is shared by many circuitists. … As long as banks can execute this function, crises can be avoided.

[16] Proposed solutions by scholars from various MCT traditions include a variety of arguments (see Rochon 2005, pp. 130-33; Febrero, 2008, pp. 116-17). To give few examples, in spite of the importance attributed to money, firms would retain profits in kind, as in point 4 of Realfonzo's description of the circuit. In the same vein, Graziani (2003, p. 31) argues that firms pay interest to banks in kind, sharing part of the product with them. He also maintains (1994, p. 105, my translation) that if firms considered as an integral whole "intend to directly employ part of the product, they retain it without selling it", as if production consisted of a single capitalist (consolidating banks and non-banking firms) that directly consumes the social surplus. It is surprising that in a theory of the monetary circuit, this only includes wage payments and expenditure. According to another view, banks finance interest and dividend payments (Lavoie 1992, p. 152). The idea that interests and dividends are paid not through revenues but through debt, sounds peculiar, at least in the long run. In other passages Graziani (1994, pp. 30, 106, 149; 2003, pp. 98-100) argues that banks finance firms' purchases of capital goods, spending that leads to the formation of profits – presumably through the Kaleckian mechanism whereby capitalists earn what they spend. Unfortunately and inconsistently, Graziani also argues that "investment financing … has nothing to do with bank financing" (1994, p. 81, my translation; 2003, p. 73) but rather relies on savings. The reader is therefore left confused.

This idea that workers' or households' savings may be used to fix firms' losses and avoid crises looks problematic, at least in the long-run.[17] Firms' accumulation of debt is not a problem for circuitists since in any period banks refinance the payment of interest on this "perpetual" debt (Lavoie 1992, p. 156; Rochon 1999, p. 13, 2005, pp. 130-31). This surprising resilience of output vis-à-vis the fall of AD refers us to the necessity of a fuller integration of the long-run theory of ED in the MCT.

(iii) Production decisions and aggregate demand. Although most circuitists belonging to the Italian and other traditions argue that production decisions are based on expected AD (e.g. Realfonzo 2006, pp. 112, 114; Rochon 1999, p. 7; 2003, p. 125; 2006, p. 127), a theory of demand-led growth is not sufficiently integrated in the MCT. In particular, Graziani (1994, 2003) seems silent in this regard. This suggests that his approach is located in a pre *General Theory* supply-side era in which production decisions are prominent and AD is not modelled - forgetting that Keynes's finance is a follow up of the *General Theory* and not the *Treatise*. Indeed, it is not true that firms "enjoy total independence when deciding upon the real aspects of production, namely employment levels and the amount of consumer goods and investment goods produced", as Graziani (2003, p. 29) suggests, since output decisions depend on the level and composition of AD. Still, he would explain crises through the unilateral and unexplained decisions of firms to reduce output: "an autonomous decision of firms to reduce activity levels" (2003, p. 156; 1994, p. 155). In other passages, Graziani alludes to the power that unrestricted access to bank credit grants capitalists in deciding the proportion of total output consisting of capital goods (e.g. 2003, pp. 73, 98-9; Graziani 1994, p. 77).[18]

---

[17] "[F]irms need to capture household savings by issuing securities …Funds will flow back to firms to pay off their debt" (Rochon 2005, p. 136). The same position is expressed by Lavoie (1992, pp. 154-61), Rochon (2003, p. 129 and fn. 19; 2005, p. 130), Gnos (2006, p. 91), Febrero (2001, pp. 11-12). In practice workers' saving is compensated by capitalists' dissaving (losses). Alternatively we may think that firms' unsold output is stored as (undesired) stocks. In this case losses are accounted for as inventories and households' savings correspond to investment in inventories. Be it as it may, these are very short period cases and it is difficult to believe that in any longer period firms issue shares to finance either losses or a prolonged undesired accumulation of stocks. The question is reminiscent of a discussion that took place between Dennis Robertson and Keynes on the *Treatise* (1930) about Keynes's idea that workers' savings might cover firms' losses (Cesaratto 2016b). In this discussion Robertson denied that savings could correspond to firms' losses, arguing that savings do not exist independently of investment. Circuitists seem to reiterate the *Treatise*'s mistake of maintaining that part of savings corresponds to firm's losses and are lent to firms to fix those losses (Graziani 1994, pp. 153-54; 2003, pp. 154-5), while neglecting the effects of those losses on output as Robertson pointed out in the early 1930s.

[18] There is a similarity with the "Cambridge equation" approach in that capitalists are able to obtain the amount of capital goods they wish. For the neo-Kaleckian and Sraffian criticism of the Cambridge-equation see Cesaratto (2015).

Contrary to the opinion of Graziani that "the level of employment …is determined by decisions taken jointly by banks and firms" (Graziani 1990, p. 8), firms are not autonomous in deciding production level and composition since their decisions depend on expected demand (expectations that banks must, of course, share when they grant a credit). As Bertocco (2005, pp. 495-96) explains:

> The main limitation of this approach [MCT] is that it ignores the Keynesian principle of effective demand; the level and composition of income are in fact determined at the beginning of the period by firms' decisions about the number of workers to be employed in the production of investment and consumer goods.

