

## THE EQUILIBRIUM PROBLEM IN THE MONETARY CIRCUIT APPROACH: A CRITICAL ASSESSMENT

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The aim of this paper is to provide a critical reconstruction of the evolution of the so-called monetary circuit approach (MCA), with particular reference to the notion of ‘equilibrium’ and the capacity of a deregulated market economy to spontaneously achieve it. This topic will be dealt with by comparing three different views: the view that the MCA confirms Say’s Law; the view of the relevance of uncertainty in this theoretical context, and the Marxist interpretation of the MCA as the “cycle of money capital”.

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### 1 – Introduction

The so-called monetary circuit approach (MCA) describes the functioning of a sequential economy which involves three macro-agents: banks, firms and workers. The banking system creates money *ex nihilo*, in accordance with the idea that loans make deposits; firms advance the money wage bill and produce commodities; workers supply labour power. The circular process of the monetary economy starts with bargaining in the money market between banks and firms. Banks supply firms with initial finance; firms need money in order to buy labour power and to start production. Firms use bank finance to purchase labour power, paying workers the previously negotiated money wages. After the production process has taken place, the price level is set, so that real wages are known *ex-post*. The MCA emphasises that income distribution is primarily determined by firms’ decisions on the scale and composition of output. This means that in the MCA, income distribution among banks, firms and workers depends on the relative market and socio-political power of the agents. The monetary circuit closes with the repayment of the initial finance to banks (see Lavoie, 1992; Graziani, 2003).

Lavoie (1987, p.67) lists the following basic elements which distinguish the MCA from the mainstream view on the role of banking and money, and, more generally, on the development of the production process:

1. the economic circuit is characterized by a hierarchy of agents;
2. the banking system, which produces credit money on the basis of the demand for money expressed by firms, manipulates the interest rate in order to obtain money profits.
3. the money supply is endogenous;
4. there are macroeconomic laws independent of microeconomic relations, in particular the idea that savings are equated to investments.

However, the following issues are not completely agreed upon by all MCA scholars:

1. the role of money as *liquid balance*;
2. the circuit’s time dimension;
3. the problem of interest and profits;
4. the problem of monetary equilibrium, also known as the problem of closure of the monetary circuit.

This paper aims at assessing the debate within the MCA with particular reference to the idea that, in this theoretical context, a deregulated market economy is capable of spontaneously achieving

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equilibrium, on the condition that equilibrium is conceived here as a *monetary equilibrium*. Monetary equilibrium is, in turn, a situation where agents have no debt (or credit) with others or, in other words, a situation where firms as a whole are able to entirely reimburse their debt towards the banking system. It is worth noting that the existence of a monetary equilibrium is not necessarily associated with a full employment equilibrium and that, as a norm, even if monetary equilibrium is achieved, unemployment exists (cf. Forges Davanzati and Realfonzo, 2000).

The exposition is organized as follows. In section 2 the equilibrium approach is critically discussed, in section 3 we explore the view that uncertainty plays a pivotal role in the MCA and that, as a norm, economies move in disequilibrium conditions. Section 4 deals with the Marxist interpretation, and section 5 concludes.

## 2 – The Equilibrium Approach

The equilibrium approach – as defined above – was initially supported by the so-called Dijon School, and it is now present in the more recent development of the MCA. In what follows, these views will be analyzed separately.

### 2.1 – The Dijon School.

Under the lead of Bernard Schmitt, in the late 1960s, there emerged in France (Dijon) and Switzerland (Fribourg) a paradigm of MCA known as *the theory of money emissions* and later on also labeled the *quantum theory of money and production*<sup>1</sup> or *Dijon School*.

According to Bernard Schmitt and the scholars of the “Dijon School”, banks play a double role: 1. they create money, 2. they act as financial intermediaries. These activities are handled in each bank by two separate departments: one of them, the ‘monetary department’, creates credit money, which is both a liability (a debt of the bank) and an asset (for it must be repaid to the bank, with interest); the other department, the ‘financial’ one, performs an intermediary role of transmitting part of the money which has been created by the monetary department from the lenders (the families, who save and deposit) to the borrowers (the firms, which need money to make real investments).

The money flows back instantaneously to its origin (a bank) at the same moment it is created, since each payment entails both the creation and the destruction of bank money, owing to its incorporeal nature<sup>2</sup>. As a vehicle of exchange, initially money has no content (it is an ‘empty vehicle’, until it is ‘integrated’ in the real economy). It is only by entering the monetary circuit that money acquires the specific content of a purchasing power (which it loses, as soon as it is spent). (see Schmitt, 1966, p. 235).