For instance, given the level and composition of autonomous spending (Z), the supermultiplier would determine the level and relative proportions of Z, C and I (and the corresponding direct and indirect input requirements). Echoing Kalecki, capitalists do many things as a class, but they do not plan production as a class. To argue otherwise would be a dangerous slip to some sort of Say's Law, which is not something most circuitists have likely in mind.

On a more positive note, although Graziani's MCT falls short of being a self-consistent Keynesian (in the sense of the *General Theory*) "monetary theory of production", the relevance it assigns to initial finance is nonetheless important and should be included in the demand-led theory of output. [19] Let us therefore turn to some insights of Davidson (1986) who proposes a promising and ordered integration of initial financing of production and of final financing of payments, in which the nexus is precisely income multiplier analysis.

3. The monetary-production multiplier circuit

3.1. Initial and final finance

Davidson (1986, p. 1) distinguishes between "the necessary (short-term) *financing* of an investment project while it is being constructed and the (long-term) *funding* of an investment project after it is completed" (my italics). Investment decisions would typically involve the following steps:[20]

---

[19] A paper by Fontana and Sawyer (2016) pulls together MCT and a Neo-Kaleckian demand-led model. However, the link between the two aspects is not articulated but consigned to a footnote (n. 9) where they merely observe that: "Monetary circuit theorists prefer to talk of financing production plans (of both consumption and capital goods) rather than financing investment, where the latter term is used to indicate the purchase of capital goods. For the purpose of this paper, financing production and financing investment are considered synonymous". The present paper attempts a full integration of financing of production and financing of investment.

[20] Similar stories can also be found in Wray (1991, pp. 957-58, 962), Dalziel (1996, pp. 314-18), Chick (2000, pp. 124-27) and Bossone (2001, p. 861).

(1) once investment has been decided, a "firm will typically engage an underwriter (investment banker), who will contractually commit his institution to provide for the floatation of a new issue, at a specific long-term interest rate. (…) The sales receipts of the new issue are expected to generate an 'investment fund' for the *buyer* [of the capital good] to make payment to the seller [of the capital good] at the delivery date. …Armed with the underwriter's guarantee to provide liquidity via an 'investment fund' (…), the investing entrepreneur can safely enter into a forward purchase order thereby providing the capital goods *producer* with a sales contract" (ibid, p. 103, my italics). We suppose that the investing firm (the buyer of the capital good) wishes to finance the full price P_k of the investment good.

(2) "Normally, the capital good producer has an established customer relationship with his commercial banker. Consequently, the signed purchase order contract is usually more than sufficient collateral for the commercial banker to be willing to commit the bank to finance the producer's production costs via short-term (working capital) loan for the duration of the production period" (ibid, pp. 103-4). We may presume that the bank will finance the production costs P_c of the capital good inclusive of interest payments on the loan but net of normal profits projected by the capital good supplier. So we expect that $P_c < P_k$.

(3) "The mere fact that previously idle resources are now producing *real* investment goods …means that, out of the increased income flow, a greater *real* saving flow must be *pari passu* occurring." Saving is of course emerging out of the operation of the Keynesian income multiplier (Dalziel 1996). Unlike the MCT approach, here production decisions are undertaken on the basis of demand: an order in the case of the producer of capital goods or induced demand of consumption goods resulting from operation of the income multiplier in the case of the supply of consumption goods.

(4) Savings are eventually used to finance the final purchase of capital goods: "This real savings is widely dispersed among households and other agents who have earned income this period but have not exercised all the claims on the products of industry that their income provided for them. In a monetary economy, these unexercised claims initially take the form of the possession of fully liquid money. When real investment has been produced and the associated real spending flows have already been completed, the investment underwriter can float the new issue, whose nominal value equals the purchase price of the new investment. If the underwriter is successful in floating the issue at the interest rate quoted in the underwriting agreement as the cost of funding, the underwriter makes a profit. At the long-run rate of interest, members of the public will have given up their

current (liquid) claims on resources equal to the extra liquidity created by the banking system and used by the capital goods producer to meet his production cost commitments" (ibid, p. 105). [21]

Davidson (1978, p. 323) tells the same story with some variations. For instance banks finance the capital good producer, but also advance payments from the investing company (the buyer). "During the gestation period of the capital good production", Davidson argues, "interim partial payments by the buyers from their short-term bank loans plus working capital finance which is at least partly obtained by short-term borrowing from banks by the capital goods producers are used by these producing firms to meet their wage and raw material bills." As in the previous narrative, the investing firms will eventually borrow long-term the savings generated by the income multiplier process. These revenues are then used by the investing company "to complete payments to suppliers" and "to pay off the interim short-term debt credit."

3.2. Qualifications

[21] Referring (with some variations) to this sequence, Febrero (2008, p. 118) attributes it also to Graziani: "Although some heterodox authors accept that investment is at least partially financed by bank credit" (including Parguez, Rochon, Seccareccia), others (including Davidson and Graziani) "claim that the costs of production of fixed capital provide the system with liquidity to fund its purchase after production. This argument is known as the 'revolving fund of finance' and can be summed up as follows. A firm expects an increase in demand for its product in the near future; it will naturally want to adapt its productive capacity to the level necessary to meet this demand. It comes to an arrangement with the producer of fixed capital. The same contract is used as collateral by the latter to get fresh finance and to purchase the working capital required for the production of the investment goods in question. Graziani (…) calls this 'initial finance' and it is short-term. Once the goods are produced, liquidity remains in the system. If liquidity preference is nil, the purchaser of the investment goods will issue bonds or equity securities in order to capture this liquidity to fund the purchase of fixed capital on the long term. The proceeds from the sale of securities are final finance, in Graziani's terminology". It is correct that Graziani (e.g. 1994, pp. 80-84; 2003, pp. 69-74) distinguishes between *initial* or transitory and *final* finance arguing that the former is financed by banks and the latter by savings ("which has nothing to do with bank financing" 1994, p. 81, my translation). Graziani, however, does not spell out with sufficiently clarity a process *à la* Davidson (who is quoted neither in 1994 nor in 2003). Had he spelled it out clearly, he would have realised that it is *initial* bank credit that generates savings and, therefore, *final* finance, as shown in an important paper by Dalziel (1996, pp. 314-320). Moreover, Graziani's reader is confused between the destination of savings to cover firms' losses, discussed above, and that of financing investment. Again, the absence of a real skeleton consisting of a multiplier (or supermultiplier) analysis leaves the analysis vague. Similarly, Passarella and Sawyer (2014 pages not numbered) present the circuit as concerned with both initial and final finance: "In order for investment to be undertaken, the purchase of the investment goods has to be financed, and the production process whereby the investment goods are produced has to be financed". The coordination mechanism between initial and final finance does not, however, go beyond some vague traditional circuitist lines: "In the simple circuit (…), whilst the commercial banks provide initial finance, the financial system was portrayed in terms of final finance whereby firms sold financial assets to the household sector".

Although a step forward, there are still various problems with this sequence.

(i) The institutional features of the story might vary according to the specific regions of application, e.g. between the financial-market-centred U.S. way of providing final finance (long-term funding) and the more bank-based structure of financing of the European model. While further research might be useful in this direction, the distinction put forward by Bossone (2001) between banks and non-bank financial intermediaries – which can be two separate departments, a *monetary* and a *financial* department, within the same bank (ibid, fn.12) – is sufficient for the present purposes:

> "(a) Banks operate upstream in the circuit process. They allow the circuit to start by providing new liquidity to production. This liquidity is in the form of banks' own liabilities, or debt claims drawn on the banks themselves, which are made available to borrowers. Banks do not intermediate existing liquidity, but *add* to the system's liquidity every time they extend new credit to firms through deposit creation, while simultaneously maintaining full liquidity of depositors' claims…
> (b) Non-banks operate downstream in the process. They act as capital market intermediaries with longer time-horizons than banks, collect existing liquidity (bank deposits) from savers with long positions (who in this case do part with liquidity), and allocate it to investors with short positions." (ibid, p. 869).

In short, banks are concerned with *financing* (or *initial finance*) while non-bank intermediaries are concerned with *funding* (or *final finance*). [22]

A related question is suggested by Febrero (2008, p. 118) regarding the case of a positive households' liquidity preference (households that do not want to lend long-term). He suggests banks will in this case intermediate sight deposits into final finance, a possible occurrence in Europe. With an eye to the American case, Davidson (1986, p. 109) discusses what happens if "at the initial interest rate, some households desire to hold some of their savings in the form of full liquid money". In this case although in principle savings match final finance (investment), only a higher interest rate can induce households to part with liquidity unless the central bank, in order to maintain the target rates, absorbs some long-term securities.

(ii) A more urgent problem is alluded to by Febrero (2008, p. 118) when he argues that at the end of the Davidsonian sequence "Equilibrium requires initial finance to completely cover final finance". As it happens, *initial* finance only covers the production costs of the investment good net of profits and not its full price - that is $P_c < P_k$ as indicated above in point (2). As a result, savings

[22] In a similar vein Sawyer (2014 pages not numbered): "The "money creation feature of banks is not only crucial for understanding the operations of the financial system, it also means that the role of banks and the role of ["non-bank" financial] markets are non-comparable."

generated by the multiplier process after the production of the capital good, and channeled as long-term *final* finance to the investing firm through the non-bank financial intermediaries, fall short of the necessary *final* funds to be collected.[23] The MCT puzzle related to the fact that profits are not included in initial finance re-emerges again, although in another context. [24]

There is no other solution but to assume that "non-banks" somehow finance all *final payments* for investment goods (P_k), partly by intermediating savings generated by the Davidsonian process (equal to P_c) and partly by resorting to the creation of new short-term deposits ($P_k - P_c$).[25] This might for instance take the form of a short-term loan by the monetary to the financial department of the same bank, or by banks in favour of non-bank financial intermediaries so that the investing firm can purchases the capital good. Once the producer has received the payment (P_k), she can return the initial finance (P_c) to the bank. Notably, in this way she has also realised her profits (equal to $P_k - P_c$), thus solving the MCT puzzle. Supposing that she spends her profits, this engenders a further (*phase 2*) income multiplier process out of which further savings are generated. These are channeled to the bank's financial department or to the non-bank financial intermediary (investment banker) who is able to return the short-term loan.[26] We shall return on the "double multiplier process" below, after an example that might help the reader to clarify it.