The intermediation function (deposit in the narrow sense) concerns only the transmission of deposits, i. e. the savings originating from productive activities that make the depositor a bank debtor; the monetary mass is not increased, but only transferred from agent to agent. The creation of money is therefore null and the bank is in no way the creditor of the productive economy (see Schmitt, 1966, p. 159).

The money *created* thus acquires an *active/passive* feature: the money does not belong to any person, nor to the banks, which will see their debt/credit annulled when the money flows back to them (Schmitt, 1975, p. 8). By creating money, the bank issues a debt that will not determine an actual payment (in real goods), but it will circulate until it is returned to the issuing bank. This process is possible since the banking debt, the basis of modern money, is distinguished from other

<sup>1</sup> The most prominent scholars, besides Schmitt himself, are Alvaro Cencini and Claude Gnos.

<sup>2</sup> Parguez rejects Schmitt’s view of an instantaneous dimension of the money circuit and places great emphasis on the notion of a ‘dynamic circuit’. In this view the circuit acquires a temporal dimension that is characterized by the time necessary for the realization of equilibrium between investments and savings, cfr. Parguez (1984), Parguez (1985), Parguez (1984).

types of private debt because it “does not need to be honoured” (Schmitt, 1966, p. 246). The *creation* of money therefore assumes the characteristic of a debt *not paid*; it is an easy process: “thrown like a boomerang, the debt requires no feeding, the circular movement triggered will soon bring it back to the issuing bank” (Schmitt, 1966, p. 247). Banks grant the financing requested by firms, creating money (opening of the circuit - flow). Once financing has been obtained, firms buy inputs and carry out production. At the end of the production process, firms put the goods on the market and once goods have been sold, firms repay the banks (*closure of the circuit - flow back*). This definition of money gives rise to three *fundamental laws* of the monetary economy: 1. *the law of product numeration*: “money is the measure of services and products” (Schmitt, 1975, pp. 42-43); 2. *Say’s law*: since money is *active/passive*, each purchase is financed by a sale, because money is only an intermediary (Schmitt 1975, p. 14); 3. *Distance between issuing and user law*, because nobody pays with his own debt. Only bank debts are means of payment in the economy, because between banks and the economy there is the *distance* implicit in the process of monetary creation (Schmitt 1975, pp. 15-16).

The creation of money is nothing but a “projection of the bank debt in the productive economy” (Schmitt, 1966, p. 188). Firms then transform the banking money into monetary income, handing it out as wages to the only productive factor: the workers. Production is an exchange between the productive service from labour and the money created by banks, and it is in this way that the integration of banking money and production is achieved. Once the production process is over, monetary incomes are consumed or saved; in any case they are converted into real goods. After this conversion, the monetary income becomes money again and in the end it is returned to the issuing banks (Schmitt, 1966, p. 189).

Money goes through a circuit from its creation to its integration in actual production (income distribution) and the final disintegration (firms repay the banks). It follows that:

1. the circuit is the *form* of the monetary economy;
2. the circuit *cannot be* interrupted (an ‘interrupted circuit’ would be a contradictory concept, from a logical point of view). Any excess sale finances an excess purchase, any excess purchase is financed by an excess sale<sup>3</sup>. Any inequality between purchases and sales for any single element of the circuit is apparent and it changes into an *inflationary* and *deflationary* disequilibrium of money (Schmitt, 1975, pp. 42-43).

*Say’s Law* (the second law of the monetary economy) prevents the interruption of the circuit: for any sale there is an act of purchase. This does not mean that inside the circuit there are agents keeping part of the total money created by the monetary department, but this saving in the banking economy is transferred to another agent with excessive expenses (Schmitt, 1972, p. 140). The monetary saving flows back to the banks’ financial department, which transfers it to buyers in excess and this demonstrates that sales and purchases are the same. This latter point is the basis of Say’s Law.

The circuit always implies a *closure* that is represented by the total equality between the flow of money and its return flow, but the accounting balance between purchases and sales does not correspond to equality between the sales to productive services and the total of the productive factor incomes. When there is saving, the sales are below the level of input payments and firms are forced to go to the financial market to borrow all the money they cannot find in their sales to productive factors (Schmitt, 1975, p. 53). In the opposite case (sales > productive factor incomes), firms make a profit (Schmitt, 1975, p. 56). This profit is obtained at the expense of productive services.