---

[23] Anticipating the example of section 3.3, suppose that the price of the investment good is $P_k = 100$ ua and its production cost (net of normal profits) is $P_c = 80$ ua. With a marginal propensity to consume $c = 0.8$, 80 ua of savings are generated, short of the final finance necessary to finance investment (100 ua).

[24] As Febrero (2008, p. 118, my italics) views it: "If banks only advance the *cost of production* of fixed capital, where does the money required to monetize the profits of the producer of investment goods come from?" Neither Davidson (1978, 1986) nor Bossone (2001) noticed the problem.

[25] Should the investment banker have difficulties to finance successful "new issue flotations", Davidson (1986, p. 105 fn. 4) maintains, s/he "might adjust to this problem … by further borrowing from the banking system." Davidson (1978, pp. 323-24) writes: "The flotation of new issue – the flow-supply of placements – is normally carried out via financial intermediaries such as investment bankers, underwriting syndicates, or new issue houses. These financial intermediaries have either direct or indirect (via other financial intermediaries) access to savers who wish to purchase securities – access which would not easily be available to the investing firm directly. Each of these financial institutions can also normally expect preferential treatment from the banking system and even from the Monetary Authority if the stream of savings searching for placement outlets unexpectedly dries up. This recognised pre-emptive access to the institutions that create money, are the ultimate basis for liquidity in the financial markets." This of course reminds us of Keynes's famous dictum that the "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" (1937b, p. 222; 1938, pp. 231-232).

[26] Anticipating the example of section 3.3, if the producer spends $P_k - P_c = 20$ ua, with a marginal $c = 0.8$, income rises by 100 ua and savings by 20 ua (filling the saving gap of phase 1, see fn. 24).

3.3. The "monetary-production multiplier circuit": a Dalzielian example

It might finally be useful to provide a summing-up example of the working of the initial/final finance model along the lines suggested by Dalziel (1996, p. 315), with some qualifications added in the next section. Suppose an investing firm orders a capital good costing P_k = 100 units of account (ua). Order in hand, the producer of the capital good asks the bank for a short-term loan (initial finance) to fulfil the order (Davidson 1986). Suppose that production costs are P_c = 80 ua. Table 1 shows that production of the investment good (ΔI) induces an income multiplier process (ΔY) whereby the output of consumption goods also increases (ΔC). This is a *phase-1 multiplier process.* Assuming a closed economy with no public administration and a propensity to consume *c = 0.8*, initial spending generates an amount of savings (ΔS) equal to the initial spending P_c = 80 ua. Following Dalziel, we assume that part of the generated savings is invested long-term (ΔF) (90% in the example), usually through specialised intermediaries like pension funds, and the rest held liquid in a deposit account (ΔH).

Observe that: (a) the amount of saving, 80 ua, is short of the final finance necessary for the investing firm to fund its long-term investment; (b) part of these savings (8 ua) is held in liquid form. However, we may suppose that the investment banker (or the financial department of a bank) assisting the investing firm can overcome both problems and provide the investing firm with all of the 100 ua long-term loan required, partly by commuting short-term savings into long-term loans, and partly by asking a commercial bank to finance the amount necessary (20 ua) to fill the gap of the long-term loan by endogenous money creation. In this intermediate stage, therefore, final investment demand is partially long-term funded and partially financed by endogenous credit/money. Once the investing firm has obtained its long-term finance, it liquidates the capital good producer,[27] who can return her debts to the banks (80 ua) and spend her profits (20 ua).[28] As a result of this spending, a multiplier process similar to that of Table 1 develops. This is a *phase-2 multiplier process*. Eventually income increases by a further 100 ua out of which 20 ua of savings are generated, partly short and partly long-term, ultimately collected by the investment banker. In this final step, therefore, all final investment demand is funded.

// Table 1 here //

[27] If the investing firm has made advance payments it will use part of the long-term loan to return previous short-term loans to the banks.

[28] Note again the solution to the MCT profit puzzle.

Graziani was ultimately right when he argued that "investment finds its final finance in saving" (2003, p. 71; 1994, pp. 83-4), while initial or temporary finance has to do with inception of production (2003, p. 69; 1994, p. 82). He was also (almost) correct in saying that "investment finance is supplied by final finance and not by bank advances" (1990, p. 16) and that "the role of final finance is …to make it possible for firms to repay their bank debt" (2003, pp. 69-70). What is missing in the gap between *initial* (short-term credit-based) and *final* (long-term saving-based) finance is precisely the income multiplier process, without which we obtain confused results - including the role of final finance, at times used to fix firms' losses and at other times to finance investment. The *General Theory*, not the *Treatise*, is the realm of a satisfactory "monetary-production multiplier circuit".

A little-noticed detail concerns the equality of saving and investment, which on closer inspection, holds at any stage of the multiplier process, not only at completion. Take period 2 of Table 1. At the end of this stage savings are 16 ua and the income *not-yet-spent* generated at this stage is 64 ua. If we consider this *not-yet-spent income* as temporary saving, then total saving is 80 ua. As Dalziel (1996, p. 317) explains: "at the end of the first round, some of the investment expenditure is held as voluntary saving,… while the second is held as induced income … in advance of the second round."[29]

3.4. Further qualifications

(i) Initially, the present author suspected the "double multiplier process" of being somewhat *ad hoc*. On further reflection, however, he realised that it was not surprising at all because it reflects an apparent puzzle in the theory of effective demand. On one hand this theory holds that *autonomous* demand, financed by endogenous credit/money, must precede production (the received view of section 1.2); on the other hand, production, also financed by endogenous credit/money (*initial* finance), often precedes actual demand as it is undertaken on the basis of *expected* demand or of orders. Thus, there is nothing strange about finding endogenous credit/money in both phases: as long as *initial* finance is insufficient to generate enough *funding* to sustain the actual final

[29] Dalziel uses this result to dispel Moore's (1988, p. 312) statement that "the equality of planned investment and saving does not occur through the adjustment of income, as the Keynesian income-multiplier approach asserts." Likewise Wray (1991, p. 960) dismisses the income multiplier since "investment and savings are always equal, so that their equality cannot require the operation of the multiplier process that takes time." The example shows that saving adjusts to investment *during* operation of the multiplier process, not just at the end. A second objection by Wray that "the story ignores the initial finance of investment spending" is also fallacious in view of e.g. Davidson (1978, 1996) and Dalziel (1996).

autonomous-demand payments,[30] then there will be extra endogenous credit/money creation to complete *final* finance.

(ii) The reader may have noticed an asymmetry in the Dalzelian example in that the capital good producer uses initial finance to meet the order while consumption goods makers produce and distribute income only after actual monetary demand has materialised. Presumably, a larger share of output – including for instance many standardised investment and consumption goods – tends to be prepared in advance of expected demand by resorting to initial finance.[31] This is consistent with both Keynes (1937 a/b) and Davidson who did not restrict the role of initial finance only to investment.[32] It does not seem that this would introduce substantial changes since it can be maintained that, even in the extreme case in which all production is decided in advance, this cannot be done except by respecting the level and composition of final output (the levels and proportions of I, C and Z) prescribed by the income multiplier.[33] Consider the example of Table 1 and suppose that capitalists anticipate the demand for both investment and consumption goods (100 + 400 ua) by producing and distributing wages in advance of final payments. In table 2 we suppose that wages are 4/5 of the output value. Wages (80 + 320 ua) are partly spent (64 + 256 ua), constituting part of the final payments, and partly saved (16 + 64 ua) and collected by the investment banker (this is shown as phase 1, Table 2). Are we back to Say's world in which supply creates its own demand? Not at all.[34] The investment decisions were made independently of these savings, in fact the investment orders gave rise to savings, while expected sales of consumption goods were a precise proportion of investment decisions, a proportion dictated by the Keynesian multiplier. Moreover, as

[30] Insufficient because, as shown, initial finance only covers part of the whole price of, say, an investment good.

[31] Advance production will also include reproduction of intermediate goods that we may assume are inherited from the previous production cycle. If, for simplicity, we consider each (single-product) industry as a vertically integrated firm, initial finance will concern both the production of the final goods and the reproduction of circulating capital. Of course, complex customised investment and consumption goods cannot be produced in advance of detailed orders, but initial finance is needed to cover the gestation period between the order and the final payment. By definition, services produced on the spot cannot be produced in advance.

[32] As pointed out by Davidson (1978, pp. 271-72): "the induced increased demand for consumption goods will require producers of consumer good to finance additional investment in working capital which, for simplicity, can be assumed to be financed by additional borrowing of short term funds from the banks."

[33] Of course, stability analysis must show that there are market mechanisms whereby the level and composition of expected demand and of capacity tend to converge to the equilibrium level (e.g. Freitas and Serrano 2015 for the Supermultiplier case).

[34] See also above paragraph 1.3.

seen above, savings generated in phase 1 were not sufficient and the investment bankers needed a supplementary short-term loan from a commercial bank to fully finance the investors. Once the latter finally paid for the capital goods, the producers realised profits and this generated (phase 2 of table 2) new consumption demand (16 + 64 ua) and savings (4 + 16 ua), so that demand expectations were fully realised and the investment banker could collect the extra savings and redeem the short-term loan to the bank.

In this narrative we somewhat lose the sequential multiplier image of Table 1 in which consumption is induced. Here *all* wage-consumption is financed out of bank loans, but unlike autonomous consumption, it is induced by expected demand. Although the dynamic of the multiplier is hidden, it is nonetheless there. Table 2 may indeed describe a tranquil situation in which expectations have adjusted to a recurring pattern of AD, which however began sometime in the past with *unexpected* investment orders followed by a sequence of events like those of Table 1. (Secondary differences with Table 1 are that all profits are realised in phase 2 while all wages are paid in phase 1, and the time span over which the flows of Table 2 mature is probably shorter than that of Table 1).

// Table 2 here //

(iii) A further question concerns retained profits or *internal final* finance as a possible alternative to *external final* finance as a way to finance investment, certainly a prime, albeit not exclusive, channel for financing it. In this regard, note that it is investment decisions leading to capital-goods production decisions financed by initial finance that in the short run, through fuller utilisation of capacity and, in the long run, through creation of new capacity, determine savings – including retained profits – and not the other way round (e.g. Garegnani 2015 [1962], p. 121, fn. 22). Thus *internal finance must logically be a form in which final finance presents itself*. With reference to Table 2, savings out of profits (last column) may indeed also consist of retained profits used to finance investment to lessen the need for external final funding to settle the final payment of capital goods. In line with Keynesian logic, although investment is funded by profit/retained-savings (in addition to external savings), it was an initial order of capital goods financed by the revolving fund (initial finance) that generated, via the Keynesian multiplier, those profits/savings.