From a logical point of view, sales and purchases are always equal, and macroeconomic disequilibrium cannot logically exist. But in the real world there are inequalities between sales and purchases and the condition of macroeconomic disequilibrium can frequently occur. If disequilibrium occurs in the real world this is imputable to pathology, i. e. the injection of monetary units not corresponding to an equal flow of real goods, into the economic system.

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<sup>3</sup> This equality is explained in Chapters 6 and 7 of the *General Theory*, in a precise logical sequence that, according the Dijon School, constitute the Keynesian nucleus of the circuit theory (Gnos – Schmitt, 1990, pp. 66-67).

According to the Wicksell tradition, the Dijon School impute the responsibility of disequilibrium to bank behavior. The banking system can create a “free money”, i.e. a money created in counter-item of net purchase of gold and paper currency from other banks, and particularly from the central bank. Another free money source is the use of the monetary funds accumulated by firms from commercial profits achieved abroad, as well as international demand. In those conditions an excess of demand is formed in the circuit and the disequilibrium has repercussions on the money circulation value, which, if sales exceed incomes, determines a reduction of the purchasing power of money (*inflation*). In the opposite case of over-supply, an increase in purchasing power (*deflation*), causes *deflation* and *unemployment* (Schmitt, 1975, p. 56)<sup>4</sup>.

The Dijon School relies on two hypotheses to guarantee the closure of the circuit: a *logical-deductive* one, i.e. the existence of the financial department which in Schmitt’s model has the same function as the *Walrasian auctioneer*, and a realistic one, which considers the real pathology to the natural physiology of the circuit.

## 2.2 - *The irrelevance of Say’s Law for the equilibrium condition.*

Some scholars, moving outside the Dijon school’s theoretical framework, maintain that an equilibrium position can be reached by considering *i*) the interactions between the micro and the macroeconomic plane and *ii*) the role of historical time.

As regards the first point, Messori and Zazzaro (2005) show that monetary profits can be generated by the bankruptcy of the less efficient firms and Zazzaro (in Rochon and Rossi, eds., 2003) emphasises that this solution leads to abandoning “any concept of subjective and/or objective *equilibrium* ... in favour of a systemic concept of *order*”. Zezza (2004) argues that – since in the MCA theoretical framework banks aim to obtain interest payments in order to pay for their costs of production (namely, their employees’ wages) plus profits to distribute to bank owners, firms’ money profits ultimately derive from undistributed profits obtained by the banking sector as well as from the wages of workers in the banking sector.

As regards the second view, Rochon (2005, p.125) finds that monetary profits may be made in cases where the bank is divided between short term and long term contracts. Chapman and Keen (2006) show that aggregate money profits can arise in a dynamic context where a continuous time function is considered in overlapping circuits. Febrero (2008) maintains that firms as a whole can obtain money profits – within one single circuit - by means of long-term debt with the banking system. Others introduce variants of the standard structure using multi-sectorial models (see Parguez, 1980, Seccareccia, 2003), by including profits in the same wage bill (see Rossi, 2002) or by the banks themselves (see De Vroy, 1988, Renaud, 2000).

These contributions share with the Dijon school approach the view that the monetary circuit closes in equilibrium, although they do not rely on the acceptance of Say’s Law, and do not maintain that ‘external’ influxes of money (on the part of the Government or via net export) generate disequilibrium (see Dupont and Reus, 1989; Parguez, 2004).

## 3 – The Disequilibrium Approach

According to Graziani, in the monetary circuit approach,

money appears in its authentic capacity only when a good is exchanged against money and money passes from the balances of one agent to the balances of some other one. (...) In terms of substance, (...) money exerts its primary influence on macroeconomic equilibrium when it is used for buying commodities and not when it is kept as an idle balance (Graziani, 2003, p. 17).

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<sup>4</sup> Inflation and unemployment are “confirmations of the circuit, positive descriptions of the reality” (Gnos and Schmitt, 1990, p. 65).

Nevertheless its function as a reserve of value cannot to be neglected: in fact, denying this role means admitting the non-existence of uncertainty and returning to a model of barter economy, where money paradoxically does not play any role.

In a hypothetical world free from uncertainty and from frictions, [...] money is created, passed on from one agent to the next, and destroyed in the same instant. If this is the case, money is no longer an observable magnitude and the paradoxical result emerges of a monetary economy being defined as an economy in which money [...] escapes any observation and any possible measurement. [...] As a paradoxical consequence, the image would emerge of a monetary economy [...] in which money did not exist (Graziani, 2003, p. 11-12).

In order for money to be an observable variable, not only does money have to be the regular intermediary of exchanges, but a second condition has to be met, namely that agents constantly keep a fraction of their money incomes in the form of liquid balances (Graziani, 1996, p. 146).

According to Graziani, the monetary economy by its very nature, is characterized by uncertainty and by the presence of money with the function of reserve of value against the uncertainty of future events. This conclusion has important implications for the equilibrium concept in Graziani's circuit approach.

It is only in the case which wage earners spend their incomes entirely and the banks spend all their net profits that firms are able to completely recover the total amount of the initial finance received from banks and to close the circuit with the destruction of money<sup>5</sup>. If instead wage earners decide to keep a portion of their savings in the form of liquid balances, the circuit does not close and the firms are unable to repay their bank debt. This is the *normal* conclusion of the production cycle: in the final position the money is kept in the form of liquid balances, like a reserve of value, and a certain amount of firms' debt is accumulated from one production cycle to another (Graziani, 1994, pp. 126-127).

As a consequence, at the end of the production cycle the money initially created will not be entirely destroyed. If banks are now intending to finance a new production cycle equal to the preceding one by granting the same finance, the total money stock will be increased: precisely, it will be equal to the wage bill plus the new liquid balances set aside by wage earners at the end of the previous cycle (Graziani, 2003, pp. 30-31).

The above description of the disequilibrium in MCA has omitted the problem of the payment of interest to the banks (see section 3). As Graziani remarks:

It is self-evident that since the only money existing in the market is the money that banks have lent to the firms, even in the most favorable case, the firms can only repay in money the principal of their debt and are anyhow unable to pay interest (Graziani, 2003, p. 31).

In the condition of uncertainty, which is typical feature of the monetary economy, the final situation of the circuit is characterised by indebtedness of firms towards the banking system.

Graziani distinguishes between different cases of final position in relation to the characteristics of the production cycle: 1. In the sequential production cycle (as in the case of agricultural production), the final position of equilibrium is characterised by the indebtedness of firms towards the banking system, if the wage earners decide to keep a portion of their savings in the form of liquid balances the circuit does not close and the firms are unable to repay their bank debt. 2. In the synchronized production cycle (as in modern industrial production), loans are continually granted

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<sup>5</sup> "To the extent that bank debts are repaid, an equal amount of money is destroyed" (Graziani, 2003, pp. 29-30).

and continually repaid and it is necessary to define a different concept of equilibrium in the stationary or dynamic economy. In the stationary economy “the money stock would be equal to the amount of initial finance created by the banks” (Graziani, 2003, p. 22) and bank loans are continually granted to firms for new production cycles. In this case the level of indebtedness of firms is constant. In the dynamic economy “the banks are confronted with a continuously increasing debt owed by firms” (Graziani, 2003, p. 122) and the economic system in this situation is characterized by a high level of indebtedness. If the banks accept the level of indebtedness, the production in the next production cycle can be financed, but if the banking system is reluctant to grant higher loans, “firms will be forced to reduce their activity level” (Graziani, 2003, p. 122). But firms themselves may be reluctant to let their bank debt increase, in which case

firms might try to balance the increase in savers’ liquidity preference by offering higher interest rates on the securities they issue. As we know, an increase in interest rates paid on securities does not affect the firms’ profits and therefore should not induce them to revise their investment plans. However it cannot be ruled out that, when interest on securities is increased, the banks will also increase the rates charged on their loans. If this happens, even if by way of an indirect mechanism, any increase in the liquidity preference of the public may bring about a fall in investment and activity levels (Graziani, 2003, pp. 122-123).

In Graziani’s approach, a monetary economy characterised by systemic uncertainty, with the money in its role as value reserve, the final position of the circuit is characterized by a *normal* level of firms’ indebtedness towards the banks, and

the problem of defining an equilibrium therefore reduces to an analysis of the banks’ attitude towards the debt of the firms (Graziani, 2003, p. 122).

Recent analyses in a Schumpeterian theoretical framework have emphasized that – in the MCA - disequilibrium arises due to the flows of innovations, financed via bank credit. Innovations give rise to discontinuous and qualitative changes, which, according to this view, are the key features of the functioning of a capitalist economy and, at the same time, the conceptual core of the MCA (cf., among others, Fumagalli and Lucarelli, 2008).

#### **4 – The Marxist interpretation**

Marxist scholars has recently deserved significant attention to the *cycle of money capital*, and to its compatibility with the MCA (cf. Bellofiore, 1997; 2009; Bellofiore, in Moseley, ed. 2005). Within this line of research, it is maintained that the MCA can be interpreted in the light of the Marx’s M-C-M’ problem, i.e. the problem of the monetary realization of surplus value. As a matter of fact, particularly in *Capital* book III<sup>6</sup>, there are significant elements of continuity between Marx’s and Keynes’ view (as interpreted in the MCA) on the mechanisms of capitalist reproduction, which can be summarized as follows.