(iv) In the spirit of Davidson and Dalziel, our example related initial and final finance to multiplier analysis with *investment* as the independent variable. In supermultiplier analysis, investment is an induced component of AD along with consumption. *Autonomous consumption* is instead an autonomous component in both multiplier and supermultiplier analysis. Keynes (1937a,

pp. 218-9) provides the example of a man who orders a house[35] through a building society: "it is not his promise which provides the builder with the finance he requires, but the deposits which the building society (…) collects by the offer of a suitable rate of interest from the general pool of liquid resources, provided out of existing cash which his owner can spare or out of new cash provided by banks". *Mutatis mutandis*, this case resembles that of Table 1. The building society, having obtained the funds by way of an (endogenous credit/money created) bank loan, advances P_c = 80 ua of production costs (net of profits) to the builder. The final price is P_k = 100 ua.[36] We have a *phase-1 multiplier process* at the end of which part of the private sector holds a saving of 80 ua that is lent, through the financial intermediaries, to another part of the private sector (the person buying the house). Once the house is ready, the building society needs a second (endogenously created) bank loan (20 ua) to cover the whole price that the buyer has to pay. Once the builder spends his profits (20 ua), a *phase-2 multiplier process* develops, on the top of which savings rise by a further 20 ua and are channelled on a long-term basis to the building society, which can therefore redeem the second bank loan. The difference with respect to Table 1 is that final net saving of the private sector as a whole is nil since savings (100 ua) are fully offset by autonomous consumption (P_k = 100 ua), which is an act of dissaving.

Finally, taking exports into consideration, firms of the exporting economy, in view of expected foreign orders, might finance export *production* through short-term loans (initial finance). Production generates domestic savings which are lent to foreign banks that finance imports. Once exports are sold, initial finance is eventually returned.[37] Net foreign lending is the financial counterpart of the net current account surplus of the exporting economy.

The cases of autonomous consumption and net exports are interesting because they are associated with the possibility of households and countries, respectively, to amass indebtedness and thus elicit financial crises. The examples of the households-debt-led growth in the U.S. during the great moderation era, and of the German mercantilist behaviour as the cause of the Eurozone crisis, come to our minds.

---

[35] Which is non-capacity-creating autonomous spending.

[36] Also in this case we could have assumed that the builder gets part of the initial finance from a bank and part from an advance payment by the building society.

[37] Also in this case we may add all the complications we like. For instance, initial finance may only cover export production costs but not profits. Savings lent to foreign customers therefore fall short of the full sale price. Commercial banks belonging to the exporting or importing country fill the gap by creating an additional endogenous credit/money loan to the customer. In this way exporters monetise their profits giving rise to a *phase-2* multiplier process that generates a second saving-based loan to the importing country.

Concluding remarks

This paper suggests a way to integrate the Keynesian theories of multiplier and supermultiplier with the endogenous-money view, Keynes's finance theory and MCT, with particular regard to Graziani's views of the monetary circuit. The Classical-Keynesian supermultiplier approach was selected as the most promising means to extend the Keynesian proposition of the independence of investment from capacity saving to the long period. In this approach the autonomous components of AD are the drivers of output and accumulation. The financial aspects of this approach are rather underdeveloped yet. The paper is a step towards the integration of the MCT concern with endogenous money and finance with the Classical-Keynesian concern with (super)multiplier theory. It is also a step towards reconciling Graziani's supply-side preoccupation with *initial* production financing, and the concern of demand-side-oriented heterodox theories with *final* financing of autonomous demand.

If production of both consumption and investment goods is decided on the basis of expected demand or purchase orders, it logically comes earlier than payments. This creates the need for *initial finance,* endogenously created by commercial banks, to carry out production. Following suggestions by Davidson, Dalziel and others, this paper shows that it is initial finance that through the income (super)multiplier, generates the revenues out of which expected demand and purchase orders become *actual* spending: directly in the case of induced consumption or indirectly in the case of investment and autonomous spending funded by the savings generated by the same income multiplier process. In this regard, the paper finds Graziani's MCT unsatisfactory precisely because it neglects (or even rejects) income (super)multiplier analysis that is precisely the nexus between initial and final finance. Various complications were examined. For instance, since initial finance only covers production costs of the investment good, not including profits of the capital-good producer, the savings generated fall short of the final, long-term finance required by the investing firm. Further *final* endogenous credit/money creation might therefore be necessary to fully fund desired investment. Notably, this allows profits to be realized solving the MCT puzzle. Once all this is completed, all subjects who have received initial finance redeem their debts, possibly requesting renewal (or expansion in a progressive economy) of credit lines in view of the next production period. Finance therefore resembles a Keynesian *revolving fund,* growing in an expanding economy. By employing the income multiplier, that Graziani's MCT overlooks, we rigorously prove Graziani's insight that initial finance pertains to production while investment demand is funded by savings, even solving the MCT profits puzzle. This approach is synthetically evoked by Lavoie (2015b, p. 8). Though mainly concerned with the standard case of the Keynesian multiplier,

the paper takes some steps towards extending analysis to other autonomous components of private spending in view of the supermultiplier approach.