In *Capital* – chapter 22, Marx points out: “interest is merely a part of profit paid [...] by the industrial capitalist to the money-capitalist, the maximum limit of interest is the profit itself, in which case the portion pocketed by the productive capitalist would = 0”. Therefore, the interest rate is a deduction from profits. The problem of the realization of a monetary surplus is clearly addressed in *Capital* – book II (ch.17): “Where does the additional money come from with which to realise the additional surplus-value now contained in the form of commodities?”. Smithin (2009,

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<sup>6</sup> Marx focuses on the credit nature of money and the process by which banks create money also in some articles for *The New York Daily Tribune* and in the *Grundrisse*. See Bellofiore and Realfonzo (in Rochon and Rossi, 2003, pp. 198-218).

p.127), among others, has emphasised that the MCA, and the consequent paradox of profits, re-proposes the Marxian sequence M-C-M' which is "fundamental to the operation of a profit-making capitalist economy"<sup>7</sup>. Accordingly, it can be argued that Marx *sees the problem, although he does not provide a definite solution* (cf. Cencini and Schmitt, 1976; Nell, 1990).

It is important to stress that the basic issues of the MCA are explicitly formulated in *Capital*. Schematically, in chapter 21 – *Capital* book III, Marx addresses the question in this way:

1. "Advanced in the form of money, the capital again returns to the industrial capitalist through the circular process in the form of money"<sup>8</sup>;
2. "The time of return depends on the progress of the process of reproduction";
3. "To return as capital, the advanced sum of value must not only be preserved in the movement but must also expand, must increase in value, *i.e.*, must return with a surplus-value, as  $M + \Delta M$ , the latter being interest or a portion of the average profit, which does not remain in the hands of the operating capitalist, but falls to the share of the money-capitalist";
4. "No such thing as a 'natural' rate of interest exists".

As Graziani (1997a; 1997b [1983]) points out, Marx attributes to money creation on the part of banks a pivotal role in allowing capitalist reproduction, as well as in generating crises<sup>9</sup>. Suzanne De Brunhoff (1973) observes that, although Marx considered *prima facie* money as a good (namely, gold), since the historical production conditions he looked at were based on this monetary institution, he recognized that, at a higher level of abstraction, one can consider the process of money creation on the part of the banking system also deriving from a context where money is a pure symbol. De Brunhoff insists that, for Marx, the process of money creation is strictly linked to social and political power on the part of the Central Bank (and the entire banking system) and, above all, is to be regarded as one of the main causes of economic crises, via *monetary hoarding*, both on the part of financial or industrial capitalists and the State (cf. also Delaplace and Nell, 1996).

In general terms, it is worth noting that – according to the Marxist interpretation of the MCA – *disequilibrium is a key feature of a capitalist monetary economy*, even in the absence of uncertainty, so that Say's Law is definitely rejected. It is here recognized that, since firms can only recoup the total amount of the initial finance, there is the problem of how they can make sufficient revenue not only to pay interest<sup>10</sup>, but also to make profits, thus giving rise to the so-called *paradox of profits*, which, according to this interpretation, is the rationalization of the Marxian problem of the realization of a *monetary surplus* (*i.e.* M-D-M'). Moreover, the failure to realize a monetary surplus should not be seen as a purely logical puzzle<sup>11</sup>. Accordingly, the MCA focuses on a key problem of the capitalist system, namely the problem of *allowing capitalist monetary reproduction*, implying, on the theoretical plane, that aggregate money profits must be positive (see Bellofiore, Forges

<sup>7</sup> On this line of thought, Trigg (2004) suggests inserting the multiplier effect onto the Marxian schemas of reproduction, allowing aggregate money profits to be positive even in the absence of further injection of money. The same result applies in the event of a money circulating at a speed higher than 1 (see Trigg, 2006).

<sup>8</sup> At first glance, Marx addresses the question as follows: "Additional gold must be produced, or, what amounts to the same, a part of the additional product exchanged, directly or indirectly, for gold — the product of countries in which precious metals are mined". This solution can be considered valid only in the very special case where money is gold (which is excluded by Marx himself when addressing the more general case of fiat money) and, under this condition, where mines are available. Of course, this argument reflects the historical conditions when Marx wrote, and cannot be used in the current institutional context. However, as Hein (2002) clarifies, since money, for Marx, is the "universal equivalent", there is no need for it to be a commodity: "What is needed is a socially accepted representative of the universal equivalent ... and its guarantee by social institutions".

<sup>9</sup> See also Graziani (1997a).

<sup>10</sup> It is worth noting that – in this schema – *the interest rate is a "tax on profits"*. Moreover, inflation is not a monetary phenomenon, not being caused by an over-supply of money, but it mainly depends on distribution conflicts.

<sup>11</sup> Note that – on the purely analytical plane – the paradox of profits, as shown among others by Chapman and Keen (2006), emerges only in the case where the monetary circuit is treated in single-period analysis, where no multipliers (either of bank deposits or of investments) exist, and the speed of money circulation is equal to 1. Just for the sake of simplicity, this is the case dealt with here.

Davanzati and Realfonzo, 2000; Forges Davanzati, 2010). One can argue that – depending on historical and social conditions – capitalism solves the problem in different ways, and these ways – not being a mere ‘outside factor’ used as an *ad hoc* assumption in circuitist models – are, as a matter of fact, social devices serving for the reproduction of the system. In this sense, the MCA provides an ‘open’ model, where the closure of the circuit depends on ‘outside factors’ which are historically, institutionally and socially determined, as well as empirically/factually significant. It should be added that – by its very nature - the problem of the realization of a monetary surplus is a macroeconomic problem, which is in line with Kalecki’s view that *capitalist reproduction needs low wages with high consumption* (Kalecki, 1971)<sup>12</sup>.

On the formal plane, the question can be addressed as follows. Assuming that workers have a unitary propensity to consume (and do not decide to keep a portion of their savings in the form of liquid balances), it is shown that *firms as a whole* recoup an amount of money exactly equal to their costs of production for whatever price level, which at the aggregate level equals the money wage bill. This conclusion can be algebraically shown as follows.  $N$  is the volume of employment,  $F$  the so-called initial finance,  $p$  the unitary price,  $C$  the acquired consumer goods,  $R$  firms’ revenues,  $\pi$  aggregate money profits<sup>13</sup>. Initial finance is:

$$F_t = wN \quad [1],$$

while money revenues ( $R$ ) for firms as a whole are:

$$R_t = pC = wN \quad [2]$$

Since, at the aggregate level, firms only pay the money wage bill (changes in the firm sector giving rise to a ‘zero sum game’), money profits for firms as a whole – by abstracting from the cost of debt - are:

$$\pi_t = pC - wN = 0 \quad [3].$$

As regards to the banking system, if  $i$  is the interest rate and  $C_B$  the operative costs of banks (such as the payment of wages to their employees), assumed as given, aggregate bank profits are:

$$\pi_{B,t+1} = iF_{t+1} - C_{B,t+1} \quad [4],$$

where  $F$  is the total amount of bank financing. By contrast to the ‘equilibrium view’, it is emphasized here that the monetary circuit develops over (historical) time, and, as a result, banks are in the position to obtain profits *only when firms have obtained profits*. Accordingly, equation [4] just represents banks’ *potential* profits, while the actual realization of a positive  $\pi_B$  can occur only in the event firms’ money profits are positive<sup>14</sup>. As a result, *it is logically impossible to imagine that*

<sup>12</sup> In this theoretical context, capitalist reproduction requires low (or declining) wages and, at the same time, high (or increasing) total demand. This occurs because while it is profitable for firms – on the microeconomic plane – to cut wages and to oppose public intervention, for firms as a whole high total demand allows the realization of money profits (see Kalecki, 1971).

<sup>13</sup> For the sake of simplicity, it is assumed that public expenditure and taxation are nil, and that the economy considered is a closed economy with one good. The result does not significantly change by removing these restrictive assumptions.

<sup>14</sup> Banks are treated here as firms aiming at obtaining money profits. A more detailed analysis of the competition among banks within the MCA has been provided by Bossone (in Rossi and Rochon, eds., 2003, pp.142 ff.). Note that, in this picture, seignorage on the part of banks (i.e. the possibility of creating money in order to obtain monetary or real profits) is excluded, on the basis of two arguments. First, on the institutional plane, it is maintained that the privilege of

*the closure of the monetary circuit is made possible via banks' expenditure, since banks can spend only in the event firms as a whole have previously gained profits.* As Bellofiore (in Moseley, ed, 2005, p.125) points out: in the MCA “the capitalist process is depicted as a ‘macro’ and ‘monetary’ sequence of successive concatenated phases set in discrete time, rather than timeless simultaneous exchanges”. Accordingly, *structural disequilibrium emerges because capitalist reproduction develops in historical time.*