References

Allain O. (2014): 'Tackling the instability of growth: a Kaleckian-Harrodian model with an autonomous expenditure component', *Cambridge Journal Economics*, 2015, 39 (5): 1351-1371.

Arestis, P. and Sawyers, M. (eds.) (2006): *A Handbook of Alternative Monetary Economics*, Edward Elgar, Chaletnham.

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.

Bertocco G. (2005): 'The Role of credit in a Keynesian monetary economy', *Review of Political Economy*, 17(4), pp. 489-511.

Bertocco G. (2014): 'Global saving glut and housing bubble: A critical analysis', *Economia Politica* , 31(2), pp. 195-218.

Bougrine, H., Seccareccia. M. (2004): 'Money, Taxes, Public Spending, and the State within a Circuitist Approach', *International Journal of Political Economy*, 32 (3), pp. 58-79.

Borio C. (2014): 'The international monetary and financial system: its Achilles heel and what to do about it', BIS Working Papers n. 456.

Bossone B. (2001): 'Circuit theory and finance', *Journal of Banking & Finance*, 25, pp. 857-890.

Bindsell U., Philipp J. König P.J. (2013): 'Basil J. Moore's Horizontalists and Verticalists: an appraisal 25 years later', *Review of Keynesian Economics*, 1 (4), pp. 383–390

Cesaratto S. (2013a: 'Harmonic and conflict views in international economic relations: a Sraffian view, in Levrero E.S., Palumbo A., Stirati A. (eds.): *Sraffa and the Reconstruction of Economic Theory*, vol. II, Palgrave Macmillan, London.

Cesaratto S. (2013b): '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. (2015): 'Neo-Kaleckian and Sraffian controversies on the theory of accumulation', *Review of Political Economy*, 27 (2), pp. 154-182.

Cesaratto S., Mongiovi G. (2015): 'Pierangelo Garegnani, the Classical Surplus Approach and demand-led growth: introduction to the symposium', *Review of Political Economy*, Vol. 27 (2), pp. 103-110.

Cesaratto S. (2016a): 'The State Spends First: Logic, Facts, Fictions, Open Questions', *Journal of Post Keynesian Economics*, forthcoming.

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 del Dipartimento di Economia Politica e Statistica*, no. 732.

Chick V. (2000): 'Money and effective demand', in Smithin J. (ed.): *What is Money*, Routledge, London.

Dalziel P.C. (1996): '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. (1978): *Money and the Real World*, 2nd ed., Macmillan, London.

Davidson P. (1986): 'Finance, funding, saving, and investment, *Journal of Post Keynesian Economics*, vol. 9(1), 101-110.

Febrero E. (2001): 'El circuito monetario', Documentos de Trabajo: Facultad de Ciencias Econmicas y Empresariales, Serie 1, Nº. 10, available at: https://www.researchgate.net/profile/Eladio_Febrero/publications/.

Febrero E. (2008): 'The Monetization of profits in a monetary circuit framework, *Review of Political Economy*, 20(1), pp. 111-125.

Febrero E., Uxo J. (2013): 'Understanding TARGET2 imbalances from an endogenous money view'**,** Department of Economics and Finance, University of Castilla-La Mancha, DT/DAEF 2013/2.

Febrero E., Bermejo, F. (2013): 'Spain during the great recession', in Dejuán, O., Febrero, E., Uxò, J. (eds.), *Post-Keynesian Views of the Crisis and Its Remedies*, Routledge, London.

Freitas F., Serrano F. (2015): 'Growth rate and level effects, the adjustment of capacity to demand and the Sraffian Supermultiplier, *Review of Political Economy*, 27(3), pp. 258-281.

Fontana G, Sawyer, M. (2016): 'Towards Post-Keynesian Ecological Macroeconomics', *Ecological Economics*, 121, pp. 186–195.

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).

Gnos C. (2006): 'French Circuit Theory', in Arestis P., Sawyer M. (eds.): *A Handbook of Alternative Monetary Economics*, Edward Elgar, Cheltenham (UK).

Gnos, C., Rochon, L-P. (2004): 'Money Creation and the State', *International Journal of Political Economy*, 32 (3), pp. 41-57.

Graziani A. (1994): *La teoria monetaria della produzione*, Banca popolare dell'Etruria e del Lazio/Studi e ricerche, Firenze.

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 University Press, Cambridge (UK).

Hein E. (2012): 'Finance-dominated capitalism, re-distribution, household debt and financial fragility in a Kaleckian distribution and growth model, *PSL Quarterly Review*, 65 (260), pp. 11-51.

Hicks J.R. (1950): *A Contribution to the Theory of the Trade Cycle*, Clarendon Press, Oxford (UK).

Jakab, Z., Kumhof, M. (2015): 'Banks are not intermediaries of loanable funds - and why this matters', Bank of England, Working Paper No. 529.

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.), vol. V, part I, Macmillan, London, 1971.

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

Keynes J.M. (1937a): 'Alternative theories of the rate of interest, *Economic Journal*, 47, pp. 241–52, reprinted in *The Collected Writings of J.M.Keynes* (D.Moggridge ed.), vol. XIV, part II, pp. 201-15, Macmillan, London, 1973.