The Marxist interpretation of the MCA faces two problems, which pertain to the compatibility of this theoretical framework with two fundamental topics of Marx’s theory: namely, the existence of exploitation and the assumption that workers obtain a subsistence wage.

a) *Exploitation in a pure credit economy.* In the basic schema of the MCA, firms as a whole are in the position to obtain monetary profits only in the event that ‘external’ influxes of money are in operation (in particular: public expenditure, positive net exports and/or, as shown below, private indebtedness), for whatever price level. This implies that the money rate of profit is entirely generated *outside the production process.* As Seccareccia (in Rochon and Rossi, eds., 2003, p.178 ff., italics added) emphasizes: “*prices are purely demand-determined and result from a market-clearing process in the context of competitive markets in which no involuntary inventories or finished goods are held*”. This would lead to conclude that variations of the rate of surplus value do not affect monetary profits, insofar as profits are entirely determined by external influx of money and by the interest rate<sup>15</sup>. *Prima facie*, it seems that exploitation – in the Marxian meaning – is irrelevant for firms to obtain money profits, while it is fundamental for firms to gain real profits. By contrast, marxist scholars emphasise that exploitation plays a pivotal role in generating profits within the theoretical framework of the MCA, for two main reasons. Lipietz (1982), Matthews (1996) and Rueten (1995), addressed the problem by emphasizing that *i)* the price level is mainly determined by the money wage rate; *ii)* the money wage rate, in turn, depends on the conflict between capitalists and workers, involving the degree of exploitation; *iii)* in line with Marx, the price level does *not* depend on money supply, being determined by non-monetary force (i.e. class struggle over income distribution, above all)<sup>16</sup>. Quite convincingly, Bellofiore (in Moseley, ed. 2005, p.134 ff.) points out that the problem should be addressed by considering that “Marx’s theory is ... constructed *out of the equilibrium paradigm*” and that competition among firms in extracting relative surplus value is a key feature of Marx’s view of capitalist reproduction. In such a context, “firms may be ranked according to their high, average or low productivity” (id., p.133), and the realization of a monetary surplus crucially depends on the willingness on the part of the individual firm to extract more surplus value than its competitors.

With reference to the dynamics of contemporary capitalism, and the massive increase in private indebtedness, Bellofiore and Halevi (2006) emphasize that ‘new’ forms of exploitation are in operation, by means of the “real subsumption of labour to finance”. In a similar vein, Lapavistas (2009) refers to *financial expropriation*, meaning that exploitation is exercised directly by finance

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seignorage is not admissible in the light of the prevalent ‘rules of game’ of the market economies (cf. Graziani, 2003). Second, if banks were in the position to create money in order to obtain profits, there would be no limit to current money circulation, which could give rise to a radical counterfactual result.

<sup>15</sup> On the formal plane, the question can be addressed as follows. Be  $p$  the unitary price,  $w$  the unitary money wage,  $a$  labour productivity,  $r$  the rate of profits and  $G$  public expenditure. Under the assumption that capitalists advance the sole money wage bill ( $wN$ ), the money rate of profit is:  $r = \frac{\pi}{wN} = \frac{G - iF}{wN}$ . The market price becomes:

$$p = \frac{w}{a}(1+r) = \frac{w}{a} \left[ 1 + \left( \frac{G - iF}{wN} \right) \right].$$

<sup>16</sup> A collateral problem pertains to the following question: what determines the quantity of money that represents an hour of social labour, in a context where it cannot be determined by the gold produced in an hour, as in the case of commodity money? Foley (in Moseley, ed., 2005) suggests considering that it is encapsulated in the MELT. The MELT is the ratio between the total money value added in a given period (MVA) to the current living labour employed (LL), that is: MELT=MVA/LL. See also Dumenil (1980) and Dussel (2001). The debate on this issue remains still open.

over labour, and does not only occur in the production process, also being in operation in the circulation sphere (see also Dutt, 2006) Note that in this theoretical framework, the inverse relationship between the wage rate and the profit rate is indirect, in the sense that as wages increase so does firms' indebtedness towards the banking system, thus reducing their money profits.

b) *The subsistence wage*. As a matter of fact, the existence of a subsistence wage is a theoretical problem in the monetary circuit approach, since if one can admit that the real wage is set by firms at the level corresponding to its subsistence level *in a theoretical context where real wages are advanced*, in a credit economy – where firms advance the *money wages*<sup>17</sup> – the price level is set at the end of the circuit, implying that *the equality between the subsistence wage and the actual real wage can occur only by chance*. The argument runs as follows. Let us assume that both workers and firms know the level of wages corresponding to the subsistence level, due to the prevailing social norms. In this sense, the subsistence wage is conceived as a 'customary' level of wages. If wages are paid in money terms, competition among firms is likely to determine a price level which can fix the actual real wage below (or above) its subsistence level<sup>18</sup>. Moreover, a policy of low money wages is profitable for the individual firm (as well as for firms as a whole) insofar as it increases its competitiveness, via the increase of the surplus value. Otherwise, in normal circumstances, union action can affect money wages, not the price level.

Bellofiore, Forges Davanzati and Realfonzo (2000), in approaching Marx's theory of wages, set out to consider that Marx took this equality as the "general case", i.e. the case where workers' expectations on their future wages exactly meet the firm's decision on the scale and composition of output. This choice can be justified on two grounds. First, Marx wanted to describe capitalist reproduction in its 'pure' form, avoiding the explicit treatment of cases where capitalists violate, as it were, the existing moral codes, being fully aware that wage cutting is the norm in the praxis of capitalists' wage policies. Second, capitalists may find it convenient to respect this rule if they face or expect social conflict and the consequent loss of productivity<sup>19</sup>. A different solution has been recently proposed by Forges Davanzati (2011). Starting from the Marxian view that the subsistence wage is a *historically determined* value, it is argued that – at the beginning of the current production process – it is a datum, reflecting workers' "memory" on their past successes in the class struggle, so that the more frequent these have been, the higher their subsistence level. Therefore, workers get into debt in order to obtain a level of consumption (at least) equal to what they consider the subsistence level.

Since capitalist reproduction in monetary terms requires 'external' influxes of money, a question arises regarding the devices Capital has used in order to achieve this objective. Schematically, two distinct ways are in order. First, under the Keynesian regime, policies of deficit spending allowed capitalists to obtain money profits via increasing *public* indebtedness. Second, under the neo-liberal regime, the same result has been achieved via indebtedness on the part of workers. Notice also that, though on a purely formal plane, indebtedness on the part of the State and on the part of households gives rise to the same result as regards the magnitude of aggregate money profits two basic differences should be emphasized. First, the increase in public expenditure produces an increase in employment, not only due to the standard Keynesian multiplier mechanism, but also because the State can act as employer of last resort, while the increase in private indebtedness may increase employment only in the event that private firms react to the expansion of demand by increasing production, or – as stated here – if they work with unused capital (see Forges Davanzati, Pacella

<sup>17</sup> As Marx (1994, pp.82-83) points out: "In every country in which the capitalist mode of production reigns, it is the custom not to pay for labour power before it has been exercised for the period fixed by the contract [...]. In all cases, therefore, the use-value of the labour power is advanced to the capitalists".

<sup>18</sup> Of course, this happens when firms do not act as a consolidated sector. If this is the case, similar to the situation where one firm exists, it may be convenient for firms to pay wages according to their subsistence level.

<sup>19</sup> Note that social conflict manifests itself mainly in the form of 'deviance' (crimes, in particular), thus generating an increase of the number of workers employed to prevent or repress it. Bowles and Jayadev (2007) find that about 1/5 of US workforce is employed in unproductive activities connected to this.

and Realfonzo, 2009). Second, a mode of capitalist reproduction based on private indebtedness proves intrinsically unsustainable in a long-run perspective, while, as shown by Pasinetti (1998), there are no definite limits to the increase in public debt.

## 5 – Concluding remarks

This paper provided a critical assessment of the equilibrium problem in the MCA. Three distinct approaches have been analysed. The equilibrium is conceived here as a condition where – starting from the initial finance banks transfer to firms – firms are able to repay their debt, interest included. First, the view of the Dijon School has been analysed. It is based on the belief that the MCA is consistent with Say's Law and that – in the absence of external interventions – a pure credit economy spontaneously generate a condition where no debt exist. Second, the view that uncertainty plays a pivotal role in contemporary economies has been discussed. According to this view, the 'closure' of the monetary circuit implies the existence of a 'normal' degree of indebtedness of firms towards the banking system. Third, the Marxist interpretation has been examined. It interprets the MCA as the rationalization of the "cycle of money capital", as described by Marx. According to this interpretation, capitalist reproduction in money terms requires 'external' influxes of money and, in recent history, capitalism has reached this objective mainly by means of Keynesian policies or – in the neo-liberal regime – via private indebtedness.

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