Keynes J.M. (1937b): 'The "Ex Ante" TheOry of the Rate of Interest', *Economic Journal*, 47, pp. 663-69, reprinted in *The Collected Writings of J.M.Keynes* (D.Moggridge ed.), vol. XIV, part II, pp. 215-223, Macmillan, London, 1973.

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

Lavoie M. (1992): *Foundations of Post-Keynesian Economic Analysis*, Edward Elgar, Aldershot (UK).

Lavoie M. (2005): 'A primer in endogenous credit-money', in: Rochon, L.P., Rossi S. (eds.), *Modern Theories of Money. The Nature and Role of Money in Capitalist Economies*, Edward Elgar, Cheltenham (UK).

Lavoie L. (2013): 'The monetary and fiscal nexus of neo-Chartalism: A friendly critical look', *Journal of Economic Issues*, 47(1), pp. 1-32.

Lavoie M. (2015a): 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. (2015b): 'What post-Keynesian economics has brought to an understanding of the Global Financial Crisis', Progressive Economics Forum at the annual conference of the Canadian Economics Association, May. Available at www.boeckler.de/pdf/v_2015_10_24_lavoie.pdf

Lazzarini, A. (2011): *Revisiting the Cambridge Capital Theory Controversies*, Pavia University Press, Pavia.

McLeay M., Amar, R. Ryland, T. (2014): 'Money creation in the modern economy', Bank of England, *Quarterly Bulletin*, No. 1, pp. 1-14.

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.

Moore B.J. (1988): *Horizontalists and Verticalists. The Macroeconomics of Credit Money*, Cambridge University Press, Cambridge (UK).

Pariboni R. (2015): 'Autonomous consumption, household debt and growth: a Supermultiplier based analysis', in ID, *Autonomous Demand and Capital Accumulation: Three Essays on Heterodox Growth Theory*, Ph.D. dissertation, Department of Political Economy and Statistics, University of Siena.

Passarella Veronese M., Sawyer M. (2014): 'Financialisation in the Circuit', FESSUD, Working paper series, n. 18.

Pivetti M. (2001): 'Money endogeneity and monetary non-neutrality: A Sraffian perspective, in Rochon L-P., Vernengo M. (eds.): *Credit, Interest Rates and the Open Economy*, Edward Elgar, Cheltenham(UK).

Realfonzo R. (2006): 'Italian Circuitist Approach', in: Arestis, P., Sawyer M.C. (eds.): *The Handbook of Alternative Monetary Economics*, Edward Elgar, Cheltenham (UK).

Rochon L-P. (1999): 'The creation and circulation of endogenous money: a circuit dynamique approach, *Journal of Economic Issues*, 33(1), pp. 1-21.

Rochon L-P. (2003): 'On money and endogenous money: Post Keynesian and Circulation approaches', in Rochon and Rossi (2003).

Rochon L-P. (2005): 'The existence of monetary profits within the monetary circuit, in Fontana G., Realfonzo R. (eds.), *The Monetary Theory of Production*, Palgrave Macmillan, London.

Rochon, L-P. and Rossi, S. (eds.) (2003) *Modern Theories of Money: the Nature and Role of Money in Capitalist Economies*, Edward Elgar, Cheltenham.

Sawyer M. (2014): 'Bank-based versus market-based financial systems: a critique of the dichotomy', FESSUD, Working paper series, n. 19.

Smithin, J. (2009): Money, *Enterprise and Income Distribution: Towards a Macroeconomic Theory of Capitalism*, Routledge, Oxon.

Terzi A. (2012): *Economia monetaria*, EDUCatt, Milano.

Wicksell K. (1935): *Lectures on Political Economy*, vol. II: Money, London: Routledge and Kegan Paul. Translation of the 3rd Swedish edition of 1929.

Wray L.R. (1991): 'Saving, profits, and speculation in capitalist economies', *Journal of Economic Issues*, 25(4), pp. 951-975.

Wray L.R. (1998): *Understanding Modern Money*, Cheltenham: Edward Elgar.

Wray L.R. (2011): 'The S&P Downgrade: Much Ado about Nothing Because a Sovereign Government Cannot go Bankrupt'. Available at http://wallstreetpit.com/71874-the-sp-downgrade-much-ado-about-nothing-because-a-sovereign-government-cannot-go-bankrupt/

Table 1 - Keynesian multiplier and finance
(marginal propensity to consume = 0,8)

periods	ΔI	ΔY	ΔC	ΔS	ΔF	ΔH
1	80	80				
2		64	64	16	14.4	1.6
3		51.2	51.2	12.8	11.5	1.3
4		41.0	41.0	10.2	9.2	1.0
5		32.8	32.8	8.2	7.4	0.8
…		…	…			
∞		400	320	80	72	8

Table 2 - All output produced in advance

	Expected demand & advanced production		Wages	Actual consumpt.	Saving	Actual inv.	Profits	Actual consumpt.	Saving
	Inv. goods	Consumption goods		demand (phase 1)	(phase 1)	demand		demand (phase 2)	(phase 2)
	100		80	64	16	100	20	16	4
		400	320	256	64		80	64	16
Total	100	400	400	320	80	100	100	80	20